

IBM CICS Performance Analyzer for z/OS



User's Guide

Version 5 Release 1

IBM CICS Performance Analyzer for z/OS



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Version 5 Release 1

Note

Before using this information and the product it supports, read the information in "Notices" on page 791.

This edition applies to Version 5 Release 1 of IBM CICS Performance Analyzer for z/OS (product number 5655-Y23) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC34-2815-00. The technical changes for this edition are summarized under Summary of changes and are indicated by a vertical bar in the left margin.

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Summary of changes

Significant changes in this edition are summarized here, and marked by a vertical bar in the left margin.

June 2013: updates to CICS PA V5.1

APAR PM84724 includes the following features and changes:

Service unit (SU) support

You can specify a conversion factor to convert transaction CPU time to a service unit value. This allows comparison of workloads on different processors in terms of service units.

New CICS Transaction Gateway Statistics batch reports

Configuration Summary
Client Workload report
CICS® Workload report

New CICS PA-specific derived percentage fields

New Summary fields provide transaction specialty processor utilization as a percentage of CPU consumption.

New sample report forms

New SUMMARY form CPUSPSM1: Transaction CPU Analysis (V5)

READ2EOF profile option setting

This setting is now honored by the HDB Load, RUN from Report Form, and Transaction Profiling features.

FIND and LOCATE primary commands

These commands are now available in prompt lists of report forms and object lists in Report Sets dialogs.

Previous changes

This section outlines what was new and changed in previous editions.

December 2012: CICS PA V5.1

CICS Performance Analyzer for z/OS®, V5.1 includes the following features and changes:

Support for CICS Transaction Server V5.1

CICS PA supports SMF 110 records created by CICS TS V5.1.

New CICS PA-specific derived fields

These include new transaction rate summary fields (RATEMIN and RATESEC), CPU time fields, and fields relating to CICS LM locking.

Plug-in templates for all supported CICS TS releases

New HDB templates for all supported CICS TS releases are provided for use with the CICS PA plug-in for CICS Explorer®.

CICS Transaction Gateway Statistics batch reports

Activity Summary report and Usage and Capacity report

WebSphere MQ V7.1 Support

CICS PA supports SMF 116 records created by WebSphere MQ V7.1.

Support for CICS Transaction Gateway V8.1 and V9.0

CICS PA supports SMF 111 records generated by CICS TG for z/OS V8.1 and V9.0, which are known by CICS PA as CICS TG VRM 810 and 900 respectively.

Log stream support

Support for SMF log streams throughout CICS PA, including Report Sets SMF input, Transaction Profiling, Shared System Definitions, HDB Load, and Statistics online reporting.

Facility for removing data loaded to CICS PA DB2 tables

The HDB Housekeeping function can now delete expired DB2 data. The HDB definition allows the specification of separate retention periods for DB2 data and HDB container data sets.

CICS Statistics online reporting - filtering of SMF files

For SMF files defined in Personal Systems and Shared Systems, only the SMF files that meet the APPLID and Image filter criteria are selected. The remaining filter criteria are applied to limit the statistics intervals. Filter criteria are now automatically applied to option 6.4 Process SMF File.

New sample report forms

These can be tailored to help in areas such as Transaction CPU analysis, CICS Lock Delay analysis, MAXTASKS analysis, Storage analysis, CICS TCB Usage and Delays, and URIMAP analysis.

ISPF dialog enhancements

- Ability to merge personal and shared system definitions. This allows JCL generation to combine the selected files from both system types without the need to duplicate definitions.
- New option 5 File Selection on the Profile Options Menu allows you to specify preferences for working with personal and shared system definitions and log streams.
- HDB default collection settings for statistics reports.
- Ability to initialize a new Object List or Resource List using a sample list.
- HDB Register renamed to CICS PA Repository.

CICS PA V5.1 includes all new features that were introduced in CICS PA V3.2 through service updates. For details, see "Previous changes" on page ix.

June 2011: updates to V3.2

APAR PM30692 includes the following new features and changes:

Support for CICS Transaction Server V4.2

All CICS PA reports, HDB, and the ISPF dialog support CICS Transaction Server for z/OS (CICS TS) V4.2, which is known by CICS PA as CICS Version 670.

New Transaction Tracking List report and Summary report

CICS TS V4.2 introduces Previous Hop (PH) data to the CMF record. CICS PA provides a new Transaction Tracking List report and Transaction Tracking Summary report to exploit these fields and the originating transaction data fields that were introduced in CICS TS V3.2.

Two new CICS PA-specific fields are available for use in the new reports:

- OSLATNCY reports the latency since the start of the originating transaction.

- PHLATNCY reports the latency between the start times of the current transaction and the previous hop transaction.

Sample Statistics Alert definitions

Two new sample Alert Definitions, CTSSERVR and CTGSAMPL, are provided for use when defining statistics alerts. The two existing sample Alert Definitions KEYALERT and SAMPLES have been updated and renamed CTSKEY and CTSSAMPL.

New sample Report Forms

Eleven new sample Report Forms PHCSUM1 to PHPSUM4 are provided to help you analyze transaction flow using the new CMF Previous Hop data.

Run reports directly from a Report Form

New primary commands RUN and JCL enable you to run reports directly from a Report Form.

Support for generic APPLID in HDB definition

HDB definition now accepts masking in the APPLID field.

Support for DB2® 10 for z/OS

CICS PA now supports DB2 10 for z/OS.

December 2010: CICS PA V3.2

CICS Performance Analyzer for z/OS, V3.2 includes the following features and changes:

New CICS TS and CICS TG statistics data available through CICS Explorer

In addition to the current Explorer Summary table, the CICS PA plug-in for CICS Explorer can now source CICS Statistics and Statistics Alerts data. The additional data is made available through the following facilities:

- New fields in the HDB definition: Explorer, a flag to identify HDBs intended for the CICS PA plug-in, and Qualifier, used to associate related HDBs/DB2 tables.
- Use of a report set or the HDB Load dialog to load the required data into the associated HDBs and also to load the HDB updates into their associated DB2 tables.
- The manifest, which is a catalog of HDBs that are associated with a qualifier and for which the Explorer indicator is set.

Capture statistics alerts in HDB

Statistics Alert reporting enables you to report on the statistics that match specified conditions. CICS PA now supports specifying an alert definition in the statistics HDB definition. You select the required Statistics reports to be collected in this HDB. When a CICS TS or CICS TG alert report is activated to collect in this HDB, you can use a new line action called AO (Activate Alert-only collection) to collect only the reports that related to this Alert. "Alert only" reports are only collected if Alert is triggered.

You can collect records that trigger alert conditions in the CICS TS and CICS TG Alert reports, or restrict existing reports to only those records which triggered alert conditions, or you can do both. Where both the alert and the original report record are collected you can hyperlink between them by use of a PF key.

Output batch reports as Portable Document Format (PDF) files

The new z/OS UNIX utility sysout2pdf converts plain text batch reports generated by CICS Performance Analyzer for z/OS into Adobe Portable Document Format (PDF) files. You can write plug-in filters for sysout2pdf

to manipulate the report contents, highlight text, or add PDF navigation features such as bookmarks. You can also use `sysout2pdf` to e-mail the PDF. See *Using sysout2pdf to output batch reports as PDF*.

New publication: CICS PA *Getting Started Guide*, SC34-2817-01

This is intended to help new users to understand the main CICS PA concepts and to become productive with the ISPF dialog interface and generating CICS PA reports.

Support for CICS Transaction Gateway V8.0

CICS PA supports SMF 111 records generated by CICS TG for z/OS V8.0, which is known by CICS PA as CICS TG VRM 800.

Dropping support for CICS Transaction Server V2.2 and V2.3

CICS PA has dropped support for SMF records created by CICS TS V2.2 and V2.3. CICS PA V3.2 supports CICS TS V3.1 and later. Historical data from CICS TS V2.2 systems is still supported.

CICS PA V3.2 includes all new features that were introduced in CICS PA V3.1 through service updates.

April 2010: updates to V3.1 for Performance Alerts

APAR PM04580 introduces Performance Alerts in CICS Performance Analyzer for z/OS V3.1, and includes the following new features and changes:

Performance Alerts

Allow you to compare CICS transaction performance against user-defined levels of acceptable performance. A Performance Alert Definition specifies a list of CICS resources to be monitored or managed, together with thresholds that benchmark expected levels of performance. The reports apply to CMF data only. You can report Performance Alerts in various ways, including By Transaction and By Transaction Summary.

Resource Definitions

Primary menu option 9 now invokes the Resource Definitions menu. It includes the options previously available from the Application Grouping menu which allowed you to define Resource Lists and Application Groups. A third option has been added to allow you to define Performance Alerts.

Copy alert definitions

You can now copy definitions of Statistics Alerts and Performance Alerts to the same or another repository.

Report Forms

Report Forms have been enhanced to enable Performance Alert reporting while utilizing the flexibility of Forms. List and Summary Report Forms now allow the SEV function for alert reporting fields. Existing List Forms will be automatically upgraded next time you edit them to include the new Fn (Function) column required for the new alert SEV function. In addition, the Summary Report Form supports the new ALERT field name.

Report Sets

Performance List and Summary report and extract specifications have been enhanced to include predefined Performance Alerts to work together with, or instead of, Report Forms.

Also, you can request an interval-based Performance Summary report or extract to add or override the Form summary key fields without altering the underlying Report Form.

Sample JCL

Four new JCL members are provided in the CICS PA sample library, SCPASAMP. The new sample jobs are CPAPALST, CPAPASUM, CPAPAXTL, and CPAPAXTS to request a List or Summary report or extract using pre-defined Performance Alerts.

October 2009: updates to V3.1

Contains updates for the following new feature introduced by APAR PK95922:

Extract CICS statistics to CSV files directly from SMF files

You can now extract CICS statistics to comma-separated value (CSV) files directly from SMF files. These files can be imported into PC spreadsheet or database tools for further processing.

In the Report Sets panel, select the new Statistics option from the Extracts category. The subsequent Statistics Extract panels allow you to select the CICS statistics that you want to extract. These panels generate JCL containing the new CICSPA command operand EXTRACTSTATISTICS. For details, see Statistics extract

The corresponding extract for performance data, previously known as the Export Extract, has been renamed to Performance Data Extract (or simply Performance Extract). Similarly, Export in the Extracts category of a Report Set has been renamed to Performance. The CICSPA command operand EXPORT is still supported, but is now deprecated in favor of the new synonym EXTRACTPERFORMANCE.

August 2009: updates to V3.1

Contains updates for fixes and new features introduced by APAR PK90007:

New Distributed Program Link (DPL) Usage Summary and List reports

CICS TS V4.1 introduces new transaction resource class data fields for distributed program links (DPLs). CICS PA provides new DPL Usage Summary and List reports for these fields. For details, see Transaction Resource Usage reports *Transaction Resource Usage reports*.

Transaction Resource Usage List report: now includes originating transactions

If the APPLID or the task number of a transaction, or both, do not match its originating transaction, then the Task Identification section of the Transaction Resource Usage List report contains a second line that describes the originating transaction. For details, see the *Report Reference*.

Record Selection extract: support for identity class data

CICS TS V4.1 introduces a new monitoring identity class data record (SMF 110 subtype 1, class 6). You can now use CICS PA to extract these records from an SMF file, optionally compress them, and then save them to another file for future processing. For details, see *Record Selection extract*.

Cross-System Work Extended report: support for unit-of-work post-processing Performance Selection Criteria

The LISTX operand of the CICSPA batch command now supports the SELUOW suboperand. This means that you can now select the units of work that you want to include in a Cross-System Work Extended report.

RECCOUNT field: now available in Performance Selection Criteria

You can now use the field RECCOUNT (CICS field ID: PERRECNT DFHCICS A131) in Performance Selection Criteria. You can also now use RECCOUNT as a sort field in the List Extended report.

Documentation update: suppressing default fields in Performance Summary reports and extracts

Customizing or suppressing default fields clarifies why, in some situations, a Performance Summary report or extract contains fields that you have not specified in the FIELDS operand.

Documentation update: how CICS PA calculates peak percentiles

The description of the item **nn** in *SUMMARY(FIELDS* clarifies how CICS PA calculates peak percentiles, and why these values are accurate only if your data is normally distributed.

May 2009: CICS PA V3.1

CICS Performance Analyzer for z/OS V3.1 includes the following features and changes:

Statistics alert reporting

Statistics alert reporting enables you to define conditions, in terms of CICS Transaction Server statistics or CICS Transaction Gateway statistics field values, that interest you. You can then use those conditions to report on statistics stored in SMF files or historical databases. For details, see Chapter 14, “Statistics alert reporting,” on page 353.

Support for CICS Transaction Server V4.1

All CICS PA reports, HDB, and the ISPF dialog support CICS Transaction Server for z/OS (CICS TS) V4.1, which is known by CICS PA as CICS Version 660.

Support for CICS Transaction Gateway V7.2

CICS PA support for CICS Transaction Gateway statistics (SMF type 111 records) has been enhanced to support CICS Transaction Gateway V7.2.

Dropping support for CICS TS V1.3 and V2.1

CICS PA has dropped support for SMF records created by CICS TS V1.3 and V2.1. CICS PA V3.1 supports CICS TS V2.2 and later.

CICS PA plug-in: documentation, sample report forms, and DB2 view definition

To create comma-separated value (CSV) files for use with the CICS PA plug-in for the CICS Explorer, use the sample summary report form EXPLORE3 (for CICS TS V3) or EXPLORE4 (for CICS TS V4).

To create a DB2 view for use with the CICS PA plug-in, use member CPAXPLRV of the CICS PA sample library (SCPASAMP).

The CICS(r) PA plug-in for CICS Explorer explains how to CICS PA to work with the CICS Explorer.

Repository data set name on Control Data Sets panel

You can now specify the Repository data set name on the CICS PA Control Data Sets panel (CICS PA dialog option 0.3).

z/OS V1.10 users: apply fix for DFSORT APAR PK80962

Without this fix, DFSORT can produce system abend SA78-10 in CICS PA.

Terminology: “shared object lists” now “resource lists”

Shared object lists, previously also known as “HDB object lists”, are now known as *resource lists*. Object lists, sometimes previously also known as “personal object lists”, remain as object lists. For a comparison of these types of list, see “Object Lists versus Resource Lists” on page 325.

Part 1. Introduction

These topics introduce you to CICS Performance Analyzer for z/OS, its main concepts and components, and how to install it.

Chapter 1. Overview

This chapter provides a brief introduction to CICS PA. It describes the reports and extracts that you can request and the types of data they process. It also describes the historical database facility.

What is CICS PA?

CICS Performance Analyzer for z/OS (CICS PA) is a reporting tool that provides information on the performance of your CICS systems and applications, and helps you tune, manage, and plan your CICS systems effectively. CICS PA also provides a historical database facility to help you manage CICS statistics and performance data for your CICS transactions.

CICS PA is not an online monitoring tool. It produces reports and extracts using data normally collected by your system in MVS™ System Management Facilities (SMF) data sets and log streams:

- CICS Monitoring Facility (CMF) performance class, exception class, and transaction resource class data in SMF 110 records
- CICS statistics and server statistics data in SMF 110 records
- CICS Transaction Gateway statistics data in SMF 111 records
- DB2 accounting data in SMF 101 records
- WebSphere® MQ accounting data in SMF 116 records
- System Logger data in SMF 88 records
- IBM® Tivoli® OMEGAMON® XE for CICS on z/OS (OMEGAMON XE for CICS) data in SMF 112 records, containing transaction data for Adabas, CA-Datcom, CA-IDMS, and Supra database management systems

It is designed to complement the CICS-supplied utilities and sample programs such as DFH\$MOLS, DFHSTUP, and DFH0STAT.

CICS PA can help:

- System Programmers to track overall CICS system performance and evaluate the results of their system tuning efforts
- Application Programmers to analyze the performance of their applications and the resources they use
- Database Administrators to analyze the usage and performance of database systems such as IMS™ and DB2
- MQ Administrators to analyze the usage and performance of their WebSphere MQ messaging systems
- Managers to ensure transactions are meeting their required Service Levels and measure trends to help plan future requirements and strategies

CICS PA reports all aspects of CICS system activity and resource usage, including:

- Transaction response time
- CICS system resource usage
- Cross-system performance, including multi-region operation (MRO) and advanced program-to-program communication (APPC)
- CICS Business Transaction Services (BTS)

- CICS Web support
- External subsystems, including DB2, IMS, and WebSphere MQ
- CICS transaction usage of database management systems that are monitored by OMEGAMON XE for CICS: Adabas, CA-Datcom, CA-IDMS, and Supra
- System Logger performance
- Exception events that cause performance degradation
- Transaction file and temporary storage usage

Data input

The primary data source for CICS PA is the data collected by the CICS Monitoring Facility.

CMF data (SMF type 110)

CMF data is written to the MVS System Management Facilities (SMF) data set as SMF type 110 records, subtype 1. Subsequently the data can be made available offline for analysis by CICS PA.

There are three types, or “classes”, of CMF data analyzed by CICS PA:

CMF Performance class data

Detailed transaction-level information, such as the processor and elapsed time for a transaction, or the time spent waiting for I/O.

CMF Exception class data

Information about exceptional conditions suffered by a transaction, such as queuing for file strings, or waiting for temporary storage. This data highlights possible problems in system operation.

CMF Transaction resource class data

Additional transaction-level information about individual resources accessed by a transaction. Currently, the transaction resource class covers file and temporary storage resources only.

To understand the function of CICS PA and to interpret the reports and extracts properly, some knowledge of the CMF data records and their relationship to one another is necessary. For a complete description of CMF data fields and to understand how the fields are collected, see the *CICS Performance Guide*.

Note: Take care when using the information in this section to analyze monitoring data that is appropriate to your release of CICS. You can use Cross-reference: CMF field ID × CICS version to determine in which CICS release particular monitoring fields are available.

Another major data source for CICS PA is:

CICS statistics and server statistics data

SMF type 110 records, subtypes 2, 3, 4, and 5.

CICS Transaction Gateway statistics

SMF type 111 records.

Other data sources

CICS PA also analyzes the following types of data:

DB2 accounting data

SMF type 101 records written by DB2 on behalf of CICS attached tasks.

WebSphere MQ accounting data

SMF type 116 records written by WebSphere MQ on behalf of CICS attached tasks.

System Logger data

SMF type 88 records written by the MVS System Logger on behalf of CICS Transaction Server journaling.

OMEGAMON XE for CICS data

SMF type 112 records written by OMEGAMON XE for CICS to log CICS transaction usage by the database management systems Adabas, CA-Datcom, CA-IDMS, and Supra.

The **CICS PA Historical Database** is a repository for CMF performance class data, CICS statistics and server statistics data, and CICS Transaction Gateway statistics data.

CICS PA reports and extracts

CICS PA provides an ISPF menu-driven dialog to help you request and submit your reports and extracts. The available reports and extracts are grouped by category.

A brief description of the report categories and the reports and extracts follows. For a detailed discussion, see Chapter 8, "Report Sets," on page 145.

Performance reports

The Performance reports are produced from CMF performance class data.

Performance List

Lists in detail the CMF performance class data.

See "Performance List report" on page 169.

Performance List Extended

Sorts and lists in detail the CMF performance class data.

See "Performance List Extended report" on page 177.

Performance Summary

Summarizes the CMF performance class data.

See "Performance Summary report" on page 179.

Performance Totals

Provides totals and averages of the CMF performance class data.

See "Performance Totals report" on page 182.

Wait Analysis

Summarizes transaction activity by wait time. For each Transaction ID, the resources that cause this transaction to be suspended are shown in the order of most to least expensive. This report highlights the system resource bottlenecks that might be causing bad response time. More detailed analysis can then be performed, focusing on the problem resources identified.

See "Wait Analysis report" on page 183.

Transaction Profiling

Compares two sets of CMF performance class data.

See “Transaction Profiling report” on page 185.

Cross-System Work

A detailed listing of segments of work performed by the same or different CICS systems via transaction routing, function shipping, or distributed transaction processing on behalf of a single network unit-of-work id.

See “Cross-System Work report” on page 196.

The format can be tailored to produce the Cross-System Work Extended report (see Figure 202 on page 419).

Transaction Group

A detailed listing of segments of work performed by the same or different CICS systems on behalf of a single transaction group id.

See “Transaction Group report” on page 198.

BTS (CICS Business Transaction Services)

A detailed listing of the segments of work performed by the same or different CICS systems on behalf of a single CICS Business Transaction Services (BTS) process.

See “BTS report” on page 200.

Workload Activity

Provides a transaction response time analysis by MVS Workload Manager (WLM) service and report class. This can be used in conjunction with the z/OS Resource Measurement Facility (RMF™) workload activity reports to understand from a CICS perspective how well your CICS transactions are meeting their response time goals. The Workload Activity List report is a cross-system report that correlates CMF performance class data from single or multiple CICS systems for each network unit-of-work. The Workload Activity Summary report summarizes response time by WLM service and report classes.

See “Workload Activity report” on page 201.

Transaction Tracking List

Provides performance data for groups of related transactions. This allows monitoring and measurement of transaction performance from the perspective of transaction flow. The report shows how a process flowed from one transaction or system to the next and back again. The report combines CMF records for each originating transaction and its subordinate (group) transactions.

See “Transaction Tracking List report” on page 203.

Transaction Tracking Summary

Provides performance data for groups of related transactions. The report combines CMF records for each originating transaction and its subordinate (group) transactions. The summarized data is presented on a single line for each grouped Originating transaction.

See “Transaction Tracking Summary report” on page 205.

Exception reports

The Exception reports are produced from CMF exception class data.

Exception List

Lists in detail the CMF exception class data.

See “Exception List report” on page 207.

Exception Summary

Summarizes the CMF exception class data.

See “Exception Summary report” on page 209.

Transaction Resource Usage reports

The Transaction Resource Usage reports are produced from CMF performance class and transaction resource class data. The reports in this category are:

File Usage Summary

Provides two summaries of file usage:

- The Transaction File Usage Summary report summarizes File usage by Transaction ID. For each Transaction ID, it gives Transaction and File statistics followed by a breakdown of File usage for each File used.
- The File Usage Summary report summarizes File activity. For each File, it gives a breakdown of File usage by Transaction ID.

See “File Usage Summary report” on page 210.

Temporary Storage Usage Summary

Provides two summaries of temporary storage usage:

- The Transaction Temporary Storage Usage Summary report summarizes Temporary Storage usage by Transaction ID. For each Transaction ID, it gives Transaction and Temporary Storage statistics followed by a breakdown of Temporary Storage usage for each Temporary Storage Queue used.
- The Temporary Storage Usage Summary report summarizes Temporary Storage activity. For each Temporary Storage Queue, it gives a breakdown of Temporary Storage usage by Transaction ID.

See “Temporary Storage Usage Summary report” on page 213.

DPL Usage Summary

Provides two summaries of distributed program link (DPL) usage:

- The Transaction DPL Usage Summary report summarizes DPL usage by Transaction ID. For each Transaction ID, it gives Transaction and DPL statistics followed by a breakdown for each DPL used.
- The DPL Usage Summary report summarizes DPL activity. For each DPL, it gives a breakdown of DPL usage by Transaction ID.

See “Distributed Program Link Usage Summary report” on page 216.

Transaction Resource Usage List

Provides a list of all Transaction resource class records in the sequence that they appear in the SMF file. It gives Transaction information, detailing their individual Temporary Storage, File, and DPL usage. This report processes only transaction resource class data, not performance class data.

See “Transaction Resource Usage List report” on page 218.

Statistics reports

The Statistics reports are produced from CICS statistics data stored in SMF files.

Alert Process CICS Transaction Server and CICS Transaction Gateway statistics records.

See Chapter 14, “Statistics alert reporting,” on page 353.

In addition to producing the batch Statistics Alert reports, you can view statistics using the CICS PA dialog and extract statistics to delimited text files. See *Using the Statistics reporting dialog* and “Statistics extract” on page 272.

CICS Transaction Gateway

Provide reporting of CICS Transaction Gateway Statistics SMF 111 records.

- The Activity Summary report provides a high-level overview of Gateway daemon address spaces and their workloads.
- The Usage and Capacity report summarizes Gateway daemon resource usage over time.
- The Configuration Summary report provides a snapshot of key configuration values for each active Gateway daemon in your system. You can view and compare configuration changes over time.
- The Client Workload report provides a high-level overview of the application workload broken down by Gateway daemon instance. This report can give insight into application usage patterns over time.
- The CICS Workload report provides an overview of workload between Gateway daemons and their connected CICS regions. This report allows you to identify which CICS regions are most heavily loaded.

See “CICS Transaction Gateway reports” on page 223.

Subsystem reports

The Subsystem reports are produced from database subsystem accounting data stored in SMF files. (Note that the DB2 report also processes CMF performance class data whereas the WebSphere MQ and OMEGAMON reports do not.)

DB2 Correlates CICS CMF performance class (SMF 110) records and DB2 accounting (SMF 101) records by network unit-of-work to produce a consolidated and detailed view of DB2 usage by your CICS systems. The DB2 report enables you to view CICS and DB2 resource usage statistics together in a single report. The DB2 List report shows detailed information of DB2 activity for each transaction. The DB2 Summary reports summarize DB2 activity by transaction.

See “DB2 report” on page 226.

WebSphere MQ

Processes WebSphere MQ accounting (SMF 116) records to provide comprehensive performance analysis and resource usage for your CICS transactions that use MQ.

The WebSphere MQ List report provides a trace of MQ accounting records, reporting the comprehensive performance contained in subtype 0, 1 and 2 records. The WebSphere MQ Summary report provides two summarized views of your MQ transactions:

- Summary by CICS Transaction ID, showing the MQ system and queue resources use
- Summary by WebSphere MQ Queue name, showing the Transactions they service and resources used

See “WebSphere MQ report” on page 231.

OMEGAMON

Processes OMEGAMON XE for CICS (SMF 112) records to produce a detailed view of how CICS transactions use the following types of database management system (DBMS): Adabas, CA-Datcom, CA-IDMS, and Supra.

For each type of DBMS, you can request up to three reports:

- A List report, showing database usage for each transaction.
- A Transaction Summary report, showing database usage summarized by transaction ID.
- A Database Summary report, showing database usage summarized by database.

The information in each report varies depending on the DBMS, but typically includes elapsed times and counts for each method that is used by transactions to access a database, such as read, write, add, update, and delete.

See “OMEGAMON reports” on page 235.

System reports

The System reports are produced from system data stored in SMF files. Note that the System Logger report does not process CMF performance class data. There is only one report in this category:

System Logger report

Processes System Logger (SMF 88) records to provide information on the System Logger logstreams and coupling facility structures that are used by CICS Transaction Server for logging, recovery and backout operations. The report can assist with measuring the effects of tuning changes and identifying Logstream or Structure performance problems. The System Logger List report shows information on Logstream writes, deletes, and events, as well as Structure Alter events for each SMF recording interval. The System Logger Summary report summarizes Logstream and Structure statistics so you can measure Logger performance over a longer period. These reports help to provide a comprehensive analysis of the logstream activity for all your CICS systems.

See “System Logger report” on page 239.

Performance Graph reports

The Performance Graph reports are graphical-style reports produced from CMF performance class data. The graph reports can be useful as daily indicators of system activity, as well as for analyzing particular performance problem areas in your CICS system.

Transaction Rate

A set of two graphs illustrating the average response time and the number of transactions that completed in a specified time interval.

See “Transaction Rate Graph report” on page 244.

Transaction Response Time

A set of two graphs illustrating the average and maximum response time, respectively, for all transactions that completed in a specified time interval. See “Transaction Response Time Graph report” on page 246.

Extracts

While the other categories produce reports and graphs intended for human readers, the extracts produce data sets intended for use by software applications, including CICS PA itself.

Cross-System Work

This data set is useful for cross-system analysis. CICS PA allows you to merge CMF performance class data from segments of work performed by the same or different CICS systems via transaction routing, function shipping, or distributed transaction processing on behalf of a single network unit-of-work ID. This Cross-System Work data set can be used as input to CICS PA Performance Reports such as the List, Summary, and Totals reports to monitor the total amount of resources used by a transaction within a single CICS system or across multiple CICS systems.

See “Cross-System Work extract” on page 248.

Performance Data

This data set contains a selected subset of CMF performance class data, extracted and formatted as a delimited text file. This file can then be imported into a DB2 database or PC spreadsheet application for further reporting and analysis. The extract records have a default format which includes all the clock fields, or the format can be tailored like the Performance List or Performance Summary reports.

See “Performance Data extract” on page 255.

Record Selection

This data set contains only the SMF record types that are of interest to you. You can extract any combination of the SMF record types supported by CICS PA. The extract file can then be used as input to CICS PA, allowing for more efficient reporting.

See “Record Selection extract” on page 261.

HDB Load

The HDB Load is a facility that loads SMF data into a Historical Database (HDB). This same facility is available from Primary Menu option 5 Historical Database, where the full set of HDB reporting facilities is available. However, from Report Sets you have the advantages of batch JCL generation and multiple load requests supported in the one job. A Recap report containing processing statistics is always printed at the end of load processing.

See “HDB Load” on page 266.

System Logger

This data set contains a selected subset of System Logger data, extracted and formatted as a delimited text file. This file can then be imported into a DB2 database or PC spreadsheet application for further reporting and analysis.

See “System Logger extract” on page 269.

Statistics

This data set contains CICS statistics, extracted and formatted as a delimited text file. This file can then be imported into a DB2 database or PC spreadsheet application for further reporting and analysis. The format of the extract records depends on the CICS statistics ID of the extracted data: each statistics ID defines its own set of fields.

See “Statistics extract” on page 272.

The CICS PA dialog

The CICS PA dialog is an ISPF-based menu-driven dialog that helps you create, maintain and submit your report requests. It also helps you to specify your input data and tailor requests specific to your requirements without you having to understand the SMF data.

CICS PA Primary Option Menu

```
File Options Help
-----
V5R1M0          CICS Performance Analyzer – Primary Option Menu
Option ==> _____

0 CICS PA Profile      Customize your CICS PA dialog profile
1 Systems              Specify Systems, SMF Files, and Groups
2 Report Sets         Request and submit reports and extracts
3 Report Forms        Define Report Forms
4 Object Lists        Define Object Lists
5 Historical Database  Collect and process historical data
6 Statistics          Report CICS Statistics
7 Profiling           Request Transaction Profiling
8 Resource Definitions Define CICS PA resources
X Exit               Terminate CICS PA
```

Figure 1. CICS PA Primary Option Menu

The following steps introduce the primary menu options and explain briefly how to use the dialog to start reporting:

1. Define your CICS systems and their SMF files. When your CICS systems are defined, you can start reporting against them. You can automate this process by using the Take-Up facility. CICS PA extracts the relevant information about your CICS systems from your SMF files or log streams. If you define your own CMF user fields, then specify your MCT definition. The user fields can then be incorporated into your CICS PA reports.

Related CICS systems, such as systems that connect via IRC/MRO, ISC/APPC, or IPIC, can be grouped together for reporting purposes. For example, assigning the CICS MRO systems (CICSPTOR, CICSIPAOR, CICSPPFOR, CICSPPDOR) and DB2 subsystem (DB2P) to a Group allows you to report on these systems as a single entity. CICS PA reports can then show a complete end-to-end picture of your MRO transaction activity, incorporating detailed DB2 statistics derived from the DB2 accounting data of subsystem DB2P.

You can use the Systems menu to define both Personal System Definitions and Shared System Definitions. Personal System Definitions are typically maintained in a Personal Profile Library and used by an individual for reporting. Shared System Definitions are typically maintained by a central administrator in the Repository and used by all users.

2. Define Report Sets to build, submit, and save your report requests. A Report Set contains the set of reports and extracts that you want to run in a single job. Simply select the ones you require and submit.

Specify Selection Criteria to filter the input records to report only the information that you are interested in. For example, you can specify Selection Criteria to restrict reporting to:

- A particular date/time range
- A group of related Transaction IDs

- Transaction response times that exceed your thresholds

Run your Report Sets (or individual reports or extracts). The CICS PA dialog builds the JCL and commands to produce the reports and extracts. You can edit these jobs, or you can write your own jobs.

3. Define Report Forms to tailor the format and content of your reports and extracts. A simple to use editor allows you to design your own report by selecting the required CMF fields. Most CMF fields can be selected for reporting, and detailed explanations of each CMF field are available from the dialog. A comprehensive set of Sample Report Forms is provided to help you tailor your reports and extracts.
4. Define Object Lists to help you specify values for filtering and grouping objects such as transaction IDs and terminals. Object Lists are used when specifying Selection Criteria for reports and extracts.
5. Define and maintain Historical Databases (HDBs) as repositories of performance data. Generate reports against your HDBs or export HDB data to DB2 for further manipulation and analysis.
6. Report on statistics from eligible SMF files or HDBs, or create and maintain Statistics Alert definitions (required for Statistics Alert reports).
7. Request a Transaction Profiling report (you can also request this in a Report Set, using option 2).
8. Define CICS PA resources, including Resource Lists, Application Groups, Performance Alerts, and CPU Service Unit Conversion Factors.

CICS PA Profile

This facility allows you to customize your CICS PA user profile, which includes:

- CICS PA dialog settings such as the name of your Personal Profile Library (where personal system definitions are stored), your preferred date format, and the job card CICS PA is to use when generating JCL.
- The allocation attributes of data sets that might need to be created during Report Set processing. CICS PA uses these when generating JCL.
- Control data sets: the data sets to use for Report Sets, Report Forms, Object Lists, and the Repository.
- DB2 settings, for exporting data to DB2 tables.
- File Selection options: which system definitions (personal or shared or both) to use at run time, and options for using log streams across CICS PA.

You can bypass this menu option because CICS PA uses defaults and prompts you if and when further information is required.

System Definitions

Use System Definitions to define:

- CICS systems (including CICS Transaction Gateway systems) and SMF files that you want to report against
- DB2 subsystems and SMF files for the DB2 report and Record Selection extract
- MQ subsystems and SMF files for the WebSphere MQ report and Record Selection extract
- System Loggers and SMF files for the System Logger report and Record Selection extract

You can specify SMF data sets for each system (CICS, DB2, MQ, Logger) or for each MVS system (image) where they run. In addition you can define groups of systems for reporting purposes, such as those systems that connect via IRC/MRO, ISC/APPC, or IPIC.

Your System Definitions are then used in the following ways:

- By specifying the Systems (or Groups) in your Report Sets, CICS PA can determine the related files (and, in the case of shared systems, log streams) to include in Report Set JCL generation.
- By specifying a CICS APPLID when creating Report Forms and HDB Templates, CICS PA can determine the user fields and CICS version. CICS PA can then populate your Report Form or HDB Template with CMF fields appropriate to the release of CICS and user fields for the particular CICS system.
- By specifying a CICS APPLID for the Cross-System Work extract, CICS PA can determine the user fields for the particular CICS system for inclusion in the extract file.
- The SSID of specified DB2 Subsystems provides filtering on SSID for the DB2 report and Record Selection extract.
- The SSID of specified MQ Subsystems provides filtering on SSID for the WebSphere MQ report and Record Selection extract.

For reporting, you can use either Personal System Definitions or Shared System Definitions, or both. If you use both, you can specify the order of precedence if two definitions have the same name: Personal then Shared, or Shared then Personal. Set **Systems** in the action bar to the definitions that you want to use for reporting.

Personal Systems

Personal System Definitions are maintained using option 1 on the Systems Menu. They are saved in your Personal Profile Library (specified in option 0 CICS PA Profile Settings). Personal definitions are typically maintained and used by an individual for reporting.

The dialog provides a take-up facility to automatically define your personal systems from an SMF file.

Shared Systems

Shared System Definitions are maintained using option 2 on the Systems Menu. They are saved in the Repository. Shared definitions are typically maintained by a central administrator and used for reporting by all users of that repository.

The dialog provides a take-up facility to automatically define your shared systems from an SMF file or log stream. The dialog provides a second take-up facility to automatically load your personal definitions into the Shared System Definitions.

Report Sets

A Report Set defines a selection of reports and extracts with their associated options. The CICS PA reports and extracts are listed in *The CICS Performance Analyzer User's Guide: "CICS PA reports and extracts"*.

You can define any number of Report Sets and select any number of reports and extracts in a Report Set. The reports in a Report Set are produced as a group from one pass of the input data sets.

A Report Set can be run on a one-off basis, or run repeatedly against different input each time. Changes are made to Report Sets using the CICS PA dialog, and immediately affect the next run of the Report Set.

The data to be analyzed by a Report Set can optionally be restricted by a Start/Stop date and time specified at submit time. This reduces the volume of data to be analyzed as only a subset of the data in the input files is passed to the report processors, thereby increasing the efficiency of the report processing.

Selection Criteria

Selection Criteria can be specified to provide filtering of the data to be reported or extracted. Selection Criteria are made up of a series of SELECT Statements which specify whether to include or exclude data based on:

- date-time ranges or time slots
- started, stopped, or continuing (active) transactions
- particular field values

You can filter on many fields, and specify value lists, masks or ranges. Object Lists are a convenient way to specify the values and define groups of objects such as transaction IDs and terminals.

Running Report Sets

The CICS PA dialog generates the JCL for batch report processing. The Report Set (or individual report or extract), and any Report Forms and Object Lists it uses, are converted to a stream of commands for batch execution. Eligible data sets specified in your System Selection are built into the JCL as input to the batch reporting programs.

Enter the **RUN** command to run your Report Set. This prompts you to check or change your run-time options before generating the JCL. Run-time options include System Selection, Report Interval, and whether you want to edit the JCL before submitting the job for batch execution.

Alternatives to the **RUN** command are **JCL** and **SUB**. These do the same as the **RUN** command except:

- The **JCL** command selects the run-time option Edit JCL before Submit. This allows you to review or modify the JCL before submit, or to save the JCL in an external library for later submission independent of the CICS PA dialog.
- The **SUBMIT** or **SUB** command does not select the run-time option Edit JCL before Submit. It requests that the job be submitted immediately.

Analyzing the output

View or print your reports using standard facilities such as SDSF or ISPF Outlist Utility.

Process your extract data sets according to their purpose:

- Analyze the Cross-System Work extract data using CICS PA Performance Reports such as the List, Summary, and Totals reports.
- Analyze the Performance Extract, Statistics Extract, or System Logger Extract data using external programs such as DB2, or PC tools such as Lotus[®] Symphony[®] Spreadsheets.

- Specify the Record Selection extract data sets as your SMF Files in System Definitions to reduce the volume of data processed by CICS PA.

Report Forms

Report Forms can be used to tailor the format and content of the following reports and extracts:

- Performance List report
- Performance List Extended report
- Performance Summary report
- Transaction Profiling List
- Cross-System Work report
- Transaction Tracking List
- Transaction Tracking Summary
- Performance extract

One Report Form can be used by many reports of compatible type. The Report Form defines the CMF fields to include in the report, the order of the columns, sort sequence (where applicable), and report title. Optionally, your List or Summary Report Form can define which fields are for performance alert reporting. Alternatively, Performance Alert Definitions can be used for reporting together with, or instead of, a Report Form. Note that alerts are not supported in ListX Report Forms.

List and Summary Report Forms can also be used to tailor HDB reports.

You can run reports directly from a Report Form as well as using the Report Form in a Report Set.

Object Lists and Resource Lists

Object Lists provide a convenient way to specify field values for filtering the CMF data and grouping objects for reporting purposes. For example, to analyze the resource usage of a particular group of transactions.

An Object List defines particular values, masks, or ranges of values which can be used in the Selection Criteria for as many reports and extracts as required. Long lists of field values can be defined once and then reused in Report Sets as often as they are needed.

Resource Lists offer similar benefits for specifying field values in HDB load selection criteria, and Resource field values in Application Grouping and Statistics Alerts. For a comparison of these two types of list, see Object Lists versus Resource Lists.

Historical Database

Historical Database (HDB) is a facility that allows you to manage performance and statistics data for your CICS transactions. SMF data is saved in HDB container data sets that are managed from the CICS PA dialog.

There are three types of HDB:

Performance List HDB

A List HDB is built from CMF performance class data. In a List HDB data set, one record represents one transaction. Typically, List HDBs are used to analyze recent transaction events. Data is usually only required for a short

period of time. The type of information and level of detail contained in a List HDB is determined by the List Template on which it is based.

Performance Summary HDB

A Summary HDB is built from CMF performance class data. In a Summary HDB data set, one record represents a summary of transaction activity over a user-specified time interval. Typically, Summary HDBs are used for long-term trend analysis and capacity planning. Data is retained for a longer period of time, sometimes years. The type of information and level of detail contained in a Summary HDB is determined by the Summary Template on which it is based.

Statistics HDB

A Statistics HDB contains collections of CICS statistics and server statistics and CICS Transaction Gateway statistics over a specified time interval.

You can run reports against your HDB, export the HDB data to DB2 tables, or export the HDB data to extract data sets in CSV format.

Statistics reporting

CICS PA provides comprehensive reporting and analysis of CICS statistics and server statistics data. It complements the CICS statistics reporting utilities DFHSTUP and DFH0STAT. CICS PA also provides comprehensive reporting and analysis of statistics data from CICS Transaction Gateway. CICS PA can interactively process, report, and extract statistics data directly from SMF files or from an HDB after collection. An advantage of collecting statistics data in an HDB is that you can then export the data to DB2 for further analysis.

Features of the interactive statistics reporting facility include:

- Tabular reporting, sorting by field (column)
- Forms to design personalized reports
- Hyperlinks to jump directly to related reports
- Print facility, either to a data set or to SYSOUT

In addition to interactively reporting statistics, you can also process statistics using the batch Statistics Alert reports and CICS Transaction Gateway reports, and extract statistics to delimited text files.

The CICS PA commands

The CICS PA commands are used to request reports and extracts. The CICS PA dialog automatically generates the commands and JCL when you submit a Report Set. You can edit these jobs or set up your own jobs.

The standard command format for producing reports and extracts is:

| Name | Command | Operands | Comments |
|-----------------------------------|---------------|----------------------|---------------------|
| name in columns 1-8 (or blank) | CICSPA | one or more operands | comments (or blank) |

The general format of the command as it appears in the //SYSIN DD statement of the CICS PA batch JCL is:

```
CICSPA operand[(suboperand)][,operand[(suboperand)],]...
```

For a full discussion, see Chapter 16, “Using the CICS PA commands,” on page 377.

Chapter 2. Installing CICS PA

This chapter describes the procedure for installing the CICS PA dialog components and migrating from an earlier release of CICS PA. Before installing the dialog, follow the installation instructions in the Program Directory supplied with CICS PA.

CICS PA system requirements

Make sure that you have the following hardware, software, and storage requirements in place before installing and running CICS PA.

Hardware requirements

If your z/OS operating system and CICS were installed in compliance with their documented minimum hardware requirements, you have only the following additional requirements to consider in installing CICS PA:

- DASD storage required for the CICS PA product. For information on DASD requirements, see the Program Directory that is shipped with CICS PA.
- Optionally:
 - Printer for printing reports and graphs
 - PC for downloading extract data

Software requirements

CICS PA requires the following software products:

- z/OS Version 1 Release 12 or later (contains SMP/E) (5694-A01)
- z/OS Version 1 Release 12 DFSORT feature or later, or an equivalent sort product

CICS PA can process SMF data produced by the following CICS systems:

- CICS Transaction Server for z/OS Version 5 (5655-Y04)
- CICS Transaction Server for z/OS Version 4 (5655-S97)
- CICS Transaction Server for z/OS Version 3 (5655-M15)

Storage requirements

CICS PA runs in a virtual storage region. Region size will vary based on your specific report requirements and the amount of data input.

Typical storage use begins at 2048K, which includes storage for:

- CICS PA programs
- Access methods and buffers
- Report queues (most are located above the 16 MB line)

Installations with large CICS systems might experience greater resource requirements.

Operating system requirements are additional.

CICS PA components

The components of the CICS PA dialog are delivered in the following libraries: where *xxx* identifies the national language, such as **ENU** for U.S. English.

SCPAEXEC

REXX EXECs

SCPALINK

Executable load modules

SCPAM_{xxx}

ISPF messages

SCPAP_{xxx}

ISPF panels

SCPAS_{xxx}

ISPF skeletons

SCPAT_{xxx}

ISPF input tables

In addition, sample JCL for running batch reports and extracts is supplied in the **SCPASAMP** library. See Chapter 17, "Sample library," on page 537.

CPAOREXX command

The CICS PA initialization module CPAOREXX accepts four parameters:

qual The data set high level qualifier for CICS PA data sets. For example, **CICSPA.V5R1M0**. Alternatively, specify **NODYNAM** to tell CICS PA to use the existing allocation settings.

lang Identifies the national language. The default is **ENU** (U.S. English).

low level qualifiers

Optional. Overrides the default low level qualifiers for the six CICS PA data sets. All six qualifiers must be specified in the correct order, enclosed in brackets and separated by commas. See "Overriding the data set low level qualifiers" on page 21. For example:

(EXEC, LINKLIB, MSG, PNL, SKL, TBL)

Installing the CICS PA dialog

You can either install the CICS PA libraries statically within your ISPF library setup, or allow them to be set up dynamically when the CICS PA dialog is used. Then you can optionally add CICS PA to an ISPF menu.

Dynamic setup is the simplest and quickest approach.

Dynamic setup

To enable the CICS PA libraries to be dynamically set up when the CICS PA dialog is invoked, do the following:

1. On the TSO command processor panel, enter:

```
EX 'qual.SCPAEXEC(CPAOREXX)' 'qual lang'
```

For example:

```
EX 'CICSPA.V5R1M0.SCPAEXEC(CPAOREXX)' 'CICSPA.V5R1M0 E'
```

If the high level qualifier for your CICS PA installation data sets is not CICSPA.V5R1M0, then alter the command accordingly.

2. To add CICS PA to an ISPF menu, set &ZSEL to:

```
CMD(EX 'qual.SCPAEXEC(CPAOREXX)'' 'qual lang'') NOCHECK
```

NOCHECK is specified to support entry of concatenated commands via the direct option (trail). Also specify on the calling panel:

```
&ZTRAIL=.TRAIL
```

Note: Dynamic setup requires that the supplied library names are retained. These are listed under “CICS PA components” on page 20.

Static setup

To install the CICS PA libraries statically within your ISPF library setup, do the following:

1. Include the library *qual*.SCPAEXEC in your SYSEXEC or SYSPROC concatenation. This library contains the required EXECs. It is allocated with fixed-block 80 record format during installation.

You should put these libraries in the SYSEXEC concatenation. However, if you want to put them in SYSPROC, it must have a record length of 80 bytes.

Ensure that all libraries contained in your concatenations are either in the same format (F, FB, V, VB) and have the same block size, or are in order of decreasing block sizes. Otherwise, you might experience problems using the CICS PA panels.

2. Add the remaining libraries to your ISPF library setup:

- Include the link/load module library *qual*.SCPALINK in the ISPLLIB concatenation.
- Include the message library *qual*.SCPAMxxx in the ISPMLIB concatenation.
- Include the panel library *qual*.SCPAPxxx in the ISPPLIB concatenation.
- Include the skeleton library *qual*.SCPASxxx in the ISPSLIB concatenation.
- Include the table library *qual*.SCPATxxx in the ISPTLIB concatenation.

3. On the TSO command processor panel, enter:

```
%CPAOREXX 'NODYNAM lang'
```

4. To add CICS PA to an ISPF menu, set &ZSEL to:

```
CMD(%CPAOREXX 'qual.SCPAEXEC(CPAOREXX)'' 'qual lang'') NOCHECK
```

Overriding the data set low level qualifiers

The default CICS PA data set low level qualifiers are listed under “CICS PA components” on page 20. You can override these by specifying the required qualifiers as the last parameter in the ISPF menu &ZSEL setting. All six qualifiers must be specified in the correct order, enclosed in brackets and separated by commas. For example:

```
CMD(EX 'qual.SCPAEXEC(CPAOREXX)'' 'qual lang (EXEC,LNK,MSG,PNL,SKL,TBL)''')
```

CICS PA will then use the following libraries:

```
'qual.EXEC'  
REXX EXECs
```

```
'qual.LNK'  
Executable load modules
```

| | |
|------------|-------------------|
| 'qual.MSG' | ISPF messages |
| 'qual.PNL' | ISPF panels |
| 'qual.SKL' | ISPF skeletons |
| 'qual.TBL' | ISPF input tables |

Migrating from an earlier release

No additional setup is required if migrating from an earlier release of CICS PA. Your System Definitions, Report Sets, Report Forms, Object Lists, and HDBs are upgraded automatically so you can take advantage of the new and changed features in CICS PA V5R1.

Including a V3.1 Performance HDB in the manifest

In V3.2 there was a change in how performance HDB data is made available for viewing in the CICS PA plug-in for CICS Explorer. HDB and DB2 tables that were set up for the CICS PA plug-in in V3.1 must be changed before they can be included in the new Manifest and accessed from the CICS PA plug-in.

About this task

To include the Performance HDB in the Manifest, you must modify the HDB definition to specify a qualifier, select the Explorer indicator, and replace the current Template with the internal template EXPLOR41.

The process for migrating the DB2 table depends on whether you REPLACE your DB2 table every time you reload it; or RESUME (that is, append) new data to the existing data in the table. The following procedure covers both "REPLACE" and "RESUME" users.

Procedure

1. Select the performance HDB from the HDB Maintenance panel and make the following changes:
 - a. Specify a qualifier. This HDB will be included in the manifest for the corresponding qualifier.
 - b. Select the Explorer indicator.
 - c. Replace the current template with EXPLOR41, which is an internal template designed for use with the CICS PA plug-in.
 - d. Press the Exit key (F3) to save the HDB definition.
2. Update the DB2 table and VIEW as follows:
 - REPLACE users: DROP the existing table and its associated VIEW.
In the HDB Maintenance panel, enter the T line action next to the performance HDB. This will generate DB2 commands to create the new DB2 table and VIEW. Submit the generated JCL.
 - RESUME users: Rename the existing DB2 table to *qqqqqqq.CPA_CMFPSUM*, where *qqqqqqq* is the qualifier specified in the HDB definition.
In the HDB Maintenance panel, use the T line action next to the performance HDB. This will generate DB2 commands to create the DB2 Table and VIEW.

Delete the TABLE CREATE command and change the VIEW DROP command to DROP VIEW EXPLORER_SUMMARY. Submit the JCL to DROP and then recreate the VIEW so that it picks up the new table name.

Chapter 3. Setup and getting started

CICS PA provides a menu-driven dialog to request generation of reports and extracts for analyzing and tuning the performance of your CICS Transaction Server systems. CICS Monitoring Facility (CMF) performance class, exception class, and transaction resource class data in MVS System Monitoring Facility (SMF) files provide the input to the CICS PA reports and extracts. In addition, DB2 and MQ accounting, System Logger, and OMEGAMON XE for CICS records in SMF files are analyzed by specific reports.

Facilities are provided to help you to specify your input files, filter the data, and tailor the reports and extracts to suit your requirements.

The dialog requires no special customization or setup. Reporting can commence immediately.

To get started with using CICS PA to analyze the performance of your CICS systems and applications, proceed as follows:

1. Before installing CICS PA, check that the system requirements are met. See "CICS PA system requirements" on page 19.
2. To install CICS PA, follow the instructions in the Program Directory. Then to complete the installation, see "Installing the CICS PA dialog" on page 20.
3. If you are unfamiliar with System Monitoring Facility (SMF) data and how to prepare it for CICS PA reporting, see Chapter 5, "SMF data used by CICS PA," on page 55.
4. To get started with using the CICS PA dialog to define and run report and extract requests, see "How to use the dialog" on page 26.

By following the topic on 'Defining a Report Set for daily monitoring' in the *CICS Performance Analyzer for z/OS Getting Started Guide* you can quickly get an insight into how to use the dialog.

The Performance Totals report is a useful starting point as it is only a few pages and can provide an immediate indication of which area to look into next. Another good report to try is the Performance Summary report with the data summarized by Transaction ID within APPLID.

5. To understand the JCL generated by the dialog, or set up your own jobs, see Chapter 15, "JCL for reports and extracts," on page 361.
Sample jobs for each report and extract are provided in Chapter 17, "Sample library," on page 537.
6. To understand the CICS PA commands generated by the dialog or to code them directly in your job stream, see Chapter 16, "Using the CICS PA commands," on page 377. This chapter includes many syntax examples and sample reports.
7. For help analyzing the report and extract output, and interpreting the CMF performance and exception data, see the *CICS Performance Analyzer for z/OS Report Reference*.
8. If results are not as expected, see Chapter 25, "Messages," on page 697, and Chapter 26, "Problem determination," on page 739 to help you diagnose and resolve problems.
9. To define and populate a historical database for analyzing performance over time, refer to *Guided Tour: Performance HDB*.

CICS PA Primary Option Menu

```
File Options Help
-----
V5R1M0          CICS Performance Analyzer – Primary Option Menu
Option ==> _____

0 CICS PA Profile      Customize your CICS PA dialog profile
1 Systems              Specify Systems, SMF Files, and Groups
2 Report Sets         Request and submit reports and extracts
3 Report Forms        Define Report Forms
4 Object Lists        Define Object Lists
5 Historical Database  Collect and process historical data
6 Statistics          Report CICS Statistics
7 Profiling           Request Transaction Profiling
8 Resource Definitions Define CICS PA resources
X Exit                Terminate CICS PA
```

Figure 2. CICS PA Primary Option Menu

Figure 2 shows the CICS PA Primary Option Menu. For a brief explanation of the main CICS PA concepts introduced here, see “The CICS PA dialog” on page 11.

How to use the dialog

The following steps briefly describe how to use the dialog to start reporting.

Initial setup (defaults apply)

This is applicable when using CICS PA for the first time.

Initial setup is optional. CICS PA uses default settings and prompts you to allocate data sets (with default allocation attributes) as they are required. However, if you want to step through the process, the initial setup procedure is:

1. Check your **ISPF environment settings**. See “Recommended ISPF setup” on page 28.
2. Specify the **CICS PA Settings**. This allows some customization of the CICS PA dialog and JCL used for generating reports and extracts. See “CICS PA Settings” on page 31.
3. Specify default **Reporting Allocation Settings** (UNIT= and SPACE=) for the Extract data sets, External Work data sets, and Sort Work data sets. These are used by the CICS PA dialog to generate the corresponding DD statements in the JCL. See “Reporting Allocation Settings” on page 33.
4. Specify the **Control Data Sets** that contain the Report Sets, Report Forms, Object Lists, and the Repository. See “CICS PA Control Data Sets” on page 36.
5. If you plan to export HDB data to DB2, specify your DB2 settings. Select option 0, CICS PA Profile, from the Primary Option Menu, and then select DB2 Settings.
6. Specify which system definitions (personal or shared or both) to use at run time. If you plan to report on data stored in log streams, specify Log stream options. Select option 0, CICS PA Profile, from the Primary Option Menu, and then select File Selection.

Everyday operation

The normal procedure to request and generate reports and extracts is as follows:

1. Specify the **System Definitions** by identifying your personal and shared systems (CICS APPLID, MVS Image, DB2 SSID, MQ SSID, System Logger), SMF Files, and Groups. You can automate much of this process by using the Take-up facility. See Chapter 6, "Personal System Definitions," on page 71 and Chapter 7, "Shared System Definitions," on page 117.
2. Define a **Report Set**:
 - Create a new Report Set. See "Creating new Report Sets" on page 149.
 - Specify any **Global Options and Selection Criteria**. The Global Options apply to all reports and extracts within the Report Set. The global Performance Selection Criteria apply to all Performance reports and extracts within the Report Set. The global Exception Selection Criteria apply to all Exception reports within the Report Set.
 - Select and tailor the **Reports and Extracts** that you require. If report-specific options and selection criteria are specified, they take precedence over the corresponding Global Options and Selection Criteria at JCL build time. You can request more than one of each type of report or extract (for example, 3 Performance List Reports and 2 Cross-System Work Extracts), and specify different options for each. Exclude any of a particular type you do not want to generate, and Deactivate if you want to generate none of a particular type. See "Maintaining Report Sets" on page 148 for details of all reports, extracts, and their options.
3. Define any **Report Forms** that will be used to tailor the format of certain reports and extracts. See "Maintaining Report Forms" on page 290.
4. Define any **Object Lists** used to enhance the Selection Criteria. See "Maintaining Object Lists" on page 326.
5. Enter the **RUN** command to run the Report Set. The Active status controls which reports in the Report Set are run. Only active reports in active categories are selected, but you can use the **RUN** line action to temporarily override this. A panel is displayed for you to enter run-time options. Then CICS PA generates the JCL for batch report processing. Global Options and Selection Criteria, requested reports and extracts, and any Report Forms and Object Lists they use, are converted to a stream of commands for batch execution. You can choose to submit the JCL directly, or edit it first and optionally save the JCL in an external library. See "Running Report Sets" on page 275.
6. View or print the job output using your usual method, such as SDSF or ISPF Outlist utility.
7. Process the Extract data sets using a method appropriate to each. For example:
 - Analyze the Cross-System Work extract data using CICS PA Performance Reports such as the List, Summary, and Totals reports.
 - Analyze the Performance Extract, Statistics Extract, or System Logger Extract data using external programs such as DB2, or PC tools such as Lotus Symphony Spreadsheets.
 - Specify the Record Selection extract data sets as your SMF Files in System Definitions to reduce the volume of data processed by CICS PA.
8. Define and maintain **Historical Databases (HDBs)** as repositories of performance data. Generate reports from your HDBs or export HDB data to DB2 tables for further analysis.
9. Use the interactive Statistics Reporting facilities in the CICS PA dialog to view CICS TS and CICS TG statistics stored in SMF Files or HDBs. See Chapter 18, "Using the Statistics reporting dialog," on page 543.

|
|
|

Standard ISPF interface

CICS PA has been designed to follow CUA conventions, while also accommodating established ISPF conventions. For example:

- Possible actions are presented in action bar pull-down menus; those available from the File, Edit, or View pull-down menus can also be requested from the command line.
- A menu or selection list item can be selected either by positioning the cursor over it (point-and-shoot) or by specifying its corresponding number, and then pressing Enter.
- For many entry fields you can select from a list of available choices by positioning the cursor on the field and pressing **Prompt** (F4). A + (plus sign) at the end of the field or column heading indicates that Prompt is available.
- Short-cut navigation to the primary CICS PA functions is available. For example, to invoke Report Sets where you request your reports and extracts, you can select option 2 from the CICS PA primary menu, or enter =2 on the command line from anywhere in the CICS PA dialog.

Help is available throughout the CICS PA dialog. Context-sensitive help is available for each panel and input field, and there is an online tutorial.

Recommended ISPF setup

The CICS PA dialog is an ISPF application following Common User Access (CUA) conventions. You can use ISPF standard facilities to customize the screens. This section contains some recommendations to help you use CICS PA efficiently.

Screen size and scrolling

Set the screen size in your session parameters to 32 lines. CICS PA screens are optimized for 32 lines, but accommodate 24 lines by scrolling **Backward** (F7) and **Forward** (F8).

Function keys

CICS PA uses standard conventions for function keys. For example: F1=Help, F3=Exit, F4=Prompt, F5=Rfind, F7=Backward, F8=Forward, F11=Right, F12=Cancel. However, you can use the ISPF commands **KEYS** and **KEYLIST** to assign alternative functions to the keys. For a list of the CICS PA default settings, enter the **KEYSHELP** command or select **Help->Keys Help** in the action bar.

If you are new to CICS PA, ensure that the function keys are displayed at the bottom of the screens. The ISPF command **PFSHOW ON|OFF** turns on and off the display of the function key settings.

Prompt (F4)

Prompt is available on various data entry fields throughout the CICS PA dialog to help you specify valid values. To use this facility, position the cursor on the field and press **Prompt** (F4). A list of available values is displayed from which you can select one or more depending on the circumstance.

Mouse options

The CICS PA Report Set panel is a tree structure of report categories and reports. The report categories act as folders that can expand (to show) and collapse (to hide) the reports contained within them. If your terminal emulation permits,

configure your Mouse Options to activate the lightpen function. You can then use the left-button of your mouse to click on the + to expand and - to collapse the report categories. Alternatively, you can use cursor selection on the + and -, or enter line action S.

CUA attribute settings

The CICS PA dialog is designed to use the default CUA attributes. However, we recommend that you set the **Point-and-Shoot** field to easily distinguish Point-and-Shoot fields from other types of fields. You can use the ISPF CUAATTR command to change the attribute settings. For example, you could set Point-and-Shoot to yellow as shown in Figure 3, or for better distinction, you could also set the highlight attribute to REVERSE (reverse video).

| CUA Attribute Change Utility | | | |
|----------------------------------|---------------|-----------|-----------|
| Command ==>> | | | Defaults |
| Panel Element | Color | Intensity | Highlight |
| | | | More: + |
| Choice Entry Field | TURQ | LOW | USCORE |
| List Entry Field | TURQ | LOW | USCORE |
| List Item Description | GREEN | LOW | NONE |
| List Items | WHITE | LOW | NONE |
| Normal Entry Field | TURQ | LOW | USCORE |
| Normal Text | GREEN | LOW | NONE |
| Point-and-Shoot | YELLOW | HIGH | NONE |
| Reference Phrase | WHITE | HIGH | NONE |

Figure 3. Recommended CUAATTR settings for CICS PA

Point-and-Shoot fields

CICS PA employs point-and-shoot fields. For efficient use, enter the ISPF **SETTINGS** command to display the ISPF Settings screen then select **Tab to point-and-shoot fields**.

| ISPF Settings | | | |
|--|---|-----------------------------|---------|
| Command ==>> | | | More: + |
| Options | | Print Graphics | |
| Enter "/" to select option | | Family printer type 2 | |
| Command line at bottom | | Device name | |
| 7 Panel display CUA mode | | Aspect ratio | 0 |
| / Long message in pop-up | | | |
| - Tab to action bar choices | | General | |
| 7 Tab to point-and-shoot fields | | Input field pad | N |
| / Restore TEST/TRACE options | | Command delimiter | ; |
| Session Manager mode | | | |
| 7 Jump from leader dots | | | |
| Edit PRINTDS Command | | | |
| 7 Always show split line | | | |
| - Enable EURO sign | | | |
| : | | | |
| Terminal Characteristics | | | |
| Screen format | 3 | 1. Data | 2. Std |
| | | | 3. Max |
| | | | 4. Part |

Figure 4. Recommended ISPF settings for CICS PA

Displaying messages

CICS PA uses both long and short messages. Short messages display at the top right, on the same line as the screen title. Long messages are designed to display in a pop-up window. However, long messages of less than the screen width can be customized to display just below or above the command line rather than in a window. If you always want long messages in a pop-up window, enter the ISPF **SETTINGS** command to display the ISPF Settings screen, then select **Long message in pop-up** as shown in Figure 4 on page 29.

Messages displayed in a window can be moved to another location on the screen by doing the following:

1. Position the cursor on the top or bottom border of the message window, and press Enter.
2. Position the cursor at the location on the screen to which you want to move the message, then press Enter.

CICS PA Profile Options

To display the CICS PA Profile Options Menu, either:

1. From the CICS PA Primary Option Menu, select option 0 **CICS PA Profile**
2. From any CICS PA panel, select **Options** from the action bar

```
File Options Help
-----
                                CICS PA Profile Options Menu
Option ==>> _____
1 CICS PA Settings
2 Reporting Allocation Settings
3 CICS PA Control Data Sets
4 DB2 Settings
5 File Selection
```

Figure 5. Profile Options Menu

This menu allows you to customize your CICS PA user profile. Defaults are set initially so you can start using CICS PA, but you can change these at any time to suit the particular way you want to interact with the CICS PA dialog. Typically you would set the profile options just once.

The menu items are:

CICS PA Settings

Customize some aspects of the CICS PA dialog and the job card it uses when generating Report Set JCL.

Reporting Allocation Settings

Specify the allocation attributes of data sets that might need to be created during Report Set processing. The CICS PA dialog uses these when generating the Report Set JCL.

CICS PA Control Data Sets

Specify the data set names where CICS PA stores Report Sets, Report Forms, Object Lists, and the Repository.

DB2 Settings

Specify settings for exporting data from historical databases (HDBs) to DB2. For details, see "Creating DDL to define a DB2 table" on page 663.

File Selection

Specify which system definitions (personal or shared or both) to use at run time and options for using log streams across CICS PA.

CICS PA Settings

This facility allows you to customize the CICS PA dialog and batch JCL for running Report Sets and processing Historical Databases.

To display the CICS PA Settings panel, select option 1 **CICS PA Settings** from the Profile Options Menu.

```
File Options Help
-----
CICS PA Settings
Command ==> _____
Specify settings.
CICS PA Load Library . . . . 'CICSPA.V5R1M0.SCPALINK' _____
Personal Profile Library . . . 'xxxx.CICSPA.TABL' _____
Delete Confirmation . . . . YES___ (Yes or No)
Cancel Confirmation . . . . NO___ (Yes or No)
Automatic Save on Exit . . . . YES___ (Yes, No or Prompt)
Reports in Upper Case . . . . NO___ (Yes or No)
Read SMF File to EOF . . . . NO___ (Yes or No)
Preferred Date Format . . . . 1 1. ISO (YYYY/MM/DD)
                             2. US (MM/DD/YYYY)
                             3. European (DD/MM/YYYY)
DASD Work File Unit Name . . . _____ (Blank for System Default)

Job Statement Information:
==> //userid JOB (ACCOUNT),'NAME',REGION=4M _____
==> _____
==> _____
==> _____
==> _____
```

Figure 6. CICS PA Settings

All options have initial settings, but you can change these at any time to suit the way you use CICS PA. Values must be specified for all options, except the DASD Work File Unit Name and CICS PA Load Library which have system defaults.

The options are:

CICS PA Load Library

Specify the name of the library that contains the CICS PA executable modules. This is used by the CICS PA dialog when generating the JCL for executing Report Sets. It need not be specified if the modules reside in the system LINKLIST. The initial setting is 'xxxx.SCPALINK' where xxxx is the DSN prefix specified at dialog start up. The default initial setting is 'CICSPA.V5R1M0.SCPALINK'.

Personal Profile Library

The CICS PA dialog utilizes ISPF tables for storing some user data such as your personal system definitions.

Specify the name of the data set to be used for maintaining these ISPF tables. As the data is typically user-specific and sharing with other users is

not an issue, it is recommended that each user has their own data set to avoid contention with other users for access to tables.

The initial setting is '**xxx.CICSPA.TABL**' which CICS PA translates to '**xxx.CICSPA.TABL**' where xxx is determined by your TSO prefix and userid.

If the specified data set does not exist, CICS PA uses default allocation parameters to create it when it is required. The data set can be allocated using ISPF facilities outside the dialog if your site has local requirements not satisfied by the defaults.

Delete Confirmation

This option applies *only* to Delete requests from panels which have **Confirm** in the action bar: the CICS PA “primary object” list panels (Report Sets, Report Forms, Object Lists). From these list panels, deleted items cannot be reinstated, so you might always want to be prompted to confirm your Delete requests. On all other panels, deleted items can be reinstated by a Cancel request.

Specify **YES** to request CICS PA to display a confirmation pop-up to prompt you to confirm your Delete request before it is actioned. This is the initial setting.

Specify **NO** to have CICS PA action Delete requests immediately without prompting for confirmation.

Note: This option does not apply to HDB where the default is always **YES**.

Cancel Confirmation

This option applies *only* to Cancel requests from panels which have **Confirm** in the action bar: CICS PA “primary object” panels (Report Set, Report Form, Object List), System Definitions and HDB.

Specify **YES** to display a confirmation pop-up if you attempt to Cancel when there have been updates. This is to alert you that you have made changes that will be discarded if you proceed with the Cancel request.

Specify **NO** to have CICS PA action Cancel requests immediately, without first prompting for confirmation. This is the initial setting.

Automatic Save on Exit

This option applies *only* to attempts to Exit edit sessions after making changes on CICS PA “primary object” panels (Report Set, Report Form, Object List) and the System Definitions panel. It is not applicable to HDB.

Specify **YES** to automatically save the changes on Exit. This is the initial setting.

Specify **NO** to automatically discard the changes on Exit. To save any changes before exit you must remember to use the **SAVE** command.

Specify **PROMPT** to display a message if there have been updates when you attempt to Exit. To save the changes, you can use the **SAVE** command. Otherwise, to discard the changes, you can use the **CANCEL** command.

Reports in Upper Case

Specify **NO** to receive reports in upper and lower case characters. This is the initial setting.

Specify **YES** to translate all reports to upper case characters only. This is particularly for printers that cannot handle mixed case. This generates the **UPPER** parameter on the EXEC statement in CICS PA JCL generation.

Read SMF File to EOF

Select this option to force CICS PA to process all records in the SMF file through to EOF. Normally CICS PA stops reading the SMF file as soon as the first record is encountered that is later than the **To** time (SMFSTOP). However, if the file is not in ascending time sequence, reading might end before all records earlier than SMFSTOP have been found.

This option is only effective when the **To** time is specified. Select it when the SMF file has been presorted and you want to ensure that all records within the **From** and **To** time range are processed.

The Read SMF File to EOF setting in the profile options is added as a READ2EOF operand to JCL built when the input is an SMF file and Report Interval is specified in the RUN panel.

Preferred Date Format

The CICS PA dialog can accept and present dates in the following formats:

1. YYYY/MM/DD ISO
2. MM/DD/YYYY US
3. DD/MM/YYYY European

Enter either **1**, **2**, or **3** for the date format you prefer. **1 (ISO)** is the initial setting.

Note: This option does *not* apply to the format of dates presented on batch reports, which is typically MM/DD/YYYY. Further, there are exceptions within the CICS PA dialog where the functionality dictates the date format. For example, the **Changed** time stamp field of component lists (Report Sets, Report Forms, Object Lists) always presents as YYYY/MM/DD HH:MM to be able to sort on this field.

DASD Work File Unit Name

Specify the device type or group name to be used by CICS PA to allocate DASD data sets as required by facilities such as:

- Report Set, Report Form, Object List Data Sets
- Extract, External and Sort Work Data Sets used in batch processing (if the Reporting Allocation Settings are not set).

The name must represent a device that is defined as DASD in the Eligible Device Table of the current processor. For example, SYSDA, SYSALLDA, 3390.

If not specified, the system default is used. Blank (for system default) is the initial setting.

Job Statement Information

Specify the JCL JOB statement, which can be continued to a maximum of six lines. These are used by CICS PA to supply the job statement for batch Report Set and HDB processing. All the rules of JCL must be followed in specifying the job statement. CICS PA does not validate this information. Blank lines are ignored.

The default is //userid JOB (ACCOUNT),'NAME'.

It is recommended that you include a **REGION=** parameter on your job card to allocate a virtual storage region size for CICS PA of at least 4M.

Reporting Allocation Settings

This facility is used to specify allocation attributes for data sets that CICS PA might need to create during batch processing of Report Sets.

To display the Reporting Allocation Settings panel, select option 2 **Reporting Allocation Settings** from the Profile Options Menu.

```

File Options Help
-----
Reporting Allocation Settings
Command ==> _____

Specify data set allocation settings.

Extract Data Sets:
==> // _____ UNIT=SYSDA,SPACE=(CYL,(10,10)) _____
==> _____
==> _____

External Work Data Sets:
==> // _____ UNIT=SYSDA,SPACE=(CYL,(10,10)) _____
==> _____
==> _____

Sort Work Data Sets:
==> // _____ UNIT=SYSDA,SPACE=(CYL,(10,10)) _____
==> _____
==> _____

```

Figure 7. Reporting Allocation Settings

CICS PA provides default settings for each type of data set. Figure 7 shows the default allocation settings. The defaults are displayed when you first invoke the panel or when you clear a setting.

The required data set allocation settings are:

Extract Data Sets

Specify the UNIT and SPACE attributes for the following extract data sets:

- Cross-System Work
- Performance
- Record Selection
- System Logger
- Statistics

These are sequential data sets. You do not need to specify the DCB attributes as CICS PA sets the appropriate DCB at Extract run time. However, if you specify DCB attributes, CICS PA will override RECFM and LRECL with the correct values. CICS PA will also assign the BLKSIZE to an allowable value closest to your specification. For example, if you want half track blocking, simply specify DCB=BLKSIZE=27998 (for UNIT=3390) and CICS PA will assign the highest allowable BLKSIZE not exceeding 27998.

CICS PA provides default settings. To reset to the default, erase the field then press Enter.

When the CICS PA dialog builds the Report Set JCL for a new Extract Data Set, the specified allocation settings are appended to a statement of the form:

```
//DDname DD DSN=datasetname,DISP=(disp,CATLG),
```

where *DDname* is generated by CICS PA, and *datasetname* and *disp* are the data set name and disposition specified on the corresponding Extract panel.

External Work Data Sets

Specify the UNIT and SPACE attributes for the External Work Data Sets which might be required by the following:

- Performance List Extended report
- Performance Summary report (optional)
- Transaction Profiling report (optional)
- Cross-System Work report and extract
- Transaction Group report
- BTS report
- Workload Activity report (possibly)
- Transaction Tracking List report
- Transaction Tracking Summary report
- Statistics Alert reports
- DB2 report
- System Logger report
- Performance Data extract (optional for Summary Form)

These work data sets are temporary sequential data sets used by CICS PA to store records passed to the external SORT facility. You do not need to specify the DCB attributes as CICS PA sets the appropriate DCB at Report Set run time.

CICS PA provides default settings. To reset to the default, erase the field then press Enter.

When the CICS PA dialog builds the Report Set JCL, the specified allocation settings are appended to a statement of the form:

```
//CPAXWnnn DD DISP=(NEW,DELETE),
```

where *nnn* is **001-999** to uniquely identify each data set.

Sort Work Data Sets

Specify the UNIT and SPACE attributes for the Sort Work Data Sets which might be required by the following:

- Performance List Extended report
- Performance Summary report (optional)
- Transaction Profiling report (optional)
- Cross-System Work report and extract
- Transaction Group report
- BTS report
- Workload Activity report (possibly)
- Transaction Tracking List report
- Transaction Tracking Summary report
- Statistics Alert reports (optional)
- DB2 report
- System Logger report
- Performance Data extract (optional for Summary Form)

These work data sets are temporary sequential data sets used by the SORT facility.

CICS PA provides default settings. To reset to the default, erase the field then press Enter.

When the CICS PA dialog builds the Report Set JCL, the specified allocation settings are appended to a statement of the form:

```
//CPASWKn DD DISP=(NEW,DELETE),
```

where *nn* is **01-04** to uniquely identify each data set.

CICS PA Control Data Sets

To work with CICS PA Report Sets, Report Forms, and Object Lists, you must first identify the data sets where they are to be stored. These are called the CICS PA Control Data Sets.

To specify the control data sets, select option 3 **CICS PA Control Data Sets** from the Profile Options Menu, or enter CDS from the command line anywhere in the CICS PA dialog.

```
File  Options  Help
-----
                                CICS PA Control Data Sets
Command ==>>>

Specify the names of the CICS PA Control Data Sets.

Report Sets . . . 'xxxx.CICSPA.RSET' _____ +
Report Forms . . . 'xxxx.CICSPA.FORM' _____ +
Object Lists . . . 'xxxx.CICSPA.OBJL' _____ +

Repository . . . . 'CICSPA.XYX.REPOSTRY' _____ +

Missing Data Sets Option:
1 1. Allocate now
   2. Allocate when required
```

Figure 8. CICS PA Control Data Sets

Specify the name of the data sets where Report Sets, Report Forms, and Object Lists are maintained:

Report Sets

Report Sets define selections of reports and extracts and their associated options.

Report Forms

Report Forms are used to tailor the format and content of particular reports and extracts.

Object Lists

Object Lists are user-defined lists of objects that are defined by name and can be specified in selection criteria to provide filtering of the report data.

You can specify the same data set for all three components. However, it is recommended that each type of component is stored in a separate data set to avoid conflict with member names.

For a particular component, related definitions should share a common data set. For example, keep related Report Sets together in the one data set, related Report Forms in another, and related Object Lists in a third.

However, you can have multiple data sets for each component, such as a separate data set for each CICS subsystem or a personal data set. For each component, only one data set at a time is used by the dialog. That is, there is only one current Report Sets data set, one current Report Forms data set, and one current Object Lists data set. To change the current data set, enter the data set name or press **Prompt** (F4) to select from a list of data sets previously used.

If you have not previously specified a data set name, CICS PA assigns a default that you can erase or overwrite.

| Default Data Set Name | Explanation |
|-----------------------------|-------------------------------------|
| 'prefix.CICSPA.type' | TSO prefix and userid are the same |
| 'prefix.userid.CICSPA.type' | TSO prefix and userid are different |
| 'userid.CICSPA.type' | User has no TSO prefix |

where *type* is RSET, FORM, or OBJL. Figure 8 on page 36 shows an example of the Control Data Sets panel with the default names specified.

The control data sets must be cataloged, partitioned data sets (PDS or PDSE) with RECFM=FB and LRECL=80. You can let CICS PA create the data sets dynamically using the default attributes of LRECL=80, BLKSIZE=6160, SPACE=(CYL, (1, 1, 50)). Alternatively, you can use standard facilities such as ISPF option 3.2 Data Set Utility to create and catalog the data sets.

When specifying the data set name, standard TSO conventions apply. For example, if the TSO option **PROFILE PREFIX** is in effect, the prefix is appended as the high-level qualifier unless the data set name is enclosed in quotes.

Specify the **Missing Data Sets Option** to tell CICS PA whether to allocate new data sets now or leave that until later when you try to perform functions that require them.

If the data set is not cataloged, a Confirm Create pop-up asks you to confirm that you want CICS PA to create the data set for you using default allocation attributes.

You can also specify the data set name of the **Repository** on this panel. The default name is 'CICSPA.HDB.REPOSTRY'. For information on this data set, see "Repository" on page 623.

Maintaining CICS PA data sets

The CICS PA data sets are partitioned data sets and carry product sensitive information in the directory. You can use DFSMSdss utilities and data set utility IEBCOPY for maintenance purposes.

Members in these data sets are saved in a special format. Members must *not* be created or modified using facilities other than CICS PA as this can cause them to become unusable by CICS PA. Should this occur, a message similar to this one is displayed by panels that use the member:

Only Report Set members in the data set are included in the list.
Some members have been excluded.

Ensure that you specified the correct data set name. If correct, you can use ISPF to determine the offending member or members. For example, use ISPF option 3.1 to display the list of members in the Report Sets data set. Members created by CICS PA will display with no modification details, whereas those edited using ISPF will show their modification details. To correct the situation, either:

- Use ISPF to remove (move or delete) the offending members from the data set.
- Use CICS PA facilities. When the Report Sets panel is displayed, enter **SELECT** in the command line and specify the name of the offending member. If the contents of the member are valid Report Set details, they will display on the

EDIT Report Set panel. Save the Report Set and the member will appear in the list of Report Sets in the specified sort order. If it is not a valid Report Set, an error message is displayed.

File selection options

This facility allows you to specify which system definitions (personal or shared or both) to use at run time and options for using log streams across CICS PA.

To display the File Selection panel, select option 5 **File Selection** from the Profile Options Menu.

```
File Options Help
-----
                                File Selection
Command ==> _____
Systems Definitions in use:
 1 1. Personal only
 2 2. Shared only
 3 3. Personal, then Shared
 4 4. Shared, then Personal

Log stream options:
 / DASDONLY
 / Use Log Streams when available
```

Figure 9. File selection options

The options are:

Systems Definitions in use

Select which system definitions to use. You can work with either personal system definitions or shared system definitions or both.

1. Personal only.
Select to use only your personal system definitions for reporting.
2. Shared only.
Select to use only your shared system definitions for reporting.
3. Personal, then Shared.
Merge personal and shared system definitions for reporting. If there are two definitions with the same name, your personal definition will take precedence over the shared definition.
4. Shared, then Personal.
Merge shared and personal system definitions for reporting. If there are two definitions with the same name, the shared definition will take precedence over your personal definition.

DASDONLY

A DASD-only log stream can contain data from only one system in the sysplex and can be accessed only by that system. To generate the JCL to correctly route jobs, use this option to indicate that all log streams will be treated as DASD-only and will require an Image name to execute.

Use Log Streams when available

If you select this option, CICS PA will first look for a log stream. If no log stream is available, Cyclic or Daily SMF files will be used instead.

Chapter 4. The CICS PA plug-in for CICS Explorer

The CICS PA plug-in for CICS Explorer (CICS PA plug-in) is an Eclipse plug-in that operates on top of the IBM CICS Explorer to help you analyze CICS data, including the Performance Summary and CICS PA Statistics and Statistics Alerts reports.

Using the CICS PA plug-in, you can perform the following tasks:

- For performance data:
 - View and sort the CSV or database data in a spreadsheet viewer.
 - Select single or multiple transactions for analysis.
 - Perform CPU time analysis.
 - Perform file analysis.
 - Perform response time analysis.
 - Perform storage analysis.
 - Perform threadsafe analysis.
- For statistics data:
 - Perform CICS Statistics analysis.
 - View CICS statistics alert reports and navigate to specific records.

For more information about the IBM CICS Explorer, see <http://www.ibm.com/cics/explorer>.

The procedure that follows describes how to use CICS PA to get data from an SMF data set into a DB2 table or CSV file for use by the CICS PA plug-in.

The step-by-step procedure presented here shows you how to:

1. Define a performance HDB.
2. Define a statistics HDB, optionally including statistics alert data.
3. Load the HDB.
4. Export data:
 - To a DB2 table.
 - To a CSV file (Performance HDB only).
5. Build the manifest. (This step is only required if the data is exported to DB2.)
6. Access the data using the CICS PA plug-in.

While this procedure describes each step in detail, with enough information to move on to the next step, many of the steps are described individually in more detail in other parts of this book.

Define a Performance HDB for export to DB2

The manifest should be rebuilt whenever you add or change an HDB in a way that affects its eligibility for inclusion in the manifest. For example, if an HDB is currently included in the manifest and you change its qualifier or clear the Explorer option, it is no longer eligible for inclusion in the manifest.

See “Build the manifest” on page 46.

1. On the **Historical Database** menu, select option **2 Define**.
The **New HDB Definition** pop-up menu appears.
2. Select the HDB type **Performance** and then press Enter.
The **New HDB Definition** window appears:

```

File Systems Options Help
-----
New HDB Definition
Command ==> _____

Specify new HDB definition options then press EXIT to save.

Name . . . . . EXPLOR5P  APPLID _____ + Image _____
Qualifier . . . GF9IJG  / Explorer
Description . . Explorer HDB for CICS TS V5

HDB Format:                               Selection Criteria:
Template . . . EXPLOR51 +                   _ Performance

Data Retention Period:
HDB: Years 1__ Months ___ Weeks ___ Days ___ Hours ___
DB2: Years ___ Months ___ Weeks ___ Days ___ Hours ___

Data Set Allocation Settings:
DSN Prefix . . . . . USER
Management class . . . _____ (Blank for default management class)
Storage class . . . . . _____ (Blank for default storage class)
Volume serial . . . . . _____ (Blank for system default volume)
Device type . . . . . _____ (Generic unit or device address)
Data class . . . . . _____ (Blank for default data class)
Space Units . . . . . CYLS          (TRKS, CYLS)
Primary quantity . . 10             (In above units)
Secondary quantity   5             (In above units)

F1=Help   F3=Exit   F4=Prompt   F7=Backward   F8=Forward   F10=Actions
F12=Cancel

```

3. Type a name for the HDB.
If you plan to export to DB2: The DB2 table names for a Performance HDB intended for the CICS PA plug-in are fixed as *qualifier.CPA_CMFPSUM* and *qualifier.CPA_CMFACSUM*. This is unlike a user Performance HDB, where the DB2 table name is the same as the HDB name. Note that the qualifier is also specified as the Schema in the plug-in DB2 connection settings.
When you export a Performance HDB to DB2, the CICS PA dialog generates JCL to perform the export. This JCL specifies the DB2 table name. Do not change the DB2 table name in the generated JCL as this would result in the CICS PA plug-in not finding the DB2 table.
4. Specify a Qualifier in ISPF member name format. This value is used as an identifier to associate related HDB tables in the manifest. It is also incorporated into the DB2 table name, for example: *qualifier.CPA_CMFPSUM*.
Multiple performance HDBs with the same qualifier will be exported to the same DB2 table. This allows you to consolidate data from multiple HDBs into a single DB2 table for analysis using the CICS PA plug-in.
5. Select the Explorer option to make this HDB eligible for inclusion in the manifest. This also ensures that only internal templates are listed in the Template field.
6. Press **Prompt (F4)** in the Template field to select an internal template that has been predefined for use with the CICS PA plug-in.

7. Optionally, enter S in the Performance field to specify selection criteria for this HDB. Alternatively, you can specify the selection criteria in the Template by editing the Template.
8. Optionally, specify data retention periods indicating how long you want to keep the container data sets and DB2 rows associated with this HDB. You can use the HDB Housekeeping program to delete expired container data sets and DB2 rows. If the HDB container data sets are no longer required after their data has been exported to DB2, specify a retention period of 0 in any of the HDB periods to make the data sets expire immediately.
9. Specify the data set allocation settings. The only required fields are:
 - DSN prefix
 - Space units
 - Primary and secondary quantitiesCICS PA creates HDB data set names in the following pattern:
`dsn-prefix.hdb-name.Dyyddd.Thmmss.HDB`
where the date and time indicate when the HDB data set was allocated (CICS PA allocates the data set just before loading data).
10. Press the Exit key (F3) to save the HDB definition.

Define a Statistics HDB for export to DB2

The manifest should be rebuilt whenever you add or change an HDB in a way that affects its eligibility for inclusion in the manifest. For example, if an HDB is currently included in the manifest and you change its qualifier or clear the Explorer option, it is no longer eligible for inclusion in the manifest.

In addition, the manifest will only contain entries for statistics reports with a status of Collect=Yes or Alt and DB2 Load=Yes. If these indicators are not set, the report will not be included in the manifest and therefore will not be accessible through the CICS PA plug-in. Therefore you should rebuild the manifest whenever any changes are made to the status of a statistics report in an eligible Statistics HDB.

See “Build the manifest” on page 46.

1. On the **Historical Database** menu, select option **2 Define**.
The **New HDB Definition** pop-up menu appears.
2. Select the HDB type **Statistics** and then press Enter.
The **New HDB Definition** window appears:

```

File Systems Options Help
-----
New HDB Definition
Command ==> _____

Specify new HDB definition options then press EXIT to save.

Name . . . . . EXPLORST  APPLID _____ + Image _____
Qualifier . . . . . Explorer
Description . . . Explorer Stats DB for CICS TS V4

Statistics Reports:                Alert Definition
_ Select to specify Statistics Reports  Alert . . _____ +

Data Retention Period:
HDB: Years 1__ Months ___ Weeks ___ Days ___ Hours ___
DB2: Years ___ Months ___ Weeks ___ Days ___ Hours ___

Data Set Allocation Settings:
DSN Prefix . . . . . USER
Management class . . . _____ (Blank for default management class)
Storage class . . . _____ (Blank for default storage class)
Volume serial . . . _____ (Blank for system default volume)
Device type . . . . . _____ (Generic unit or device address)
Data class . . . . . _____ (Blank for default data class)
Space Units . . . . . CYLS (TRKS, CYLS)
Primary quantity . . 10 (In above units)
Secondary quantity 5 (In above units)

F1=Help   F3=Exit   F4=Prompt   F7=Backward   F8=Forward   F10=Actions
F12=Cancel

```

3. Type a name for the HDB.
4. Specify a Qualifier in ISPF member name format. This value is used as an identifier to associate related HDB tables in the manifest. It is also incorporated into the DB2 table name: *qualifier.CPA_statid*, and is used as the Schema in the plug-in DB2 connection settings.

Multiple Statistics HDBs with the same qualifier will be exported to the same set of DB2 *statid* tables. This allows you to consolidate data from multiple HDBs into a single set of tables for analysis using the CICS PA plug-in.
5. Select the Explorer option to make this HDB eligible for inclusion in the manifest.
6. Statistics HDBs, by default, do not collect any statistics. You must select **Select to specify Statistics Reports** and then press Enter to activate the types of statistics (reports) that you want to collect.
 - Use the A line action to activate collection for the corresponding report or category. This will result in status indicator Collect=Yes.
 - Use the AO line action to activate collection only of data that satisfies an Alert condition. This will result in status indicator Collect=Alt.
 - Use the AL line action to activate load to DB2. This will result in status indicator DB2 Load=Yes.

Press Exit (F3) to save the **Statistics Reports** settings and return to the **New HDB Definition** panel.
7. If you used line action AO against any report, or you used line action A (activate collection) against either of the Alert reports, you must specify an Alert Definition. Press Prompt (F4) in the Alert field to select from a list of Alert Definitions.
8. Optionally, specify data retention periods indicating how long you want to keep the container data sets and DB2 rows associated with this HDB. You can

use the HDB Housekeeping program to delete expired container data sets and DB2 rows. If the HDB container data sets are no longer required after their data has been exported to DB2, specify a retention period of 0 in any of the HDB periods to make the data sets expire immediately.

9. Specify the data set allocation settings. The only required fields are:

- DSN prefix
- Space units
- Primary and secondary quantities

CICS PA creates HDB data set names in the following pattern:

```
dsn-prefix.hdb-name.Dyyddd.Thhmmss.HDB
```

where the date and time indicate when the HDB data set was allocated (CICS PA allocates the data set just before loading data).

10. Press the Exit key (F3) to save the HDB definition.

Load the HDB

1. On the **Historical Database** menu, select option **3 Load**. (You can also load the HDB from the Report Set panel by selecting HDB Load in the Extracts category.)

The list of HDBs appears.

2. Select the HDB that you want to load.

The **Load HDB** pop-up window appears:

File Systems Options Help

Load SUMMARY HDB - EXPLOR5P

Command ==> _____

Specify HDB load options then press Enter to continue submit.

| | |
|--------------------|-----------------------------|
| System Selection: | _____ Report Interval _____ |
| APPLID . . _____ + | YYYY/MM/DD HH:MM:SS.TH |
| Image . . _____ + | From _____ |
| Group . . _____ + | To _____ |

| | |
|-------------------------|-------------------------------|
| DB2 Export Options: | Table Load Options |
| <u>_</u> Load DB2 Table | <u>1</u> 1. Resume 2. Replace |

| | |
|--------------------------------|----------------------------------|
| Include Clock Field Components | Summary Options |
| <u>1</u> 1. Time and Count | <u>_</u> Include Sums of Squares |
| 2. Time only | |
| 3. Count only | |

Enter "/" to select option
/ Edit JCL before submit
/ _____

3. Select the CICS systems whose data you want to load.

4. Specify the time interval of the data that you want to load.

If you omit the time interval, and there is more than one SMF data set for the systems that you selected, then CICS PA selects all SMF data sets defined for that system.

5. If you want to load the HDB and export the data to the DB2 tables in a single job, select Load DB2 Table option and specify Table Load Options. Note that to do this the DB2 table must already be defined.

For a Performance HDB, if Load DB2 Table is selected ensure that Include Clock Field Components is set to 1 (Time and Count), and Summary Options is not selected (blank).

6. Press Enter to submit the load job.

If you selected the “Edit JCL before submit”, then the JCL appears in an edit panel. To submit the job, enter **sub** on the command line, and then press the Exit key (F3) to return to the CICS PA panel.

7. Check the results of the load job. In SDSF, list the data sets for the job, and then browse the data set named `HDBLnnnn`: this contains the “HDB LOAD Recap Report”, which describes the success or failure of the load.

If you did not select Load DB2 Table option, only the HDB is loaded at this point. You will need to export the data in the HDB to DB2 tables.

Export to DB2

1. On the **Historical Database** menu, select option **5 Export**.

The list of HDBs appears.

2. Select the HDB that you want to export.

The **Export HDB** panel appears, showing the list of container data sets for the selected HDB:

```
File Options Help
-----
Export SUMMARY HDB - EXPLORE5      Row 1 to 1 of 1
Command ==>                        Scroll ==> PAGE

Select to export HDB data sets to DB2.

HDB Name . . : EXPLORE5      Type . . : SUMMARY

Data Set Name                      ----- Start ----- Volume
USER.EXPLORE5.D05332.T180224.HDB    2009/02/20 00:05:00 DB0037
***** Bottom of data *****
```

3. Enter **S** next to the container data sets whose data you want to export.

An HDB can consist of several data sets. You can export from one or more container data sets.

The **Export HDB Data Set** panel appears:

```

File Options Help
-----
Export HDB Data Set
Command ==> _____

HDB Name . . . : EXPLOR5P
Data Set Name . : USER.EXPLORE5.D05332.T180224.HDB

Select option
1 1. Create DDL to define table      2. Load data into table

Create Options                                Load Options
_ Create Database                          1 1. Resume
_ Create Storage Group                      2. Replace

DB2 Settings:
DB2 Subsystem ID . . . DH2C
DSNTIAD Plan Nam e . . DSNTIA91
DB2 Load Library . . . 'DB2.V910.SDSNLOAD'
DB2 Exit Library . . . 'DB2.V910.SDSNEXIT'
DB2 RUNLIB Library . . 'DSN910.RUNLIB.LOAD'
Database . . . . . FGS187FC Storage Group . . SYSDFLT
VCAT Catalog name . . DB2CAT Volume . . . . .
Allocation: Primary 10 Secondary . . . . 5

Include Clock Field Components                Summary Options
1 1. Time and Count                          _ Include Sums of Squares
  2. Time only
  3. Count only

```

4. Contact your DB2 administrator for your local DB2 settings, and then type the values into the panel.

Exporting an HDB to DB2 is a two-step process. First, you use this panel to create and submit JCL that defines the DB2 tables (and, optionally, the database and storage group) that will contain the exported data. Second, you use the panel to create and submit JCL that loads data into the tables.

You only need to define the DB2 tables, database and storage group once. If these are already defined, go to step 1.

5. If the DB2 table has not already been created, select the option “Create DDL to define table”. If the database or storage group that you want to export to do not yet exist, then select the options to create those, too.

For a Performance HDB, ensure that Include Clock Field Components is set to 1 (Time and Count), and Summary Options is not selected (blank).

6. Press Enter. The panel prompts you to press Enter again to proceed. Press Enter again. An edit panel appears, containing JCL to create the required DB2 tables.

What DB2 tables will this define? For a performance HDB, CICS PA defines a single DB2 table with the following name:

qualifier.CPA_CMFPSUM

For a statistics HDB, CICS PA defines one DB2 table for each stat ID, with the following name:

qualifier.CPA_statid

For a Performance HDB, the generated JCL includes a step to create a DB2 view for use by the CICS PA plug-in.

7. Enter **sub** to submit the JCL, and then press the Exit key (F3) to return to the CICS PA panel.
8. Check the SYSPRINT file in the job output queue, to confirm that the tables were successfully defined.
9. In the CICS PA panel, select the option “Load data into table”.

For a Performance HDB, ensure that Include Clock Field Components is set to 1 (Time and Count), and Summary Options is not selected (blank).

The JCL to perform the load appears in an edit panel.

10. Enter **sub** on the command line to submit the job, and then press the Exit key (F3) to return to the CICS PA panel.

Build the manifest

A manifest is a proprietary DB2 table that contains all the information required by the CICS PA plug-in to access and use historical data. The manifest is a catalog of DB2 tables for HDBs that are associated with the same qualifier and for which the Explorer indicator is set.

Rebuild the manifest in the following situations:

- Whenever you add or change an HDB in a way that affects its eligibility for inclusion in the manifest. For example, if an HDB is currently included in the manifest and you change its qualifier or clear the Explorer option, it is no longer eligible for inclusion in the manifest.
- Whenever any changes are made to the status of a report in an eligible Statistics HDB. The manifest will only contain entries for statistics reports with a status of Collect=Yes or Alt and DB2 Load=Yes. If these indicators are not set, the report will not be included in the manifest and therefore will not be accessible through the CICS PA plug-in.
- When you upgrade to a new release of CICS TS in which the statistics record ID changes. For a table of record IDs by supported CICS TS release, see Using the Statistics reporting dialog.

1. On the **Historical Database** menu, select option **5 Export** or **7 Maintenance**.

The list of HDBs appears.

2. Select **Explorer -> Manifest Maintenance** from the action bar.

The **Manifest Maintenance** panel appears:

```

File Options Help
-----
Manifest Maintenance
Command ==> _____

Specify Qualifier for Manifest.

Qualifier . . . GF9IJG          _ Create Tablespace

Repository . . . . . : CICSPA.XYX.REPOSTRY

CICS versions (VRM):
Transaction Server . : 680
Transaction Gateway : 900

DB2 Settings:
DB2 Subsystem ID . . . DH2C
DSNTIAD Plan Name . . DSNTIA91
DB2 Load Library . . . 'DB2.V910.SDSNLOAD'
DB2 Exit Library . . . 'DB2.V910.SDSNEXIT'
DB2 RUNLIB Library . . 'DSN910.RUNLIB.LOAD'
Database . . . . . FGS187FC Storage Group . . SYSDFLT
VCAT Catalog name . . DB2CAT Volume . . . . .
Allocation: Primary  10 Secondary . . . . . 5

F1=Help    F3=Exit    F7=Backward  F8=Forward  F10=Actions  F12=Cancel
  
```

Figure 10. Manifest Maintenance

3. Type the name of a qualifier.
The manifest table will be named *qualifier*.CPA_MANIFEST. HDBs that have the same qualifier and which are otherwise eligible will be included in this manifest.
4. When creating the first manifest, select Create Tablespace. The tablespace name is MANIFEST. On subsequent uses of Manifest Maintenance (either when creating a manifest for a new qualifier or recreating a manifest to add or delete HDBs) do not select Create Tablespace.
5. Contact your DB2 administrator for your local DB2 settings, and then type the values into the panel.
6. Press Enter. The panel prompts you to press Enter again to proceed.
Press Enter again. An edit panel appears, containing JCL to create the required DB2 table.
7. Enter **sub** to submit the JCL, and then press the Exit key (F3) to return to the CICS PA panel.
8. Check the Recap report, which is written to MANB0001. This contains output from the job step that populates the manifest, and will include details of the HDBs that were included.
9. Check the SYSPRINT file in the job output, to confirm that the manifest table was successfully defined.

Sample Recap report

This example shows an example of the Recap report that is written by the manifest build job to MANB0001. This shows the total number of Performance and Statistics tables included in the manifest. Duplicate entries are listed in the report, though only the first occurrence is included in the manifest.

```

»
V5R1M0
CICS Performance Analyzer
Manifest Build Recap Report
... Page 1

MANB0001 Printed at 12:03:45 04/17/2013

Manifest Build for Qualifier: Q001      Repository DSN: CPA000.NW25X.MANIFEST.MAINT

Number of Performance tables:      1
Number of Statistics tables :      9

HDB Name  Table Name  Description              Status
-----
Q001P1    CPA_CMFPSUM Performance Summary      Included
Q001P2    CPA_CMFPSUM Performance Summary      Duplicate
Q001S1    CPA_HST005A Domain Subpools          Included
          CPA_HST006A Task Subpools          Included
          CPA_HST014A Storage Overview        Included
          CPA_HST014B DSAs                  Included
          CPA_HSTG000A Connection Manager     Included
          CPA_HSTG001A CICS Server Statistics  Included
Q001S2    CPA_HST065A MVS TCBS              Included
          CPA_HST014A Storage Overview        Duplicate
Q001S3    CPA_HSTG000A Connection Manager     Duplicate
          CPA_HSTG001A CICS Server Statistics  Duplicate
          CPA_HSTG002A CICS Server Instance for EXCI  Included
          CPA_HSTG007A CICS Server Instance for IPIC  Included

```

Extract performance data to CSV

This task describes how to create CSVs using HDBs. However, CSVs can also be created by using the Performance Extract report within Report Sets.

1. On the **Historical Database** menu, select option **6 Extract**.

The list of HDBs appears.

2. Select the HDB that you want to export.

The **Run SUMMARY HDB Extract** pop-up window appears:

```
Run SUMMARY HDB Extract - EXPLORE4
Command ==> _____
Specify Extract request options then press Enter to continue submit.

____ Report Interval ____ HDB contains data
      YYYY/MM/DD HH:MM:SS.TH in the range:
From _____ 2009/02/01 19:00 Extract Recap:
To _____ 2009/02/03 23:00 DDname . . . HXTS0001

Output Data Set:
Data Set Name . . 'USER.CICSPA.EXTRACT.CSV'
Disposition . . . 1. OLD 2. MOD (If cataloged)

Extract Format:
Form . . . . . EXPLORE4 + Enter "/" to select option
Delimiter . . . . . , / Include Field Labels
                        _ Numeric Fields in Float format

Processing Options:
Time Interval . . _____ (hh:mm:ss) Enter "/" to select option
Precision . . . . 4 (4-6) / Edit JCL before submit
```

3. Fill in the fields on the panel.

In the Form field, press **Prompt** (F4) to select a compatible report form.

Example: select EXPLORE5 if you are using the CICS PA plug-in on CICS TS V5.1.

If the required EXPLORE n form is not defined, select Samples in the action bar of the Report Forms panel to add the samples to your Report Forms data set.

Press Enter to submit the extract job.

4. **Tips for extracting CSV files**

- A quick way to extract all data in the HDB is to leave the “from” and “to” dates and times blank.
- To use the CSV file on a PC with the CICS PA plug-in:
 - Specify a comma (,) as the delimiter character, not the CICS PA default semicolon (;).
 - Include field labels.
 - Do not select the (z/OS host-specific) float format for numeric fields.

5. Transfer the CSV file to your PC as an ASCII text file with file extension .csv.

Loading CSV data in the CICS PA plug-in

You can load CSV data in the CICS PA plug-in in three ways: using copy and paste, by dragging and dropping, or using the import function of the CICS PA plug-in.

Note: Using an application other than the CICS PA plug-in to make changes to the CSV file might cause errors and make the data unusable by the CICS PA plug-in.

Locate the performance data file that you want to analyze and follow one of the methods below to load the data into the CICS PA plug-in:

Using copy and paste

You can copy and paste a file into the CICS PA plug-in by performing the following steps:

1. Copy the data file by right-clicking and selecting **copy** from the menu.
2. In the Project Explorer view, select the folder where you want to store the data.
3. Right-click and select **paste** from the menu.

A copy of the data file is now in the CICS PA plug-in and available for analysis.

For further information on loading data and other Eclipse functions, see the Eclipse Workbench User Guide.

Using drag and drop

You can drag a file from your file manager and drop it into the CICS PA plug-in by performing the following steps:

1. In your file manager, select the data file.
2. Hold down the left mouse button, and drag the file across to the Project Explorer view.
3. Still holding the left mouse button, place the cursor over the folder where you want to store the data file.
4. Release the button.

A copy of the data file is now in the CICS PA plug-in and available for analysis.

Using the Import function.

You can import a file into the CICS PA plug-in from your local file system using the Eclipse import function:

1. Right-click anywhere in the white space of the Project Explorer view and select **Import**.
2. In the **Import** dialog box, select **File System**. To assist in locating the file system, you can type **File System** in the text field. Click **Next**.
3. In the Import wizard, enter the directory path of the data, or click **Browse** and select the directory from the list. All the files in the directory are displayed in the Import wizard.
4. Click the box next to the data file to be imported.
5. In the **Into folder** text box, type the name of the folder where the data will be stored, or click **Browse** and select the target from the list. Click **Finish**.

A copy of the data file is now in the CICS PA plug-in and available for analysis.

Access the data using the CICS PA plug-in

You can analyze performance data that is produced by CICS Performance Analyzer for z/OS and stored in a database such as DB2. You must connect to the database before you can analyze the data, to do this you must create a credential, a set of information that you use to authenticate a connection to the CICS PA plug-in.

Before you begin

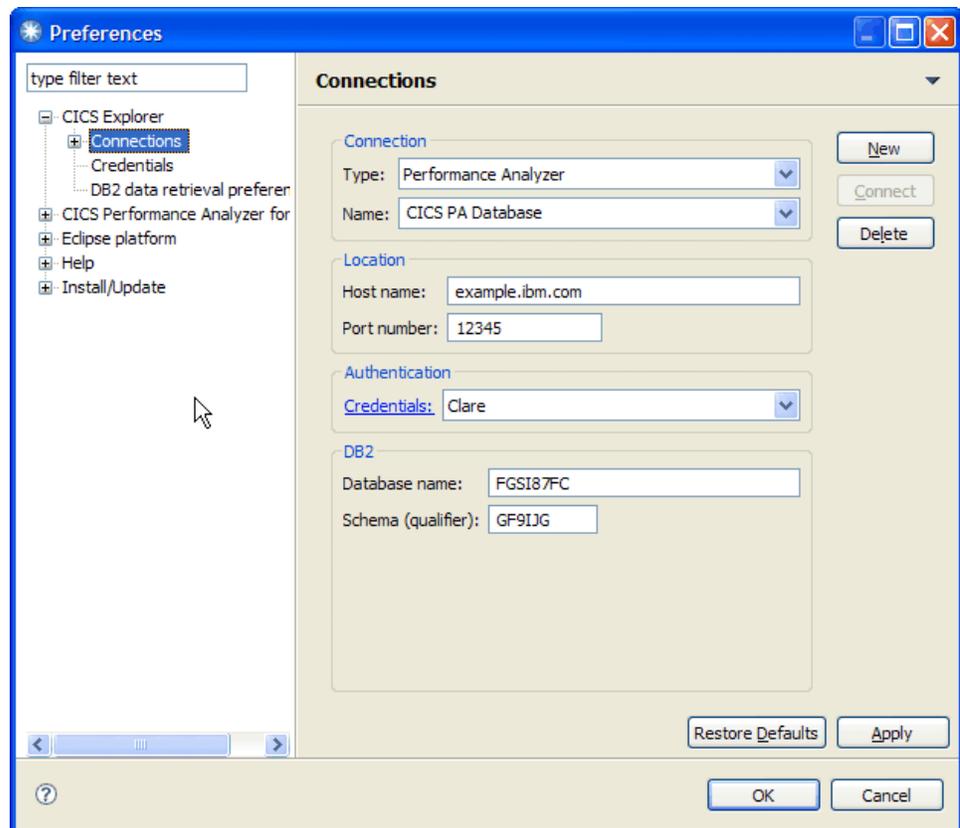
See the topic *Defining connection credentials* in the CICS Explorer User Guide for further information.

You must have your database connection details, the correct level of authorization, and be connected to your company's network.

Note: System connections can now be secured using the SSL protocol. For more information, see *Using SSL security for Explorer connections*, and *Managing SSL security and certificates*.

Procedure

1. Click **Window > Manage connections**.
2. In the Host Connections view, select Performance Analyzer and click **Add**. The Add Performance Analyze Connection dialog opens.



3. Complete the fields with the details provided by your system administrator:

| Option | Description |
|-----------|---|
| Name | The local name used to identify this database connection. The name can be anything you choose and is used to help you distinguish between different database connections. |
| Host name | The TCP/IP host name of your database server. |

| Option | Description |
|-----------------------------|---|
| Port Number | The port used to access the server. By default, DB2 on z/OS® listens for connections on port 448. |
| Secure connection (TLS/SSL) | Select this field if the connection uses SSL security. |
| DB2 Location | The name of the DB2 location on the server. |
| DB2 Schema (Qualifier) | The name of the schema used for the database. |

4. Click **Save and Close** to save the configuration without connecting or Click **Save and Connect** to save the configuration and connect immediately.
5. If you chose to connect immediately, you will need to select your user credentials.

What to do next

When you click **Connect**, the CICS PA plug-in attempts to connect to the database you have configured. If you did not previously enter your password in your credential settings, you are asked to enter it now.

If the connection is successful, a message is displayed in the CICS Explorer status bar and the connection icon is green. You can now select data for analysis.

If the connection is not successful, an error message is displayed in the CICS Explorer status bar providing a reason for the failure. Check the values in the fields, correct any errors, and click **Connect** to retry the connections.

Part 2. Specifying CICS-related SMF data for reporting

CICS Performance Analyzer for z/OS processes SMF data to produce reports and extracts and build historical databases. The chapters in this part provide an overview of the SMF data that CICS PA processes, and describe how to specify to CICS PA your SMF data files, CICS and related systems and groups.

Chapter 5. SMF data used by CICS PA

CICS PA produces reports and extracts using data normally collected by your system in MVS System Management Facilities (SMF) data sets and log streams:

SMF 110, subtype 1

CICS Monitoring Facility (CMF) performance class, exception class, and transaction resource class records

SMF 110, subtypes 2, 3, 4, 5

CICS statistics and server statistics records

SMF 111

CICS Transaction Gateway statistics

SMF 101

DB2 accounting records

SMF 116

WebSphere MQ accounting records

SMF 112

OMEGAMON XE for CICS records

SMF 88

System Logger records

Most CICS PA reports and extracts process CMF data. The DB2 report processes both CMF data and DB2 accounting data. The WebSphere MQ report processes only MQ accounting data. The CICS TG reports process only CICS TG statistics data. The OMEGAMON report processes only OMEGAMON XE for CICS data. The Record Selection extract processes all of the SMF record types listed in this topic. The System Logger report and extract process only System Logger data.

CICS Monitoring Facility data (SMF 110, subtype 1)

When CICS is running and the CICS Monitoring Facility (CMF) is active, data is collected by CMF and written to the MVS System Management Facilities (SMF) data set as type 110 records, subtype 1. The CMF data is subsequently analyzed offline by CICS PA.

Classes of CMF data

There are three types, or “classes”, of monitoring data that you can request CMF to collect: performance class, exception class, and transaction resource class data.

You can switch CICS monitoring on or off, and change the classes of data being collected, either at CICS initialization or dynamically while CICS is running. It is preferable to start all classes of monitoring data at CICS initialization. If you activate a class of monitoring data while CICS is running, the data for that class becomes available only for transactions that are started thereafter.

CICS PA analyzes three classes of CMF data:

- **Performance class data.** Detailed transaction-level information, such as the processor and elapsed time for a transaction, or the time spent waiting for I/O. There is at least one performance record per transaction.

- **Exception class data.** Information about exceptional conditions suffered by a transaction, such as queuing for file strings, or waiting for temporary storage. This data highlights possible problems in system operation. There is one exception record for each exception condition.
- **Transaction resource class data.** Additional transaction-level information about individual Files and Temporary Storage Queues used by a transaction.

Performance Class data

Performance class data provides detailed resource-level data that can be used for accounting, performance analysis, and capacity planning. This data contains information relating to individual task resource usage, and is completed for each task when the task terminates. This information could be used periodically to calculate the charges applicable to different tasks. If you want to set up algorithms for charging users for resources used by them, you could use this class of data collection to update the charging information in your site's accounting programs.

CMF collects performance class data at system-defined event-monitoring points (EMPs) in the CICS code. You cannot relocate these EMPs, but you can add additional ones in your application programs using the EXEC CICS MONITOR command (see the *CICS Application Programming Reference* for programming information about this command). For example, you could use additional EMPs to count the number of times a certain event occurs, or to time the interval between two events. Additional EMPs are also provided in some IBM program products, such as IMS DBCTL.

For each EMP that you code in an application program, you must code a corresponding definition in the Monitoring Control Table (MCT) using DFHMCT TYPE=EMP. In the MCT, you can also use DFHMCT TYPE=RECORD to *exclude* specific system-defined performance data from a CICS run. See the *CICS Resource Definition Guide* for details of the DFHMCT macros.

Performance data records are written to a CICS performance record buffer and not passed to SMF until the buffer is full, performance class monitoring is switched off, or CICS quiesces. If CMF is deactivated or there is an immediate shutdown of CICS, the records in the buffer not yet written to SMF are lost.

You can enable performance class monitoring in either of the following ways:

- At CICS initialization. Specify MNPER=ON (together with MN=ON) in the SIT.
- Dynamically when CICS is running. Use either:
 - Master terminal command:
CEMT SET MONITOR ON PERF
 - API command from within an application program:
EXEC CICS SET MONITOR STATUS(ON) PERFCLASS(PERF)

Exception Class data

CMF passes an exception record directly to SMF when any of the following exception conditions encountered by a transaction is resolved:

- Wait for storage in the CDSA
- Wait for storage in the UDSA
- Wait for storage in the SDSA
- Wait for storage in the RDSA
- Wait for storage in the ECDSA
- Wait for storage in the EUDSA
- Wait for storage in the ESDSA

- Wait for storage in the ERDSA
- Wait for storage in the GCDSA
- Wait for auxiliary temporary storage
- Wait for auxiliary temporary storage string
- Wait for auxiliary temporary storage buffer
- Wait for auxiliary temporary storage write buffer
- Wait for temporary storage queue
- Wait for temporary storage data set extension
- Wait for shared temporary storage
- Wait for shared temporary storage pool
- Wait for coupling facility data tables locking (request) slot
- Wait for coupling facility data tables non-locking (request) slot
- Wait for file buffer
- Wait for LSRPOOL string
- Wait for file string

An exception record is created each time any of the resources covered by CMF exception class monitoring becomes constrained by system bottlenecks. If performance data is also being recorded, it keeps a count of the number of exception records generated for each task and also the total time that the task was delayed due to encountering a resource shortage. The exception records can be linked to the performance data by the transaction identifier in the TASKNO and NETUOW fields in each type of record.

This data is intended to help you identify constraints that affect the performance of your transaction. The information is written to the SMF data set as soon as the task that was originally constrained has been released.

You can enable exception class monitoring in either of the following ways:

- At CICS initialization. Specify MNEXC=ON (together with MN=ON) in the SIT.
- Dynamically when CICS is running. Use either:
 - Master terminal command CEMT SET MONITOR ON EXCEPT
 - API command from within an application program EXEC CICS SET MONITOR STATUS(ON) EXCEPTCLASS(EXCEPT)

Transaction Resource Class data

Transaction resource class data provides additional transaction-level information about individual Files and Temporary Storage Queues used by a transaction.

The maximum number of files and temporary storage queues monitored for each transaction is limited by the FILE and TSQUEUE parameters on the DFHMCT TYPE=INITIAL macro, up to a maximum of 64 files and 64 temporary storage queues. The default is FILE=8 for files and TSQUEUE=8 for temporary storage queues. Therefore, you might need to assemble an MCT that specifies either or both FILE and TSQUEUE options if the default values are insufficient, or if you do not want to collect transaction resource data for either files or temporary storage queues. One transaction resource record is written for each transaction that is being monitored, provided the transaction accesses at least one of the resources for which monitoring data is requested, (for example, at least 1 file if you specify FILE=*number*).

Performance class data also provides information about file and temporary storage queue resource accesses, but this information in the performance record is given in total only for all files (see DFHFILE fields) and all temporary storage queues (see DFHTEMP fields). Transaction resource data breaks this information down by

individual file name and temporary storage queue name, up to the maximum number specified in the MCT. It also provides elapsed times for the File Control and Temporary Storage Control events.

Transaction resource information is completed for each task when the task terminates.

You enable transaction resource class monitoring in either of the following ways:

- At CICS initialization. Specify MNRES=ON (together with MN=ON) in the SIT.
- Dynamically when CICS is running. Use either:
 - Master terminal command:
CEMT SET MONITOR ON RESRCE
 - API command from within an application program
EXEC CICS SET MONITOR STATUS(ON) RESRCECLASS(RESRCE)

When CMF data is passed to SMF

The different classes of CICS monitoring records are not written to SMF in the same way:

- **Performance data records** are written to a performance record buffer, which is defined and controlled by CICS, as the records are produced. The performance records are passed to SMF for processing when the buffer is full, when the performance class of monitoring is switched off, and when CICS itself quiesces. When monitoring itself is deactivated or when there is an immediate shutdown of CICS, the performance records are not written to SMF and the data is lost.
- **Exception data records** are passed directly to SMF when the exception condition completes. Each exception record describes one exception condition. You can link performance records with their associated exception records by matching the transaction identification number (TASKNO field) or network unit-of-work ID (NETNAME and NETUOWSX fields) in each type of record.
- **Transaction resource data records** are written to a transaction resource record buffer, which is defined and controlled by CICS, as the records are produced. The transaction resource records are passed to SMF for processing when the buffer is full; when the transaction resource class of monitoring is switched off; and when CICS itself quiesces. When monitoring itself is deactivated or when there is an immediate shutdown of CICS, the transaction resource records are not written to SMF and the data is lost.

Controlling the CICS Monitoring Facility

When CICS is initialized, you can switch the CICS monitoring facility on by specifying the system initialization parameter MN=ON. The default setting is MN=OFF. You can also select the classes of monitoring data that you want to be collected using the MNPER, MNEXC, and MNRES system initialization parameters. You can request any combination of performance class, exception class, and transaction resource class data. The class settings can be changed whether monitoring itself is ON or OFF. For more information about the monitoring system initialization parameters, see the *CICS System Definition Guide*.

When CICS is running, you can control the CICS monitoring facility dynamically. Just as at CICS initialization, you can switch monitoring on or off, and you can change the classes of monitoring data that are being collected. There are two ways of doing this:

1. You can use the master terminal CEMT INQUIRE and SET MONITOR command, which is described in the *CICS Supplied Transactions*.

2. You can use the EXEC CICS INQUIRE and SET MONITOR commands; programming information about these commands can be found in the *CICS System Programming Reference*.

When you activate a class of monitoring data, data is collected only for transactions that start thereafter, not transactions already active. You cannot change the classes of monitoring data collected for a transaction after it has started. It is often preferable, particularly for long-running transactions, to start all classes of monitoring data at CICS initialization.

Event Monitoring Points

CICS monitoring data is collected at system-defined event monitoring points (EMPs) in the CICS code. Although you cannot relocate these monitoring points, you can choose which *classes* of monitoring data that you want to be collected. Programming information about CICS monitoring can be found in the *CICS Application Programming Reference* and the *CICS Customization Guide*.

If you want to gather more performance class data than is provided at the system-defined event monitoring points, you can code additional EMPs in your application programs, from within task-related user exit or from global user exits. At these points you can add or change up to 16384 bytes of user data within each performance record. Up to this maximum of 16384 bytes you can have, for each ENTRYNAME qualifier, any combination of the following:

- Between 0 and 256 counters
- Between 0 and 256 clocks
- A single 8196-byte character string

You could use these additional EMPs to count the number of times a certain event occurs, or to time the interval between two events. If the performance class was active when a transaction was started, but was not active when a user EMP was issued, the operations defined in that user EMP would still run on that transaction's monitoring area. The DELIVER option would result in a loss of data at this point, because the generated performance record cannot be output while the performance class is not active. If the performance class was not active when a transaction was started, the user EMP would have no effect.

User EMPs can use the EXEC CICS MONITOR command. For programming information about this command, see the *CICS Application Programming Reference*.

Additional EMPs are defined in some IBM program products, such as IMS DBCTL. From the CICS point of view, these are like any other user-defined EMP. EMPs in user applications and in IBM program products are defined by a decimal number. The numbers 1 through 199 are available for EMPs in user application, and the numbers from 200 through 255 are for use in IBM program products. In addition, the numbers can be qualified with an *entry name* so that you can use each number more than once. For example, PROGA.1, PROGB.1 and PROGC.1, identify three different EMPs because they have different entry names.

For each user-defined EMP there must be a corresponding monitoring control table (MCT) entry, which has the same entry name and identification number as the EMP that it describes.

You do not have to assign entry names and numbers to system-defined EMPs, and you do not have to code MCT entries for them.

Here are some ideas about how you might make use of user fields provided using the CICS monitoring facility:

- If you want to time how long it takes to do a table lookup routine within an application, code an EMP with, say, ID=50 just before the table lookup routine and an EMP with ID=51 just after the routine. The system programmer codes a TYPE=EMP operand in the MCT for ID=50 to start user clock 1. You also code a TYPE=EMP operand for ID=51 to stop user clock 1. The application then runs. When EMP 50 is processed, user clock 1 is started. When EMP 51 is processed, user clock 1 is stopped.
- One user field could be used to accumulate an installation accounting unit. For example, you might count different amounts for different types of transaction. Or, in a browsing application, you might count 1 unit for each record scanned and not selected, and 3 units for each record selected.

You can also treat the fullword count fields as 32-bit flag fields to indicate special situations, for example, out-of-line situations in the applications, operator errors, and so on. The CICS monitoring facility includes facilities to turn individual bits or groups of bits on or off in these count fields.

- The performance clocks can be used for accumulating the time taken for some sort of I/O operation. This is usually any waiting time for the transaction to regain control after the requested operation has completed. Because periods are counted as well, you can get the average time waiting for the I/O operation as well as the total waiting time. If you want to highlight an unusually long individual case, set a flag on in a user count as explained in the previous item.
- One use of the performance character string is for systems in which one transaction ID is used for widely differing functions. The application can enter a subsidiary ID into the string to indicate which particular variant of the transaction applies in each case.

Some users have a single transaction ID so that all user input is routed through a common prologue program for security checking or some other purpose, for example. In this case, it is very easy to record the subtransaction identifier in this prologue. (However, it is equally possible to route transactions with different identifiers to the same program, in which case this technique is not necessary.)

Application Naming and Event Monitoring Points

You can also use application naming event monitoring points. Application naming is an enabling function that allows your application programs to invoke special CICS event monitoring points. These special EMPs allow you to include additional task identification information (an alternative Transaction ID and Program name) in your CMF performance records.

You can use the application naming EMPs that are generated for you automatically when you specify APPLNAME=YES in the DFHMCT TYPE=INITIAL macro. The generated data is:

- The application naming Transaction ID, taken from the first 4 bytes of the 12 byte APPLNAME field.
- The application naming Program name, taken from the last 8 bytes of the 12 byte APPLNAME field.

For information about the APPLNAME parameter that you use to enable application naming support, see the *CICS Resource Definition Guide*.

The Monitoring Control Table (MCT)

The monitoring control table (MCT) is used to tell CICS:

- The type of resource for which you want to collect transaction resource monitoring data. Available resource types are Files and Temporary Storage Queues (see “DFHMCT TYPE=INITIAL”).
- To enable application naming support, which makes available the CICS-generated DFHAPPL EMPs to your application programs (see “DFHMCT TYPE=INITIAL”).
- About any user event monitoring points (EMPs) that you have coded in your application programs and the data that is to be collected or manipulated at these points (see “DFHMCT TYPE=EMP”).
- That you want certain CICS system-defined performance class data fields to not be recorded by CICS (see “DFHMCT TYPE=RECORD”).

IMS DBCTL users can collect DBCTL statistics in the CMF performance class records by including the DFH\$MCTD copy member in the MCT definition.

Full details of the MCT are provided in the *CICS Resource Definition Guide*. Examples of MCT coding are included with the programming information in the *CICS Customization Guide*.

DFHMCT TYPE=INITIAL

You use the DFHMCT TYPE=INITIAL macro to indicate whether you want application naming support and transaction resource monitoring.

For information about the APPLNAME, FILE and TSQUEUE parameters that control these facilities, see the *CICS Resource Definition Guide*.

DFHMCT TYPE=EMP

There must be a DFHMCT TYPE=EMP macro definition for each user-code event monitoring point (EMP). This macro has an ID operand, whose value must be made up of the ENTRYNAME and POINT values specified on the EXEC CICS MONITOR command. The PERFORM operand of the DFHMCT TYPE=EMP macro defines to CICS for the specified user EMP, the user fields (counts, clocks or characters) and the operations that CICS is to perform on them when the user event monitoring point is invoked.

DFHMCT TYPE=RECORD

The DFHMCT TYPE=RECORD macro allows you to *exclude* specific system-defined performance class data fields from a CICS run. Table 1 shows the default length of the performance class monitoring records for each CICS release supported by CICS PA, without taking into account any user data that can be added, or any excluded fields.

Table 1. Default performance record length by CICS TS for z/OS release

| CICS TS release | Record length |
|-----------------|---------------|
| 3.1 | 1848 bytes |
| 3.2 | 2352 bytes |
| 4.1 | 2672 bytes |
| 4.2 | 2960 bytes |
| 5.1 | 3260 bytes |

Each field of the performance class data that is gathered at the system-defined EMPs belongs to a group of fields that has a specific group identifier. Each

performance data field also has its own numeric identifier that is unique within the group identifier. For example, the transaction sequence number field in a performance class record belongs to group DFHTASK, and has a numeric identifier of 031. Using these identifiers, you can exclude specific fields or groups of fields, and reduce the size of the performance class records.

Sample MCTs

Four sample monitoring control tables are provided in the CICS sample library:

DFHMCTT\$

For terminal-owning regions (TORs)

DFHMCTA\$

For application-owning regions (AORs)

DFHMCTD\$

For application-owning regions (AORs with DBCTL)

DFHMCTF\$

For file-owning regions (FORs)

These samples show how to use the EXCLUDE and INCLUDE operands to reduce the size of the performance class record, reducing the volume of data that CICS writes to SMF.

Required CMF fields for CICS PA

If you are using the CICS Monitoring Control Table (MCT) EXCLUDE/INCLUDE parameters to reduce the size of the performance class record, you must ensure that the data fields required for some of the CICS PA reports and extracts are not excluded. These reports and extracts are:

- Cross-System Work report and extract
- Transaction Group report
- BTS report
- Workload Activity report
- Transaction Tracking List report
- Transaction Tracking Summary report
- DB2 report

See the *CICS Performance Analyzer for z/OS Report Reference* for the list of required CMF fields for each of these reports.

CICS Statistics data (SMF 110, subtypes 2, 3, 4, 5)

When CICS is running, statistics data is written to the SMF data set as type 110 records with the following subtypes:

- | | |
|---|---|
| 2 | Statistics |
| 3 | Shared Temporary Storage Server Statistics |
| 4 | Coupling Facility Data Table Server Statistics |
| 5 | Named Counter Sequence Number Server Statistics |

Statistics data is subsequently analyzed offline by CICS PA.

CICS Transaction Gateway Statistics data (SMF 111)

You can configure CICS Transaction Gateway for z/OS to write statistics data to the SMF data set as type 111 records.

Statistics data is subsequently analyzed offline by CICS PA.

DB2 accounting data (SMF 101 records)

DB2 accounting data is processed by the CICS PA DB2 report and Record Selection extract. DB2 accounting data is written by DB2 as SMF type 101 records.

DB2 accounting trace

The DB2 accounting trace provides information related to application programs, including:

- Start and stop times
- Number of commits and aborts
- Number of times certain SQL statements are issued
- Number of buffer pool requests
- Counts of certain locking events
- Processor resources consumed
- Thread wait times for various events
- RID pool processing
- Distributed processing
- Resource limit facility statistics

The DB2 accounting trace begins collecting this data at successful thread allocation to DB2. It writes a completed record when the thread terminates or when the authorization ID changes.

DB2 accounting records are produced when a thread is terminated or sign-on occurs. This means that the period reported in the DB2 accounting record is the time between start or user sign-on (if reusing a thread previously used by another user) and thread termination or another sign-on. You can use the ACCOUNTREC(TXID) parameter in the DB2ENTRY or DB2CONN to cause a DB2 accounting record to be produced when the transaction ID changes, and when the thread terminates or another sign-on occurs.

For thread reuse, this means that many users are included in the same record, which can cause difficulties for both accounting and problem determination. The ACCOUNTREC(TASK) or ACCOUNTREC(UOW) settings in a DB2ENTRY or DB2CONN provide more granularity. This is because a record is produced for each user. It involves the passing of a token between CICS and DB2, which is present in both CICS and DB2 traces. ACCOUNTREC(TASK) ensures that there is a minimum of one accounting record for each task. There can be more depending on thread reuse.

The CICS PA DB2 report only supports ACCOUNTREC(TASK) and ACCOUNTREC(UOW).

For more information about accounting and monitoring in a CICS DB2 environment, see the *CICS DB2 Guide*. For more information about setting up DB2 accounting, see the *DB2 UDB for OS/390® and z/OS Administration Guide*.

Accounting for processor usage in a CICS DB2 environment

The processor times reported in the DB2 accounting records are the TCB time for the thread TCB running code in CICS or in the DB2 address space, using cross-memory services; and the SRB time for work scheduled in CICS.

The DB2 accounting trace can be started with CLASS 1, CLASS 2, or CLASS 3. However, CLASS 1 must always be active to externalize the information collected by activating CLASS 2, CLASS 3, or both classes. CLASS 1 (the default) results in

accounting data being accumulated by several DB2 components during normal execution. This data is then collected to write the DB2 accounting record. The data collection does not involve any overhead of individual event tracing. CLASS 2 and CLASS 3 activate many additional trace points. Every occurrence of these events is traced internally, the additional total statistics computed and written to the DB2 accounting record.

For accounting CLASS 1, a task processor timer is created when the task control block (TCB) is attached. When a thread to DB2 starts, the timer value is saved. When the thread is terminated (or the authorization ID is changed), then the timer is checked again. Both the timer start and end values are recorded in the DB2 accounting record.

For accounting CLASS 2, the timer is checked on every entry and exit from DB2 to record the 'IN DB2' time in the DB2 accounting record. In this case, it is the difference that is stored in the record.

For accounting CLASS 3, the I/O elapsed time and lock and latch suspension time spent 'IN DB2' are collected and written to the DB2 accounting record.

WebSphere MQ accounting data (SMF 116 records)

WebSphere MQ accounting data is processed by the CICS PA WebSphere MQ report and Record Selection extract. MQ accounting data is written by WebSphere MQ as SMF type 116 records.

Accounting for processor usage in a CICS MQ environment

WebSphere MQ accounting information can be collected for three subtypes:

- 0 Message manager accounting records (how much of the central processing unit (CPU) was spent processing WebSphere MQ API calls and the number of MQPUT and MQGET calls). This information is produced when a named task disconnects from WebSphere MQ. The information contained within the record might cover many hours.
- 1 Accounting data for each task, at thread and queue level.
- 2 Additional queue-level accounting data (if the task uses more queues than can fit in the subtype 1 record).

Subtype 0 is produced with trace class 1. Subtypes 1 and 2 are produced with trace class 3.

MQ accounting trace

You can start the WebSphere MQ trace facility at any time by issuing the WebSphere MQ START TRACE command.

Accounting data can be lost if the accounting trace is started or stopped while applications are running. To collect accounting data successfully, the following conditions must apply:

- The accounting trace must be active when an application starts. It must still be active when the application finishes.
- If the accounting trace is stopped, any accounting data collection that was active stops.

You can also start collecting some MQ accounting data automatically if you specify YES in the SMFACCT (SMF ACCOUNTING) parameters of the CSQ6SYSP macro.

You cannot use this method to start collecting class 3 accounting information (thread-level and queue-level accounting). You must use the START TRACE command to do this. However, you can include the command in your CSQINP2 input data set so that the trace is started automatically when you start your queue manager.

For more information about setting up WebSphere MQ accounting, see the *WebSphere MQ for z/OS System Setup Guide*, SC34-6052.

OMEGAMON XE for CICS data (SMF 112 records)

OMEGAMON XE for CICS data is processed by the CICS PA OMEGAMON report and the Record Selection extract. OMEGAMON XE for CICS writes this data as SMF type 112 records.

For more information about these records, see the *IBM Tivoli OMEGAMON II for CICS Configuration and Customization Guide*, GC32-1981.

System Logger data (SMF 88 records)

System Logger data is processed by the CICS PA System Logger report. The MVS System Logger writes SMF type 88 records to record the System Logger activity of a single system in a sysplex. For capacity planning purposes, we recommend that you view the steady-state performance requirements of an application. Various flags in the SMF type 88 record highlight exception scenarios for additional analysis or changes in report processing.

Record type 88 focuses on the logstream data for a system in a sysplex, including use of interim storage. Interim storage is where log data is initially written, before being written to direct access storage device (DASD) log data sets. You can quickly access data in interim storage without incurring DASD I/O. In a coupling facility logstream, interim storage for log data is in coupling facility list structures. In a DASD-only logstream, interim storage for log data is contained in local storage buffers on the system and duplexed to staging data sets. Using record type 88 can help an installation avoid the STRUCTURE FULL exception, and perform other tuning, capacity planning analysis, or both.

Given a specific logstream, a record type 88 summarizes all of that logstream's activity on that system, as long as at least one address space is connected to the logstream on that system. If no System Logger write activity is performed on the logstream during a particular SMF interval, a record is produced showing zero for the various System Logger activity total fields.

The System Logger SMF record is cut for all logstreams connected at the expiration of the SMF global recording interval. Record type 88 is also triggered by the disconnection of the last logstream on that system.

SMF fields relating to resource events, either structure full or staging data set full conditions, should be handled depending on:

- Whether the resource is shared sysplex-wide and each system will take action
- Whether the resource is shared sysplex-wide but only one system will take action
- Whether the resource is consumed on a system-local basis

To obtain a sysplex-wide view of System Logger activity, correct processing for most SMF 88 data fields is to sum the field contents for the target interval across all the SMF 88 records produced in the sysplex. There are, however, exceptions to this rule. Because each system must take its own action — that is, wait for an ENF signal indicating that System Logger is available — an analysis program should use the maximum value for these fields: SMF88ERI, SMF88ERC, and SMF88ESF. For example, if a structure rebuild is initiated in a sysplex with three systems, the event is recorded on all three systems. The correct number of structure rebuild initiations is not three, but one or the maximum number provided SMF88ERI.

For DASD-only logstreams, staging data sets are a required part of the logstream configuration. For coupling facility logstreams, use of staging data sets implies a trade-off between performance workload and data integrity. You should try to tune the staging data set size to minimize the number of Staging_Dataset_Threshold_Hit conditions. Without this type of tuning, such conditions can impact performance during staging data set processing. Only an installation can determine what the proper trade-off between performance and data integrity should be.

Because System Logger maintains interim storage differently for coupling facility based logstream versus DASD-only logstreams, the difference is reflected in the SMF record 88 report:

- For a coupling facility based logstream, the Structure (Interim Storage) section of the record 88 report shows information about the usage of coupling facility structure space allocated for a logstream and the flow of log data through the structure.
- For a DASD-only logstream, the Structure (Interim Storage) section of the record 88 report shows information about usage of staging dataset space and the flow of data through the staging data set for the logstream.

Not all fields in the Structure (Interim Storage) section of the record 88 report apply to DASD-only logstreams. For a DASD-only logstream, fields that do not apply contain zeros. The SMF88STN field contains *DASDONLY* for a DASD-only log stream because there is no structure name.

Preparing SMF data for CICS PA processing

CICS PA processes non-active SMF data sets. There is no special preparation required for CICS PA other than to dump the active data sets into non-VSAM data sets at an appropriate time. Then define these output data sets to CICS PA as the input data sets for report processing.

Unloading SMF records

After all the SMF data from the CICS region is on the active SMF data set, you need to dump this data to an inactive SMF data set. First you switch the recording of SMF data from one data set to another. All SMF data in storage is written out before the transfer is made. This switch is performed by issuing the /I SMF operator command. The switch of SMF data sets takes place automatically when the active SMF data set becomes full.

To dump the SMF data set, use the SMF dump program (IFASMFDP). This program transfers the contents of the active SMF data set to an output data set, then resets the status of the dumped data set to ALTERNATE so that SMF can use it again for recording data. For more information about the IFASMFDP program, see the *z/OS MVS System Management Facilities (SMF)*.

The sample job shown in Figure 11 is an example of using the SMF program IFASMFDP to unload SMF records for offline processing by CICS PA.

```
//SMFJOB   JOB (Job Accounting)
//SMFDUMP  EXEC PGM=IFASMFDP,REGION=0M
//INDD1   DD DSN=SYS1.MV2C.MANA,DISP=SHR,AMP=('BUFSP=131072')
//INDD2   DD DSN=SYS1.MV2C.MANB,DISP=SHR,AMP=('BUFSP=131072')
//INDD3   DD DSN=SYS1.MV2D.MANA,DISP=SHR,AMP=('BUFSP=131072')
//INDD4   DD DSN=SYS1.MV2D.MANB,DISP=SHR,AMP=('BUFSP=131072')
//OUTDD1  DD DSN=CICS.CMF.DAILY(0),
           DISP=(MOD,CATLG),SPACE=(CYL,(25,5)),UNIT=SYSDA
//OUTDD2  DD DSN=CICS.TG.DAILY(0),
           DISP=(MOD,CATLG),SPACE=(CYL,(25,5)),UNIT=SYSDA
//OUTDD3  DD DSN=CICS.SMF.DAILY(0),
           DISP=(MOD,CATLG),SPACE=(CYL,(25,5)),UNIT=SYSDA
//SYSPRINT DD SYSOUT=A
//SYSIN   DD *
           INDD(INDD1,OPTIONS(DUMP))
           INDD(INDD2,OPTIONS(DUMP))
           INDD(INDD3,OPTIONS(DUMP))
           INDD(INDD4,OPTIONS(DUMP))
           OUTDD(OUTDD1,TYPE(110))
           OUTDD(OUTDD2,TYPE(111))
           OUTDD(OUTDD3,TYPE(88,101,112,116))
/*
//
```

Figure 11. Sample JCL using the SMF Unload utility

CICS PA System Definitions and SMF Data Take-Up

Before you request CICS PA reports and extracts, you must first define the CICS systems (generic APPLIDs) on which you want to report. Depending on your reporting requirements, you also might need to define: DB2 subsystems; MQ subsystems; MVS System Loggers; and CICS systems for CICS Transaction Gateway. Then specify the SMF data sets for these systems (CICS, DB2, MQ, Logger) or the MVS System (Image) where they run, or both.

An easy way to do this is to let CICS PA create your system definitions by using the Take-up facility. This facility extracts the system details directly from the SMF files. For more information, see “Personal Take-Up from SMF File” on page 106.

If you use the Take-up facility with SMF files that contain only OMEGAMON XE for CICS (SMF 112) records, then the facility defines CICS systems only, because SMF 112 records do not contain information about other types of system. Also, these CICS system definitions will not specify a CICS version (VRM field); again, because the SMF 112 records do not contain this information.

If you use the Take-up facility with SMF files that contain CICS Transaction Gateway statistics (SMF 111) records, then the facility defines CICS systems for the CICS Transaction Gateway APPLIDs. CICS system definitions taken up from SMF 111 records have a blank VRM field value, because this field is for CICS Transaction Server versions, not CICS Transaction Gateway versions. If the Take-up facility finds CICS Transaction Server and CICS Transaction Gateway systems with the same APPLID, it creates a single CICS system definition with a VRM field value according to the first system it finds.

Optionally, you can then define groups of systems for reporting purposes. For example, systems that connect via interregion communication/multiregion operation (IRC/MRO), intersystem communication/advanced program-to-program communication (ISC/APPC), or internet protocol interconnectivity (IPIC).

Dictionary records for CMF Performance Class data

A dictionary record holds definitional information about each data field in a performance class data record. It contains information for predefined CICS fields, and from any user fields in the Monitoring Control Table (MCT) specified for the CICS run.

When CICS monitoring is switched on, and you activate the monitoring performance class (MNPER=ON), CICS first writes a performance class dictionary record to the current SMF data set, and then begins to write the monitoring performance class data records. A new dictionary record, which always precedes the monitoring performance class data it relates to, is written whenever the user:

- Starts CICS with the performance class active, and CICS monitoring on.
- Changes the status of the monitoring performance class from inactive to active, with CICS monitoring on. If monitoring is off and the monitoring performance class is switched from inactive to active, a dictionary record is scheduled to be written the next time monitoring is activated.

However, if SMF switches data sets during the period when CICS monitoring is writing performance class data, CICS does not write a new dictionary record, and therefore a CICS performance dictionary record is not the first monitoring performance record on the new SMF data set.

How CICS PA uses dictionary records

When processing performance class data, CICS PA requires a dictionary record that relates to the data being processed before attempting to analyze the data.

If the dictionary record is missing from the SMF data set, CICS PA can use the default dictionary record for the release of the CICS system being processed. This is usually adequate, so there is nothing more you need to do in this regard.

However if you want to report user fields, you must ensure that there is a matching dictionary record for the monitoring data for each APPLID that you want to process. You can use the CICS PA dialog to do this.

Using CICS PA to create dictionary records: You can use the CICS PA dialog to create a dictionary record when you define the CICS System (APPLID). Figure 20 on page 84 shows the CICS System panel where you can do this. Specify a dictionary data set name then select **Dictionary** in the action bar to write the dictionary record. CICS PA includes the dictionary data set in the report JCL in the CPADICTR DD statement.

Order of precedence: When processing performance class data, CICS PA might read more than one dictionary record. CICS PA applies the following order of precedence to determine the dictionary record to use to analyze the data:

1. SMF file
2. CPADICTR DD statement
3. Default

That is, if the SMF data set that contains the performance record being processed has a dictionary record, then CICS PA uses that dictionary record. CICS PA uses the last dictionary record read and disregards any previously read. If the dictionary record is missing, then CICS PA uses the dictionary record in the CPADICTR data set. If that too is missing, then CICS PA uses the default dictionary record for the release of the CICS system being processed.

Using DFHMNDUP to create dictionary records

Alternatively, you can write your own job to create dictionary records. The remainder of this section describes how to do this using the CICS-supplied monitoring dictionary utility program, DFHMNDUP, to write a dictionary record for a specific APPLID to a sequential data set. This discussion on DFHMNDUP is included for historical interest only. *You do not need to do any of it, as CICS PA does it more appropriately.*

Figure 12 shows an example of using the dictionary utility program to create a dictionary record for APPLID CICSPROD.

```
//MNDUPJOB JOB (Job Accounting)
//MNDUP EXEC PGM=DFHMNDUP,REGION=0M
//STEPLIB DD DSN=CICS.SDFHLOAD,DISP=SHR
//SYSUT4 DD DSN=userid.applid.MNDUPREC,DISP=(NEW,CATLG),
// UNIT=SYSDA,SPACE=(TRK,(1,1))
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//SYSIN DD *
MCT=NO
SYSID=MVS1
GAPPLID=CICSPROD
SAPPLID=CICSPROD
/*
//
```

Figure 12. Sample job stream to run the DFHMNDUP utility

Note:

1. In addition to the CICS library containing the DFHMNDUP program, the STEPLIB concatenation must also include the library that contains any monitoring control table (MCT) that you specify on the MCT parameter.
2. The dictionary record is written to the data set specified by the SYSUT4 DD statement.
3. You might decide to keep a permanent dictionary data set, one for each CICS region, to hold the dictionary record. Specify the DISP parameter according to whether the data set already exists, or a new one is to be created and cataloged.
4. Control information for the DFHMNDUP program is provided in the SYSIN data set so that it can generate the correct dictionary record for the performance class data you are processing.

Extracting and printing the dictionary records

A possible user error that results in CICS PA producing large numbers of messages or incomplete reports can be caused by inconsistencies between the dictionary records and its corresponding performance data records. This typically occurs when you create the dictionary records using the dictionary utility program, DFHMNDUP.

Figure 13 on page 70 shows a sample job that can be used to extract the dictionary records from the SMF input file(s) and then use the CICS supplied monitoring sample program DFH\$MOLS to print *only* the dictionary records.

```

//DICTPRNT JOB (Job Accounting)
//DICTCOPY EXEC PGM=SORT,REGION=0M
//SORTIN DD DSN=smf110.data.set.name,DISP=SHR
//SORTOUT DD DSN=&&TEMP,DISP=(NEW,PASS),UNIT=SYSDA,SPACE=(TRK,(5,2))
//DFSMSG DD SYSOUT=A
//SYSOUT DD SYSOUT=A
//SORTDIAG DD SYSOUT=A
//SYSIN DD *
OPTION COPY,VLSHRT
RECORD TYPE=V
INCLUDE COND=(6,1,FI,EQ,110,AND,
              23,2,BI,EQ,X'0001',AND,67,2,BI,EQ,X'0001')
END
/*
//MOLSPRNT EXEC PGM=DFH$MOLS,REGION=0M,COND=(5,LT,DICTCOPY)
//STEPLIB DD DSN=CICSTS23.CICS.SDHFL0AD,DISP=SHR
//INPUT DD DSN=&&TEMP,DISP=(OLD,DELETE)
//SYSOUT DD SYSOUT=A
//SYSPRINT DD SYSOUT=A,DCB=BLKSIZE=133
//SYSABEND DD SYSOUT=A,DCB=BLKSIZE=133
//SYSUDUMP DD SYSOUT=A,DCB=BLKSIZE=133
//SYSIN DD *
* Print the dictionary records only
PRINT DIC
* Disable the date/time sequence checking
TIMEOFF
/*
//

```

Figure 13. Sample job to extract and print the Dictionary records

In this example, the DFH\$MOLS program will abend with the following message:

```
IEF450I DICTPRNT MOLSPRNT - ABEND=S000 U0107 REASON=00000000
```

and the following message is printed at the end of the dictionary report produced by DFH\$MOLS:

```
NO MONITORING RECORDS WERE SELECTED FOR PROCESSING; REPORT IS TERMINATED
```

For more information on the dictionary utility program DFHMNDUP and the monitoring sample program DFH\$MOLS, see the *CICS Operations and Utilities Guide*.

Chapter 6. Personal System Definitions

The systems and data files that you want to report against must be defined to CICS PA. The Personal System Definitions Menu provides options to do this. Typically your personal definitions are maintained by you and used by you for reporting. They are saved in your Personal Profile Library (CICS PA Settings). Shared System Definitions are typically maintained by a central administrator in the Repository and are used by all users for reporting.

To define your systems, files, and groups, select option 1 **Personal Systems** from the Systems menu. Alternatively, you can select **Systems** in the action bar of reporting panels, or enter **SYSDEFS** in the command line anywhere in the dialog.

Personal System Definitions overview

Use **Personal System Definitions** to define your CICS (and other related) systems and their SMF files.

Before you can run reports using Personal System Definitions, you must first define the CICS and related systems that you want to report against. You can fast-track this process by using **Take-up**. Simply specify an SMF file that contains records from the systems that you want to report against, and CICS PA will create system definitions for you based on the records in that file.

To walk through an example of how to do this, see “Example: Working with Personal Systems” on page 109.

CICS PA uses your System Definitions when you:

1. Run (submit) your report requests.

At Report Set run time, CICS PA automatically generates JCL that includes:

- Report requests for the CICS (and other related) systems that you select
- DD statements for the required SMF files

2. Create a new Report Form.

The version of your CICS system determines which CMF fields are available for reporting and your MCT specification allows you to incorporate user fields into your reports.

3. Create Cross-System Work Extract data sets.

Your MCT specification allows you to incorporate user fields into your extracts.

System Definitions is a menu driven facility that allows you to:

1. Define your CICS and associated DB2, MQ and Logger **Systems** and define the **Images** (MVS systems) where they run
2. Maintain the **SMF files** that contain data for these systems
3. Define **Groups** that enable you to connect systems for consolidated reporting
4. Use **Take-up** to populate your System Definitions from an SMF file

To access this facility, select option 1 **Systems** from the Primary Option Menu, and then select option 1 **Personal Systems** from the Systems menu. When first invoked, the System Definitions Menu is displayed as shown in Figure 14 on page 72. You

can choose to bypass this menu in the future.

```
File  Confirm  Options  Help
-----
                Personal System Definitions Menu
Command ==>> _____

Select an option then press Enter

1  1. Define Systems, SMF Files and Groups
   2. Maintain SMF Files
   3. Maintain Group definitions
   4. Take-up from SMF File

Enter "/" to select option
_  Always go directly to Systems View
```

Figure 14. Personal System Definitions: Menu

Systems

The systems specified in System Definitions are your CICS and other related systems that are eligible for report processing by CICS PA.

Each system is identified by its name, type, and optionally, its image:

Name The primary system identifier.

Type Five system types are supported:

CICS CICS Transaction Server region or CICS Transaction Gateway region. The system name is the CICS Transaction Server generic APPLID or the CICS Transaction Gateway APPLID.

Image MVS Image where your CICS regions run. The system name is usually the MVS SMF ID but it can be a unique arbitrary name.

DB2 DB2 subsystem that services your CICS regions. The system name is the DB2 subsystem ID.

MQ WebSphere MQ subsystem that services your CICS regions. The system name is the MQ subsystem ID.

Logger

MVS System Logger used by your CICS regions. The system name is an arbitrary name that represents the MVS System Logger.

Image Optionally, CICS, DB2, MQ and Logger systems can be further qualified by specifying the Image (MVS SMF ID) where they run.

CICS System

CICS systems define the CICS Transaction Server or CICS Transaction Gateway regions that you want to report against. They are identified by their CICS Transaction Server generic APPLID or CICS Transaction Gateway APPLID and optionally qualified by the MVS Image where they run.

CICS system names can be specified as patterns containing masking characters. For example, if your CICS development regions are called CICSD1, CICSD2, CICSD3, and their SMF records are on the same file, then you can define them once as a system called CICSD*. Then at report run-time, you can request that all CICSD* systems are processed, or any individual system matching the pattern can be requested. For example, CICSD1.

You can define SMF files to CICS systems. These files contain the SMF 110 and SMF 112 records for CICS Transaction Server regions, and the SMF 111 records for CICS Transaction Gateway regions. When this system is requested for reporting, CICS PA builds JCL that includes DD statements for these files.

You can also define CICS systems to Groups. This allows you to connect systems for consolidated cross-system style reporting. See “Groups” on page 75 for more information.

Image System

Image systems define the MVS systems where your CICS and other related systems run. They are usually identified by their MVS SMF ID but you can assign a unique arbitrary name to identify Images.

You can define SMF files to Image systems. These files contain the data for the CICS, DB2, MQ and Logger systems that belong to this Image. When an Image is selected for report processing, all systems with data on the Image's SMF files are reported.

Image systems have some special characteristics:

1. Images can be used to further qualify CICS, DB2, MQ and Logger systems. For example, CICS region CICSD1 runs on Image DEV1. Using Image to qualify your systems allows you to:
 - Distinguish between systems with same name but run on different images.
 - Specify your SMF files once only. When SMF files are defined to an Image, other systems that belong to the Image use these files if they don't have their own specified. This saves the duplication of assigning files to every system that needs them.
2. Images implicitly define all the systems that run on them. This allows you to just define the Image without defining the CICS and other systems that run on it. You can request reporting for any CICS system qualified by the Image but not explicitly defined in your System Definitions. CICS PA assumes that the report data for the CICS system is contained in the Image's files.

For example, CICS regions CICSP1, CICSP2 and CICSP3 run on MVS Image MVS1. You can decide to only define Image MVS1 to CICS PA and not the CICS regions. The regions are still eligible for reporting. When you request reporting for CICS system CICSP1 qualified by Image MVS1, CICS PA generates report requests for APPLID CICSP1, and assumes that the SMF Files defined to Image MVS1 contain the data for CICSP1.

DB2 System

DB2 systems define the DB2 subsystems used by your CICS regions. They are identified by their DB2 subsystem ID and optionally qualified by the MVS Image where they run.

Defining your DB2 subsystems allows you to run the DB2 report which presents a consolidated picture of DB2 resource usage by your CICS transactions.

You can define SMF files to DB2 systems. These files contain the DB2 accounting (SMF 101) data for that system. When this system is requested for reporting, CICS PA builds JCL that includes DD statements for these files.

You can also define DB2 systems to Groups. This allows you to connect a DB2 system to the CICS systems it services. See “Groups” on page 75 for more information.

MQ System

MQ systems define the WebSphere MQ subsystems used by your CICS regions. They are identified by their MQ subsystem ID and optionally qualified by the MVS Image where they run.

Defining your MQ subsystems allows you to run the MQ report which presents a consolidated picture of MQ resource usage by your CICS transactions.

You can define SMF files to MQ systems. These files contain the MQ accounting (SMF 116) data for that system. When this system is requested for reporting, CICS PA builds JCL that includes DD statements for these files.

You can also define MQ systems to Groups. This allows you to connect an MQ subsystem to the CICS systems it services. See “Groups” on page 75 for more information.

Logger System

Logger systems define the MVS System Loggers used by your CICS regions that you want to report against. They are identified by an arbitrary name and optionally qualified by the MVS Image where they run. The Logger system name is not a formal name associated with any aspect of your CICS System Logger set-up such as Logstream name, but simply a name you choose to identify this system by.

Defining Logger systems allows you to run the Logger report which presents a detailed analysis of the Logstreams and coupling facilities used by your CICS regions.

You can define SMF files to Logger systems. These files contain the System Logger (SMF 88) data for that system. When this system is requested for reporting, CICS PA builds JCL that includes DD statements for these files.

You can also define Logger systems to Groups. This allows you to connect a Logger system to the CICS systems it services. See “Groups” on page 75 for more information.

SMF Files

SMF Files are data sets that contain the SMF records for your systems. See “Systems” on page 72 for the type of records expected in the SMF file for each system type.

You define your SMF Files to the system(s) that they have data for. If your SMF File contains data for all systems running on an MVS Image, then define the file once to the Image system. Then all systems that run on that Image (CICS, DB2, MQ and Logger) will use the Image's file specification.

System Definitions has an SMF File maintenance facility that allows you to view all the SMF files you have defined and the systems that use each file. See “Maintaining Personal SMF Files” on page 96 for more information.

If you choose not to specify your SMF files in System Definitions initially, CICS PA will give you the opportunity to specify them at Report Set run time. Depending on your run-time options, you can either:

- Link to System Definitions to specify the required files, or

- Request that CICS PA generate report JCL with the SMF file data set names unresolved. Before submitting, you can specify the data set names directly in the JCL.

Groups

A Group is a collection of systems that require consolidated reporting. Instead of running a report against a particular System, you can run the report against a Group. This provides a facility for consolidated cross-system style reporting.

Some practical uses for Groups include:

- CICS systems that are connected by IRC/MRO, ISC/APPC, or IPIC — specify your TOR, AOR, FOR and DOR regions in a Group for cross-system reporting.
- CICS systems that use DB2 — specify your CICS DOR region and DB2 subsystem in a Group for DB2 reporting.
- CICS systems that use WebSphere MQ — specify your CICS region and MQ subsystem in a Group for MQ reporting.
- CICS systems that require System Logger reporting — specify your CICS region and Logger systems in a Group for Logger reporting.

Systems can belong to more than one Group.

System Definitions has a Group maintenance facility that allows you to view all the Groups that you have defined and the systems that belong to each Group. See “Maintaining Personal Groups” on page 101 for more information.

Take-up

Rather than creating system definitions yourself, you can use the take-up facility to create them for you. The take-up facility extracts system details from an SMF file that you specify, and uses these details to create system definitions. For more information, see “Personal Take-Up from SMF File” on page 106.

Personal System Definitions Menu

The first time that you invoke System Definitions, you are presented with a menu. You can choose to bypass this in the future.

```

File  Confirm  Options  Help
-----
                Personal System Definitions Menu
Command ==>> _____

Select an option then press Enter.

1  1. Define Systems, SMF Files and Groups
_  2. Maintain SMF Files
   3. Maintain Group definitions
   4. Take-up from SMF File

Enter "/" to select option
_ Always go directly to Systems View

```

Figure 15. Personal System Definitions: Menu

The System Definitions Menu displays the options available for specifying and maintaining Systems, SMF Files, and Groups. These are the three primary views of your System Definitions. For each of these views, there is a hierarchy of panels for maintaining their relationships:

- For a System, you can specify the SMF Files it uses and the Groups it belongs to.
- For an SMF File, you can specify the Systems that use it.
- For a Group, you can specify the Systems that belong to it.

This menu also provides a Data Take-up facility to extract details of Systems from an SMF File for automatic take-up into your System Definitions.

You can bypass the System Definitions Menu by selecting **Always go directly to Systems View**. Then option 1 from the Primary Option Menu will always go directly to the System Definitions panel.

To access the Systems, SMF Files, and Groups panels without using the menu, select from **View** in the action bar or enter one of the commands **VIEW SYSTEMS**, **VIEW FILES**, or **VIEW GROUPS**.

To redisplay the menu, select **View->Menu** in the action bar or enter the **MENU** command.

Regardless of your bypass choice, if you have Automatic Save on Exit set to **PROMPT** in your Profile Settings, the menu will always be displayed when you attempt to exit System Definitions. This allows you to enter **SAVE** or **CANCEL** before exit.

Primary Commands: The following primary commands are available:

SAVE This command saves any changes you have made during this invocation of System Definitions.

Also available from **File** in the action bar.

CONFIRM ON | OFF

CONFIRM ON (or **CONFIRM**) instructs CICS PA to prompt for confirmation when you request to Cancel from System Definitions when there are changes. With **CONFIRM OFF**, Cancel requests are actioned immediately, discarding any changes.

The **CONFIRM** command changes the setting only for the current invocation of System Definitions. On exit, it reverts to the default set by **Cancel Confirmation** in CICS PA Settings.

Also available from **Confirm** in the action bar.

Note:

1. The **SAVE** command is available only at the four possible “exit points” of System Definitions: the Menu, and the Systems, SMF Files, and Groups views. All System Definitions changes are saved upon issuing a **SAVE** command from any of these panels.
2. Updates to the current view are saved when you change views (**VIEW SYSTEMS | FILES | GROUPS** command) or display the menu (**MENU** command).
3. **CANCEL** (F12) discards all updates.
4. **EXIT** (F3) saves your System Definitions as follows:
 - If the System Definitions Menu is *not* being bypassed, your System Definitions are not saved until Exit from the Menu.
 - If the System Definitions Menu *is* being bypassed, your System Definitions are saved on Exit from any view (Systems, Files, or Groups).

Maintaining Personal System Definitions

The System Definitions panel is displayed when you select option 1 **Define Systems, SMF Files and Groups** from the System Definitions Menu. However, if you opted to bypass the menu and go straight to the Systems view, then selecting option 1 **System Definitions** on the Primary Option Menu displays the System Definitions panel immediately. You can also change to the Systems view from the Files or Groups view by selecting from **View** in the action bar or by entering the **VIEW SYSTEMS** command.

The System Definitions panel is the primary panel for maintaining your system definitions. When the list of Systems is displayed:

- To define a new system, enter the **NEW** command and it is added at the top of the list. Alternatively, you can enter the line action **I** (Insert) on the row before where you want the new entry to be added.
- To update or view details of a system including its related files and groups, enter the **S** line action against the system where it appears in the list.
- To delete a system that is no longer required, enter the **D** line action against the system where it appears in the list.
- You can also use **C** or **R** to copy or repeat a system entry together with its associated files and groups. Note however that an MVS Image must have a unique name.
- **FIND** and **SORT** commands are available to help you locate entries in the list.
- You can select **Filter->Set Filter** in the action bar to reduce the volume of the display to only the systems that match your specified criteria.

```

File Edit Filter View Mass_Update Options Help
-----
Personal System Definitions Row 1 from 9
Command ==> _____ Scroll ==> ____

Select a System to edit its definition, SMF Files and Groups.

/ System Type Image Description SMF Files System
- CICS P001 CICS MVS1 CICS APPLID CICS P001/MVS1 MVS1
- MVS1 Image MVS System MVS1 MVS1
- DB2P DB2 MVS1 DB2 Subsystem DB2P/MVS1 MVS1
- CICS D001 CICS CICS APPLID CICS D001 CICS D001
- DB2D DB2 MVS1 DB2 Subsystem DB2D/MVS1 DB2D
- DB2E DB2 DB2 Subsystem DB2E DB2E
- DB2F DB2 DB2 Subsystem DB2F
- CICS P001 Logger MVS1 System Log for CICS PLOG/MVS1 MVS1
- CICS P* CICS CICS APPLID s CICS P* CICS P*
***** End of list *****

```

Figure 16. Personal System Definitions

This panel lists the Systems that are available for Report Set processing. A System is identified by the combination of its System ID, System type, and MVS (SMF) Image ID. Each row shows System, Type, Image, Description, and the SMF Files System. The fields are display-only except for Description.

System

The system name is one of the following depending on the type:

- CICS Transaction Server generic APPLID
- CICS Transaction Gateway APPLID
- MVS (SMF) Image ID
- DB2 Subsystem ID

- WebSphere MQ Subsystem ID
- MVS System Logger ID

CICS PA automatically inserts an Image definition when a System is added or updated with a new Image. The Image is inserted in the list immediately after the System that created it.

The purpose of Image definitions is two-fold:

1. To allow you to report against all systems running on an MVS Image without having to explicitly specify the system names.
2. To allow you to specify the SMF data set names once. Simply define your SMF files for an MVS Image, and all systems running on that Image (with no files of their own) will use these files.

If they are uniquely defined, the order of the system definitions is not relevant to CICS PA. You can list them on this panel in the order that is convenient for you. Line action **M** (Move) or the **SORT** command is available for this purpose.

Type The type of system is one of the following:

1. **CICS System.** Either a CICS Transaction Server system identified by its generic APPLID, or a CICS Transaction Gateway system identified by its APPLID. CICS PA matches this name against the CICS Transaction Server generic APPLID specified in SMF 110 and SMF 112 records, and the CICS Transaction Gateway APPLID specified in SMF 111 records.
2. **MVS Image.** MVS System, identified by its MVS SMF ID (SID parameter in SMFPRMnn) or any name that uniquely identifies your system. The name need not match any formal MVS definition.
3. **DB2 Subsystem.** DB2 Subsystem, identified by its SSID. CICS PA matches this name against the SSID specified in the DB2 accounting records.
4. **MQ Subsystem.** WebSphere MQ Subsystem, identified by its SSID. CICS PA matches this name against the SSID specified in the MQ accounting records.
5. **System Logger.** MVS System Logger, identified by the CICS or MVS system it services or any name that identifies the Logger system. The name need not match any formal MVS definition.

Image Image is the SMF identifier of the MVS System which collects the SMF data and runs the CICS System, DB2 Subsystem, MQ Subsystem, or System Logger. Image is blank when the System is an Image because the System name is the Image name.

Description

Description is free-format text up to 36 characters to describe the system. This is for your reference only, although CICS PA will insert it as a comment in your Report Set JCL.

SMF Files System

The SMF Files System identifies where you have defined the files for this system. These are the files that CICS PA will use for Report Set JCL generation.

CICS PA allows systems to share files. So if an MVS Image is running a number of CICS, DB2 or MQ systems, you need only specify the files once for the Image.

If this indicator is blank, the system (and its associated Image) have no files defined or they are all Excluded. If your Report Set requests this system, the JCL generation process will invoke the “Missing SMF Files Option”.

Enter the **S** line action to view or modify the SMF File specifications (and Groups) for the system.

Line Actions

| | |
|----------|------------------------------------|
| / | Display the menu of line actions |
| S | Select (edit) the System |
| I | Insert a row |
| R | Repeat this row |
| C | Copy this row |
| M | Move this row |
| A | Move/Copy after this row |
| B | Move/Copy before this row |
| D | Delete this row |
| U | Include CICS system in mass update |

Note: A line action on this panel applies to the System definition and all its associated information. For example, copying a row copies the System details and all its File and Group relationships. Deleting a row deletes the System and its relationships, but not the Files and Groups themselves.

Primary Commands

NEW name CICS|IMAGE|DB2|MQ|LOGGER

This command creates a new System. If all required parameters are specified, the Definition panel for the system is displayed. Otherwise, the New System window is displayed to allow you to specify the name and type of the new System.

Also available from **File** in the action bar.

See “New System” on page 81 for information on how to proceed.

SAVE This command saves any changes you have made during this invocation of System Definitions.

Also available from **File** in the action bar.

FIND string

This command (or **F**) looks for the specified character string in all columns or a subset of columns in the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use **F5** or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is displayed. Use **F5** or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Also available from **Edit** in the action bar.

SORT SYSTEM|TYPE|IMAGE|DESCRiption

This command sorts the list of Systems on the specified column. The default is SYSTEM (then TYPE and IMAGE). The order is retained on exit.

Also available from **Edit** in the action bar.

SELECT pattern

This command inserts line action **S** next to all Systems whose names match the specified pattern.

SELECT|S pattern

This command inserts line action **S** next to all Systems whose names match the specified pattern (such as **PROD***, to match all Systems whose name begins with the letters **PROD**).

SELECT|S pattern U

This command inserts line action **U** (include in mass update) next to CICS Systems whose names match the specified pattern.

RESET

This command (or **RES**) removes all outstanding line actions.

Also available from **Edit** in the action bar.

VIEW FILES|GROUPS

This command takes you to the Files or Groups view. Updates are saved when you change views.

Also available from **View** in the action bar.

MENU

This command takes you to the System Definitions Menu. Updates are saved when you go to the menu.

Also available from **View** in the action bar.

Note:

1. The **SAVE** command is available only at the four possible “exit points” of System Definitions: the Menu, Systems view, SMF Files view, and Groups view. All System Definitions updates are saved on issuing a **SAVE** command from any of these panels.
2. Updates are saved when you change views (**VIEW SYSTEMS|FILES|GROUPS** command) or display the menu (**MENU** command).
3. **CANCEL** (F12) discards all updates.
4. **EXIT** (F3) saves changes as follows:
 - If the System Definitions Menu is *not* being bypassed, the System Definitions are not saved until Exit from the Menu.
 - If the System Definitions Menu *is* being bypassed, the System Definitions are saved on Exit from any view (Systems, Files, or Groups).

Set Filter (Systems)

The following panel is displayed when you select **Filter->Set Filter** in the action bar of the System Definitions panel.

```

----- Set Filter -----
Command ==> _____

Specify or revise filtering criteria then press Enter.

System ID . . . . C*_____ (Blank or pattern)
MVS Image . . . . _____ (Blank or pattern)

/ Include CICS Systems
7 Include MVS Images
7 Include DB2 Subsystems
7 Include MQ Subsystems
7 Include System Logger

```

Figure 17. System Definitions: Set Filter (Systems)

This facility allows you to filter the amount of information displayed in the current view.

Specify any combination of the following filtering criteria:

System ID, MVS Image

Specify a name or pattern for one or both. Masking characters % and * are allowed. Only systems that match the pattern are eligible for display. For example, CIC*1 will display CICPROD1 and CICST1 but not CICST1A.

Include CICS Systems, MVS Images, DB2, MQ, System Logger

Type / against the type of systems you want displayed. Only those selected are eligible for display.

Press Enter to set the filter.

A system will only be displayed in the filtered view when all the specified filtering options are matched. All others are hidden (they are not deleted). Exit, Save, or Cancel processing applies to the entire list of systems, regardless of whether they are displayed or filtered out.

When filtering is in effect **Filter Mode - More:** is displayed in the top right corner after the panel title. On initial entry to the Systems view, no filtering is in effect.

To reset the filter and redisplay all intervals and the row count, select **Filter->Set filter off** in the action bar. The filtering criteria will remain dormant in the Set Filter panel.

New System

The New System panel is displayed when you enter the **NEW** command or the line action **I** (Insert) from the System Definitions panel.

```

New System
Command ==> _____
Specify the name and type of system.
System Name . . CICS GP2_
System Type . . _ 1. CICS System
                  2. MVS Image
                  3. DB2 Subsystem
                  4. MQ Subsystem
                  5. System Logger

```

Figure 18. System Definitions: Specifying a New System

This panel allows you to create a new system definition. You must specify the system name and type.

You can bypass this panel by entering the command **NEW name CICS|IMAGE|DB2|MQ|LOGGER** in full.

The options are:

System Name

Specify the name of the new system. Names can contain only alphanumeric (A-Z,0-9) or special (@,#,\$) characters. For a CICS APPLID, DB2 or MQ SSID, or Logger name you can also specify a pattern using the % and * masking characters.

A CICS APPLID, Image, or Logger name has a maximum length of 8 characters, whereas for a DB2 or MQ SSID it is 4 characters.

Type Select the type of system:

1. **CICS System.** Either a CICS Transaction Server system identified by its generic APPLID, or a CICS Transaction Gateway system identified by its APPLID. CICS PA matches this name against the CICS Transaction Server generic APPLID specified in SMF 110 and SMF 112 records, and the CICS Transaction Gateway APPLID specified in SMF 111 records.
2. **MVS Image.** MVS System, identified by its MVS SMF ID (SID parameter in SMFPRMnn) or any name that uniquely identifies your system. The name need not match any formal MVS definition.
3. **DB2 Subsystem.** DB2 Subsystem, identified by its SSID. CICS PA matches this name against the SSID specified in the DB2 accounting records.
4. **MQ Subsystem.** WebSphere MQ Subsystem, identified by its SSID. CICS PA matches this name against the SSID specified in the MQ accounting records.
5. **System Logger.** MVS System Logger, identified by the CICS or MVS system it services or any name that identifies the Logger system. The name need not match any formal MVS definition.

Mass Update of Personal CICS System Definitions

Suppose that, some time ago, you created CICS System Definitions in CICS PA using version-specific data set names for the MCT and SDFHLOAD libraries. Now you want to upgrade your CICS System Definitions in CICS PA to match this change in your system environment. Rather than selecting and then editing each system definition individually, you can upgrade several (or all of them) together.

- On the System Definitions list panel, select systems using one of these methods:
 - Type line action **U** next to each of the CICS System Definitions that you want to upgrade together.
 - On the command line, enter: **S prefix* U**
where *prefix* matches the leading characters of the names of the CICS System Definitions that you want to upgrade together.
 - To select all CICS System Definitions: enter **S * U** on the command line; or select **Mass_Update** in the action bar. This inserts line action **U** next to every CICS System Definition, including any rows that are not visible in the current view of the list panel. You can selectively remove **U** from any system definitions that you do not want to upgrade now.

Notes:

- You can only enter line action **U** next to System Definitions of type CICS.
- To be updated a CICS System Definition must be selected and must match the particular existing “from” values that you specify.

Once you have selected the systems you want to update, press Enter to display the Mass Update CICS Systems panel:

```

File Options Help
-----
                          Mass Update Shared CICS Systems
Command ==> _____

Execution option . . 1 1. Report only
                   2. Perform update and report
                   3. Populate From and To with first system details

Definition changes:
MVS Image From . . _____ To . . _____

Description From . . _____
              To . . . _____

MCT Suffix From . . __          To . . __

MCT Load   From . . _____
Library    To . . . _____

SDFHLOAD   From . . _____
Library    To . . . _____

Dictionary From . . _____
DSN        To . . . _____

Log Stream From . . _____ RETPD From ____ 1
              To . . . _____              To ____

Update options:
_ Populate dictionary data set with new dictionary record
_ Auto save after successful update 2
  
```

Figure 19. System Definitions: Mass Update CICS Systems

1 The Log Stream and RETPD fields are used with Shared System Definitions. They are not applicable to Personal System Definitions.

2 For Personal System Definitions, CICS PA saves updates to disk according to the “Auto save after successful update” option. For Shared System Definitions updates are always saved immediately, so this option is not applicable.

- In the “From” fields, enter the old values that you want to upgrade. In the matching “To” fields, enter the new values.

The "From" fields for Description and data set names (MCT Load Library, SDFHLOAD Library, Dictionary DSN, and Log Stream) can specify an asterisk (*) as a wildcard to indicate zero or more characters, or the percent symbol (%) as a wildcard to indicate any single character.

- To view a report of the changes that your "From" and "To" field values would have on each of the selected CICS System Definitions, select the "Report only" option. To perform the changes and then view a report of the changes, select "Perform update and report".

CICS System (APPLID) definition

The CICS System panel is displayed when:

- You enter the **S** line action against a CICS System listed on the System Definitions panel.
- You enter the **NEW** command with a type of **CICS**.

```

File Edit Dictionary View Options Help
-----
CICS System Row 1 of 3 More: >
Command ===> _____ Scroll ===> ____

CICS System definition:
APPLID . . . . . CICS__ MVS Image . . MVS1 VRM . . :
Description . . . . . CICS system CICS1 on MVS MVS1 _____

MCT Suffix . . . . . U1
MCT Load Library . . . 'CICS.PROD.MCTLOAD' _____
SDFHLOAD Library . . . 'CICS.PROD.SDFHLOAD' _____
Dictionary DSN . . . . 'USER.CICSPA.CICS1.DICT' _____

/ Exc SMF Data Set Name + UNIT + SEQ VOLSER +
* 'CICSPAOR.CMF1' _____ CART 1 000010 +
- 'CICSPAOR.CMF2' _____ 3390 _____ +
* 'CICSPAOR.CMF3' _____ _____ +
***** End of list *****

F1=Help F3=Exit F4=Prompt F5=Rfind F6=Resize
F7=Backward F8=Forward F10=Actions F11=Right F12=Cancel

```

Figure 20. System Definitions: CICS System (with Files)

Scroll **Right** (F11) to switch between Files view and Groups view, which displays additional fields. Files is the initial view.

```

...
/ Group + Description
- CICSPROD Production CICS _____
- DB2PROD_ Production DB2 _____
***** End of list *****
...

```

Figure 21. System Definitions: CICS System (with Groups)

For each system, CICS PA remembers its last view and returns there next time.

This panel is used to define a CICS system (CICS TS or CICS TG) to CICS PA. The definition includes:

- CICS Transaction Server generic APPLID or CICS Transaction Gateway APPLID, which must be specified
- MVS (SMF) ID where the CICS system runs
- Suffix of the Monitoring Control Table (MCT)
- Load Library containing the MCT load module
- SDFHLOAD Library containing the CICS utility program DFHMNDUP which CICS PA uses to generate CMF Dictionary records
- Name of a sequential data set which contains the Dictionary record for this CICS system
- Files used by the CICS system
- Groups the CICS system belongs to

The CICS system details are:

APPLID

The CICS Transaction Server generic APPLID or CICS Transaction Gateway APPLID. An APPLID is up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters, and must be specified. You can also specify a pattern using the % and * masking characters.

Image

The SMF identifier of the MVS system where the CICS system runs. An Image ID is up to 8 alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

VRM The VRM value is displayed if it can be determined from the MCT load library or the SDFHLOAD library, otherwise it is blank.

Description

Description is free-format text up to 36 characters to describe the system. This is for your reference only, although CICS PA will insert it as a comment in your Report Set JCL.

MCT Suffix

The suffix of the CICS Monitoring Control Table (MCT), which should be the same as the MCT= parameter in DFHSIT. The suffix is one or two alphanumeric (A-Z,0-9) or special (@,#,\$) characters. If not specified, CICS PA uses the system default MCT. If specified, the MCT Load Library must also be specified. The MCT is needed to include user fields in your reporting.

MCT Load Library

The name of the load library containing the MCT load module. If not specified, CICS PA cannot use the MCT to determine the user fields defined in the MCT.

SDFHLOAD Library

The name of the library containing the CICS utility program DFHMNDUP which CICS PA uses to generate a Dictionary record. CICS PA uses the Dictionary record to interpret the CMF performance data records processed from the SMF files. If not specified, CICS PA cannot determine the CICS VRM or report user fields defined in the MCT.

Dictionary DSN

The name of the data set that contains the Dictionary record for this CICS system. It can be either the name of a data set with Variable record format (RECFM=V) or the name of a member of a partitioned data set (PDS).

You only need to specify this if you want to report the user fields defined in the MCT. If you are not reporting user fields, then you can let CICS PA use the default Dictionary record for your release of CICS.

If you want CICS PA to generate the Dictionary record for this CICS system, do the following:

1. Specify the Dictionary DSN.
2. Specify the SDFHLOAD Library so that CICS PA can use the DFHMNDUP utility to generate the Dictionary record.
3. Select **Dictionary** in the action bar. CICS PA immediately populates the specified data set with the Dictionary record for this CICS system. If the data set is not cataloged, CICS PA will allocate it before writing the record. If the data set is cataloged, CICS PA will overwrite its contents with the new Dictionary record.

At JCL generation time, CICS PA inserts the Dictionary DSN (if cataloged) in the **CPADICTR DD** statement.

Dictionary records describe the format of CMF performance records and are required for CICS PA reporting. Usually the SMF data set contains a Dictionary record to describe the format of its records. If it is missing, CICS PA uses the record in the CPADICTR data set if present, otherwise it uses the default Dictionary record for the release of the CICS system being processed.

Primary Commands

FIND string

This command (or **F**) looks for the specified character string in the SMF Data Set Name and Group columns of the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use **F5** or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is displayed. Use **F5** or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Also available from **Edit** in the action bar.

SORT GROUP|DESCRiption

This command sorts the list of Groups by name (the default) or description. The order is retained on exit.

Also available from **Edit** in the action bar.

Note: The SORT command is not available for Files since it is important that the data set names are specified in time sequence.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

Files the System uses

See Figure 20 on page 84 for a view of the CICS System panel where you can list all the files that the system uses.

Each listed data set has the following attributes:

Exc The data set is marked by an asterisk * if it is to be Excluded from reporting. Excluded data sets are not eligible for Report Set JCL generation. Enter the **X** line action to reverse the status (Exclude/Include) of the data set.

SMF Data Set Name

The name of an SMF data set containing data for

- Report Set processing:
 - CMF performance class, exception class, and transaction resource class data (SMF 110 records)
 - DB2 accounting data (SMF 101 records)
 - WebSphere MQ accounting data (SMF 116 records)
 - System Logger data (SMF 88 records)
 - OMEGAMON XE for CICS (SMF 112 records)
- Statistics reporting:
 - CICS statistics and server statistics data (SMF 110 records)
 - CICS Transaction Gateway statistics data (SMF 111 records)

You can select data set names from a list of available data sets by using **Prompt** (F4) or the **S** line action.

Normal ISPF data set conventions apply. Fully qualified data set names must be enclosed in quotes, except if **PROFILE NOPREFIX** is set.

The data sets, if not Excluded, are processed by CICS PA JCL generation in the order in which they are specified on the panel. For reporting to span more than one data set, specify the data sets in time sequence (earliest first).

If the data set is not cataloged, then specify UNIT, SEQ, or VOLSER.

UNIT

The generic or esoteric device type of the data set, such as 3390, SYSDA, or CART. This must represent a device type that is defined in the Eligible Device Table of the current processor as either TAPE or DASD. To select one from a list of possible Units, position the cursor on the UNIT field and press **Prompt** (F4).

UNIT can be specified without a VOLSER, in which case CICS PA will use the explicitly specified device type when generating JCL but will not include the UNIT parameter in the generated JCL. In this way the JCL generation process can be made aware of the device type of a data set that is yet to be cataloged, or is cataloged on another system. CICS PA uses the device type to determine tape unit affinity when generating JCL.

SEQ

The File Sequence Number is only required for uncataloged tape data sets. It identifies the relative position of the data set on a tape volume. Omit, or code 0 or 1 to indicate the first data set on the tape volume.

VOLSER

The volume serial number of the data set. It is only required for uncataloged data sets. If a VOLSER is specified, then a UNIT must also be specified.

CICS PA appends a + sign to the VOLSER to indicate that the data set spans multiple volumes.

To display the VOLSER List of up to 16 volumes, do one of the following:

- Enter the **V** line action.
- Place the cursor on the + sign and press **Enter**.
- Place the cursor on the VOLSER field and press **Prompt** (F4).

Line Actions

The valid line actions for the System Files view are:

- /** Display the menu of line actions
- S** Select Files from a list
- I** Insert a blank row for entry of a related file
- R** Repeat this row
- C** Copy this row
- M** Move this row
- A** Move/Copy after this row
- B** Move/Copy before this row
- D** Delete this row
- U** Select Unit from a list
- V** Display the VOLSER List for up to 16 volumes
- X** Reverse the Exclude indicator (Include/Exclude)

Select SMF Files

The Select SMF Files panel is displayed when you enter the line action **S** or press **Prompt** (F4) from an SMF Data Set Name field on a system definition panel (CICS System, MVS Image, DB2 Subsystem, MQ Subsystem, System Logger). It displays the list of files not already defined to the system. This list is a subset of the files maintained in the Files view (see Figure 32 on page 96).

```

Select SMF Files                               Row 1 to 6 of 6
Command ====> _____ Scroll ====> ____

Select one or more Files then press EXIT.

      SMF Data Set Name                UNIT  SEQ  VOLSER
. 'CICSPAOR.CMF1'                      SYSALLDA 1  000010
. 'CICSPAOR.CMF2'                      3390
. 'CICSPAOR.CMF3'
. 'CICSPTOR.CMF1'                      SYSALLDA 1  00110
. 'CICSPTOR.CMF2'                      3390
. 'CICSPTOR.CMF3'
***** End of list *****

```

Figure 22. System Definitions: Select SMF Files

This is a list of SMF Files that are available for selection.

Enter a / or S line action to select one or more files from the list.

Press **Exit** (F3) to complete your selection.

Select a Unit

The Select a Unit panel is displayed when you press **Prompt** (F4) from the UNIT field when specifying a data set:

- For a Personal System Definition
- In the Files view
- On the Data Take-Up panel

It lists the unit device types that are defined as either TAPE or DASD in the Eligible Device Table of the processor CICS PA is running on.

Enter a / or S line action (or point-and-shoot) to select a unit device type from the list.

VOLSER list

The list of Volsers is displayed when you press **Prompt** (F4) from the VOLSER field when specifying a data set:

- For a Personal System Definition
- In the Files view
- On the Data Take-Up panel

The VOLSER List is used to specify up to 16 volume serial numbers when the SMF data set spans more than one volume. The VOLSERS are listed in the JCL in the same order as they are specified here.

Groups the System belongs to

See Figure 21 on page 84 for a view of the CICS System panel where you can list all the groups that the system belongs to.

Each group in the list has the following attributes:

Group The name of a Group that this system belongs to. A system can belong to any number of groups. A group name need not be a formal CICS definition, but any name you choose to identify a group of related systems. You can select one or more from a list of available groups by using **Prompt** (F4).

By specifying a Group name, you can group related systems for reporting purposes, such as cross-system reporting for CICS systems that connect via IRC/MRO, ISC/APPC, IPIC, or transaction grouping.

Description

Description is free-format text up to 36 characters to describe the group.

Line Actions

The valid line actions for the System Groups view are:

- / Display the menu of line actions
- S Select Groups from a list
- I Insert a row
- R Repeat this row

- C Copy this row
- M Move this row
- A Move/Copy after this row
- B Move/Copy before this row
- D Delete this row

Select Groups

The Select Groups panel is displayed when you enter the line action **S** or press **Prompt** (F4) from a Group field on a system definition panel (CICS System, MVS Image, DB2 Subsystem, MQ Subsystem, System Logger). It displays the list of groups that the system does not already belong to. This list is a subset of the groups maintained in the Groups view (see “Maintaining Personal Groups” on page 101).

```

----- Select Groups -----
                                     Row 1 to 4 of 4
Command ==> _____ Scroll ==> ____

Select one or more Groups then press EXIT.

   Group           Description
.  PRODMR01       Production MRO
.  WEEKLY         Weekly SMF data
.  MONTHLY        Monthly SMF data
.  YEARLY         Yearly SMF data
***** End of list *****

```

Figure 23. System Definitions: Select Groups

This is a list of groups that are available for selection.

Enter a / or **S** line action to select one or more groups from the list.

Press **Exit** (F3) to complete your selection.

MVS Image definition

The MVS Image panel is displayed when:

- You enter line action **S** against an MVS Image listed on the System Definitions panel.
- You enter the **NEW** command with a type of **IMAGE**.

```

File Edit View Options Help
-----
                                     MVS Image           Row 1 of 2 More: >
Command ==> _____ Scroll ==> ____

MVS Image definition:
MVS Image . . . . . MVS1_____
Description . . . . MVS system MVS1_____

/ Exc           SMF Data Set Name +           UNIT +  SEQ VOLSER +
-  * 'MVS1.CMF.FILEB' _____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind    F6=Resize
F7=Backward  F8=Forward    F10=Actions  F11=Right   F12=Cancel

```

Figure 24. System Definitions: MVS Image (with Files)

```

File Edit View Options Help
-----
MVS Image                               Row 1 of 2 More: >
Command ==> _____ Scroll ==> ____

MVS Image definition:
MVS Image . . . . . MVS1_____
Description . . . . MVS system MVS1_____

/ Group +                               Description
- PLEXPROD Production CICS_____
- PRODSHAR Production data sharing_____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind     F6=Resize
F7=Backward  F8=Forward   F10=Actions  F11=Right    F12=Cancel

```

Figure 25. System Definitions: MVS Image (with Groups)

This panel is used to define an MVS Image to CICS PA. The definition includes:

- MVS (SMF) ID of the MVS Image where CICS APPLIDs, DB2 SSIDs, MQ SSIDs, or System Loggers run
- Description of the Image
- Files the Image uses
- Groups the Image belongs to

Scroll **Right** (F11) to switch between Files and Groups. Files is the initial view. However, for each system, CICS PA remembers its last view and returns there next time.

The Image details are:

MVS Image

The name of the MVS Image. The Image name must be unique. An Image name is up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

Description

Description is free-format text up to 36 characters to describe the MVS system. This is for your reference only, although CICS PA will insert it as a comment in your Report Set JCL.

The primary commands are the same as on the CICS System panel. See “CICS System (APPLID) definition” on page 84.

The lists of related Files and Groups work the same here as on the CICS System panel. See “Files the System uses” on page 87 for the Files and “Groups the System belongs to” on page 89 for the Groups.

DB2 Subsystem definition

The DB2 Subsystem panel is displayed when:

- You enter line action **S** against a DB2 Subsystem listed on the System Definitions panel.
- You enter the **NEW** command with a type of **DB2**.

```

File Edit View Options Help
-----
                                DB2 Subsystem          Row 1 of 2 More: >
Command ==>> _____ Scroll ==>> _____

DB2 Subsystem definition:
DB2 SSID . . . . . DB2P MVS Image . . . MVS1_____
Description . . . . . DB2 Subsystem DB2P on MVS MVS1_____

/ Exc          SMF Data Set Name +          UNIT +  SEQ VOLSER +
-  * 'MVS1.DB2.FILEX' _____
-  * 'MVS1.DB2.FILEY' _____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind    F6=Resize
F7=Backward  F8=Forward    F10=Actions  F11=Right   F12=Cancel

```

Figure 26. System Definitions: DB2 Subsystem (with Files)

```

File Edit View Options Help
-----
                                DB2 Subsystem          Row 1 of 1 More: >
Command ==>> _____ Scroll ==>> _____

DB2 Subsystem definition:
DB2 SSID . . . . . DB2P MVS Image . . . MVS1_____
Description . . . . . DB2 Subsystem DB2P on MVS MVS1_____

/  Group +          Description
-  DB2PROD  Production DB2_____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind    F6=Resize
F7=Backward  F8=Forward    F10=Actions  F11=Right   F12=Cancel

```

Figure 27. System Definitions: DB2 Subsystem (with Groups)

This panel is used to define a DB2 Subsystem to CICS PA. The definition includes:

- SSID of the DB2 Subsystem
- MVS Image where the DB2 Subsystem resides
- Description of the Subsystem
- Files used by the DB2 Subsystem
- Groups the DB2 Subsystem belongs to

Scroll **Right** (F11) to switch between Files and Groups. Files is the initial view. However, for each system, CICS PA remembers its last view and returns there next time.

The DB2 Subsystem details are:

DB2 SSID

The DB2 Subsystem ID. A DB2 SSID can be up to four alphanumeric (A-Z,0-9) or special (@,#,\$) characters. You can also specify a pattern using the % or * masking characters.

MVS Image

The SMF identifier of the MVS system where the DB2 subsystem runs. An Image ID is up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

Description

Description is free-format text up to 36 characters to describe the system. This is for your reference only, although CICS PA will insert it as a comment in your Report Set JCL.

The primary commands are the same as on the CICS System panel, see “CICS System (APPLID) definition” on page 84.

The lists of related Files and Groups work the same here as on the CICS System panel, see “Files the System uses” on page 87 for the Files and “Groups the System belongs to” on page 89 for the Groups.

Note: Usually, you only need to specify files for DB2 subsystems when the DB2 Accounting records reside in a different data set to the CICS CMF records.

MQ Subsystem definition

The WebSphere MQ Subsystem panel is displayed when:

- You enter line action **S** against an MQ Subsystem listed on the System Definitions panel.
- You enter the **NEW** command with a type of **MQ**.

```
File Edit View Options Help
-----
MQ Subsystem                               Row 1 of 2 More: >
Command ===> _____ Scroll ===> ____

MQ Subsystem definition:
MQ SSID . . . . . MQSP  MVS Image . . . MVS1_____
Description . . .MQ Subsystem MQSP on MVS MVS1_____

/ Exc          SMF Data Set Name +          UNIT +  SEQ VOLSER +
_ * 'MVS1.MQS.FILEX' _____
_ * 'MVS1.MQS.FILEY' _____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind    F6=Resize
F7=Backward  F8=Forward    F10=Actions  F11=Right   F12=Cancel
```

Figure 28. System Definitions: MQ Subsystem (with Files)

```
File Edit View Options Help
-----
MQ Subsystem                               Row 1 of 2 More: >
Command ===> _____ Scroll ===> ____

MQ Subsystem definition:
MQ SSID . . . . . MQSP  MVS Image . . . MVS1_____
Description . . .MQ Subsystem MQSP on MVS MVS1_____

Group +          Description
_ MQSPROD  Production MQ
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind    F6=Resize
F7=Backward  F8=Forward    F10=Actions  F11=Right   F12=Cancel
```

Figure 29. System Definitions: MQ Subsystem (with Groups)

This panel is used to define an WebSphere MQ Subsystem to CICS PA. The definition includes:

- SSID of the WebSphere MQ Subsystem

- MVS Image where the WebSphere MQ Subsystem resides
- Description of the Subsystem
- Files used by the WebSphere MQ Subsystem
- Groups the WebSphere MQ Subsystem belongs to

Scroll **Right** (F11) to switch between Files and Groups. Files is the initial view. However, for each system, CICS PA remembers its last view and returns there next time.

The WebSphere MQ Subsystem details are:

WebSphere MQ ID

The WebSphere MQ Subsystem ID. A WebSphere MQ SSID can be up to four alphanumeric (A-Z,0-9) or special (@,#,\$) characters. You can also specify a pattern using the % or * masking characters.

MVS Image

The SMF identifier of the MVS system where the WebSphere MQ subsystem runs. An Image ID is up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

Description

Description is free-format text up to 36 characters to describe the system. This is for your reference only, although CICS PA will insert it as a comment in your Report Set JCL.

The primary commands are the same as on the CICS System panel. See “CICS System (APPLID) definition” on page 84.

The lists of related Files and Groups work the same here as on the CICS System panel. See “Files the System uses” on page 87 for the Files and “Groups the System belongs to” on page 89 for the Groups.

System Logger definition

The System Logger panel is displayed when:

- You enter line action **S** against a System Logger listed on the System Definitions panel.
- You enter the **NEW** command with a type of **LOGGER**.

```

File Edit View Options Help
-----
                                System Logger          Row 1 of 1 More: >
Command ===> _____ Scroll ===> ____

System Logger definition:
Logger . . . . . CICSPO01 MVS Image . . . MVS1____
Description . . . System Logger - CICS system CICSPO01

/ Exc          SMF Data Set Name +          UNIT +  SEQ VOLSER +
-----
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind     F6=Resize
F7=Backward  F8=Forward   F10=Actions  F11=Right    F12=Cancel

```

Figure 30. System Definitions: System Logger (with Files)

```

File Edit View Options Help
-----
System Logger                               Row 1 of 1 More: >
Command ==> _____ Scroll ==> _____

System Logger definition:
Logger . . . . . CICSPO01  MVS Image . . . MVS1
Description . . . System Logger - CICS system CICSPO01

/  Group +          Description
_  CICSPROD  Production CICS systems
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind     F6=Resize
F7=Backward  F8=Forward   F10=Actions  F11=Right    F12=Cancel

```

Figure 31. System Definitions: System Logger (with Groups)

This panel is used to define a System Logger to CICS PA. The definition includes:

- ID of the System Logger
- ID of the MVS Image the System Logger services
- Description of the Logger
- Files used by the Logger
- Groups the Logger belongs to

Scroll **Right** (F11) to switch between Files and Groups. Files is the initial view. However, for each system, CICS PA remembers its last view and returns there next time.

The System Logger details are:

Logger

The name of the System Logger. This is not a formal MVS or CICS definition but any name you choose to identify the System Logger for your CICS systems. The name contains up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters. You can also specify a pattern using the % and * masking characters.

MVS Image

The SMF identifier of the MVS system where the System Logger runs. An Image ID is up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

Description

Description is free-format text up to 36 characters to describe the system. This is for your reference only, although CICS PA will insert it as a comment in your Report Set JCL.

The primary commands are the same as on the CICS System panel. See “CICS System (APPLID) definition” on page 84.

The lists of related Files and Groups work the same here as on the CICS System panel. See “Files the System uses” on page 87 for the Files and “Groups the System belongs to” on page 89 for the Groups.

Maintaining Personal SMF Files

The SMF Files view is the primary panel for maintaining your file definitions.

To display the SMF Files view:

- From the System Definitions Menu, select option 2 **Maintain SMF Files**
- From the System Definitions list panel, enter the **VIEW FILES** command or select **View->Files** in the action bar

From the list of SMF Files you can perform the following actions:

- Define a new data set using the line action **I**, or copy or repeat a data set along with its associated systems
- Use the line action **S** to update or view the systems that use a data set
- Delete a data set that is no longer required
- Use the **FIND** and **SORT** commands to locate entries in the list
- Use **Filter->Set Filter** in the action bar to display only files that match your specified criteria

```
File Edit Filter View Options Help
-----
Personal SMF Files Row 1 from 6
Command ===> _____ Scroll ===> ____

Select to review the Systems that use the SMF data set.

/ Use          SMF Data Set Name          UNIT + SEQ VOLSER +
- 123 'CICSPAOR.CMF1' _____ SYSALLDA 1_ 000010 +
- 745 'CICSPAOR.CMF2' _____ 3390____ _
- 12  'CICSPAOR.CMF3' _____
- 1   'CICSPTOR.CMF1' _____ SYSALLDA 1_ 00110_
- 0   'CICSPTOR.CMF2' _____ 3390____ _
- 23  'CICSPTOR.CMF3' _____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind     F7=Backward  F8=Forward
F10=Actions  F12=Cancel
```

Figure 32. System Definitions: Personal SMF Files

This panel is used to maintain SMF data sets that you want to run your Report Sets against. The SMF data sets contain the CICS Monitoring Facility (CMF) performance class, exception class, and transaction resource class data, DB2 accounting records, MQ accounting, and MVS System Logger records.

Through the related Systems (and their Groups), CICS PA uses the specified SMF data sets in the generation of Report Set JCL. The Use count shows the number of Systems that use this File. The count ignores Exclude indicators.

Each listed data set has the following attributes:

Use The File Use count. This indicates the number of Systems that use this File. The count ignores the Exclude indicator.

SMF Data Set Name

The name of an SMF data set containing data for

- Report Set processing:
 - CMF performance class, exception class, and transaction resource class data (SMF 110 records)

- DB2 accounting data (SMF 101 records)
- WebSphere MQ accounting data (SMF 116 records)
- System Logger data (SMF 88 records)
- OMEGAMON XE for CICS (SMF 112 records)
- Statistics reporting:
 - CICS statistics and server statistics data (SMF 110 records)
 - CICS Transaction Gateway statistics data (SMF 111 records)

Normal ISPF data set conventions apply. Fully qualified data set names must be enclosed in quotes, except if **PROFILE NOPREFIX** is set.

If the data set is not cataloged, then specify **UNIT**, **SEQ**, or **VOLSER**

UNIT

The generic or esoteric device type of the data set, such as 3390, SYSDA, or CART. This must represent a device type that is defined in the Eligible Device Table of the current processor as either TAPE or DASD. To select one from a list of possible Units, position the cursor on the UNIT field and press **Prompt** (F4).

UNIT can be specified without a VOLSER, in which case CICS PA will use the explicitly specified device type when generating JCL but will not include the UNIT parameter in the generated JCL. In this way the JCL generation process can be made aware of the device type of a data set that is yet to be cataloged, or is cataloged on another system. CICS PA uses the device type to determine tape unit affinity when generating JCL.

SEQ

The File Sequence Number is only required for uncataloged tape data sets. It identifies the relative position of the data set on a tape volume. Omit, or code 0 or 1 to indicate the first data set on the tape volume.

VOLSER

The volume serial number of the data set. It is only required for uncataloged data sets. If a VOLSER is specified, then a UNIT must also be specified.

CICS PA appends a + sign to the VOLSER to indicate that the data set spans multiple volumes.

To display the VOLSER List of up to 16 volumes, do one of the following:

- Enter the **V** line action.
- Place the cursor on the + sign and press Enter.
- Place the cursor on the VOLSER field and press **Prompt** (F4).

Line Actions

| | |
|----------|--|
| / | Display the menu of line actions |
| S | Specify related Systems |
| I | Insert a blank row after this row to specify a new DSN |
| R | Repeat this row |
| C | Copy this row |
| M | Move this row |
| A | Move/Copy after this row |
| B | Move/Copy before this row |

- D Delete this row
- U Select Unit from a list
- V Display the VOLSER List for up to 16 volumes

Note: A row command on this panel applies to the SMF File specification and all its associated information. For example, copying a row copies all details of the data set (name, unit, file sequence number, up to 16 volume serial numbers) and all its System relationships. Deleting a row deletes the SMF File specification and its System relationships, but not the Systems themselves.

Primary Commands

SAVE This command saves any changes you have made during this invocation of System Definitions.

Also available from **File** in the action bar.

FIND string

This command (or **F**) looks for the specified character string in all columns or a subset of columns in the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use **F5** or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is displayed. Use **F5** or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Also available from **Edit** in the action bar.

SORT DSN

This command sorts the list of Files on data set name. The order is retained on exit.

Also available from **Edit** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

VIEW SYSTEMS | GROUPS

This command takes you to the Systems or Groups view. Updates are saved when you change views.

Also available from **View** in the action bar.

MENU

This command takes you to the System Definitions Menu. Updates are saved.

Also available from **View** in the action bar.

Set Filter (Files)

The Set Filter panel is displayed when you select **Filter->Set Filter** in the action bar of the SMF Files panel.

```

----- Set Filter -----
Command ==> _____
Specify or revise filtering criteria then press Enter.
SMF File 'CICSP*_____ (Blank or
                                     pattern)

```

Figure 33. System Definitions: Set Filter (Files)

This facility allows you to filter the amount of information displayed in the current view.

Specify a name or pattern for **SMF File** then press **Enter** to set the filter on. Masking characters % and * are allowed.

A file will only be displayed in the filtered view if the data set name and any enclosing quotes match the pattern. For example, 'CMF*' will display 'CMFPERF.DATA' but not CMFEXCPT.DATA.

Files that are not displayed are not deleted. Exit, Save, or Cancel processing applies to the entire list of files, regardless of whether they are displayed or filtered out.

When filtering is in effect **Filter Mode - More:** is displayed in the top right corner after the panel title. On initial entry to the Files view, no filtering is in effect.

To reset the filter and redisplay all intervals and the row count, select **Filter->Set filter off** in the action bar. The filtering criteria will remain dormant in the Set Filter panel.

Systems that use this File

To display the panel for maintaining the Systems that use a File, enter the line action **S** against the File listed in the Files view.

```

File Edit Options Help
-----
Systems with this File                               Row 1 to 5 of 5
Command ==> _____ Scroll ==> ____
Data Set Name . . : CICSPAOR.CMF1
/  Exc System + Type Image Description
-  *  CICSP001 CICS MVS1 CICS system CICSP001/MVS1_____
-  *  CICSD001 CICS MVS1 CICS system CICSD001_____
-  DB2P DB2 MVS1 DB2 subsystem DB2P/MVS1_____
-  MVS1 Image MVS1 MVS system MVS1_____
S
***** End of list *****
F1=Help F3=Exit F4=Prompt F5=Rfind F6=Resize
F7=Backward F8=Forward F10=Actions F12=Cancel

```

Figure 34. System Definitions: Systems that use this File

This panel allows you to specify the systems that use the SMF data set. To select one or more from a list of available systems, enter the line action **S** or position the cursor on the System field and press **Prompt (F4)**.

Note: When a system is specified here, the file is added at the end of the list of files for that system. For example, see Figure 20 on page 84. You might need to adjust the order of the files into the correct time sequence.

Each system in the list has the following attributes:

Exc The system is marked by an asterisk * if the file is to be Excluded from reporting for this system. Excluded data sets are not eligible for Report Set JCL generation.

Enter the line action **X** to reverse the status (Exclude/Include).

System, Type, Image

A System is identified by the combination of:

- System name which is one of the following depending on the type:
 - CICS generic APPLID
 - MVS (SMF) Image ID
 - DB2 Subsystem ID
 - MQ Subsystem ID
 - MVS System Logger
- Type of System: CICS, Image, DB2, MQ, or Logger
- MVS (SMF) Image ID

You can enter a system name directly. Alternatively, to select one or more from a list, enter the line action **S** or press **Prompt** (F4) from the System field.

Description

Description is free-format text up to 36 characters to describe the system. This is for your reference only, although CICS PA will insert it as a comment in your Report Set JCL.

Line Actions

- /** Display the menu of line actions.
- S** Select System(s) from a list.
- I** Insert a blank row after this row to specify a related System. You can only specify known Systems; you cannot define new Systems from this panel.
- R** Repeat this row.
- C** Copy this row.
- M** Move this row.
- A** Move/Copy after this row.
- B** Move/Copy before this row.
- D** Delete this row. Only the relationship is deleted, not the System itself.
- X** Reverse the status (Exclude/Include).

Primary Commands

FIND string

This command (or **F**) looks for the specified character string in all columns or a subset of columns in the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use **F5** or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is

displayed. Use **F5** or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Also available from **Edit** in the action bar.

SORT SYSTEM|TYPE|IMAGE|DESCRiption

This command sorts the list of Systems on the specified column. The default is SYSTEM (then TYPE and IMAGE). The order is retained only until exit or another SORT command is issued.

Also available from **Edit** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

Select Systems

The Select Systems panel is displayed when you press **Prompt** (F4) from a System field or enter line action **S** on the Systems with this File panel.

It displays the systems that are not already defined to the File. This list is a subset of the systems maintained in the System Definitions view (see Figure 16 on page 77).

```

Command ==> _____ Systems _____ Row 1 to 5 of 5
                               Scroll ==> _____

Select one or more Systems then press EXIT.

  System  Type  Image  Description
.  CICSP001  CICS  MVS1  CICS system CICSP001/MVS1
.  CICSD001  CICS  MVS1  CICS system CICSD001
.  DB2P     DB2    MVS1  DB2 subsystem DB2P/MVS1
.  MQSP     MQ     MVS1  MQ subsystem MQSP/MVS1
.  MVS1     Logger MVS1  MVS system MVS1
***** End of List *****

```

Figure 35. System Definitions: Select Systems (for a File)

This panel displays a list of systems that are available for selection.

Enter a **/** or **S** line action to select one or more systems from the list.

Press **Exit** (F3) to complete your selection.

Maintaining Personal Groups

The Groups view is the primary panel for maintaining your group definitions. You use Groups to group systems for reporting purposes.

To display the Groups view:

- From the System Definitions Menu, select option 3 **Maintain Group definitions**
- From the System Definitions list panel, enter the **VIEW GROUPS** command or select **View->Groups** in the action bar

From the list of Groups you can perform the following actions:

- Define a new group, or copy or repeat a group along with its associated systems

- Update or view the systems that belong to a group, or delete a group that is no longer required
- Use the **FIND** and **SORT** commands to locate entries in the list
- Use **Filter->Set Filter** in the action bar to display only groups that match your specified criteria

```

File Edit Filter View Options Help
-----
Personal Groups                               Row 1 from 4
Command ==> _____ Scroll ==> _____

Select to review the Systems in the Group.

/  Use Group          Description
-  13 PRODMR01  Production MRO
-  34 WEEKLY    Weekly SMF data
-   8 MONTHLY   Monthly SMF data
S  2  YEARLY    Yearly SMF data
***** End of list *****

F1=Help      F3=Exit      F5=Rfind     F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 36. System Definitions: Personal Groups

This panel is used to maintain Groups. CICS PA uses the related Systems (and their SMF Files) in the generation of Report Set JCL. The Use count shows the number of Systems that are defined to each Group.

Note: The order of the Systems defined to the Group determine the file sequence in the generated JCL. You might need to adjust the order so the files are in the correct time sequence.

Each listed group has the following attributes:

Use The Group Use count. This indicates the number of Systems defined to the Group.

Group The name of a Group. The name can be up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

A Group name is an arbitrary name used to identify a group of related Systems for reporting purposes, such as those systems that connect via IRC/MRO, ISC/APPC, IPIC, or transaction grouping.

Description Description is free-format text up to 36 characters to describe the group.

Line Actions

- / Display the menu of line actions
- S Specify a group and the systems that belong to it
- I Insert a new group
- R Repeat this row
- C Copy this row
- M Move this row
- A Move/Copy after this row
- B Move/Copy before this row
- D Delete this row

Note: A row command on this panel applies to the Group definition and all its associated information. For example, copying a row copies the Group details and all its System relationships. Deleting a row deletes the Group and its relationships, but not the Systems themselves.

Primary Commands

NEW name

This command creates a new Group. The group name must be unique.

Also available from **File** in the action bar.

See Figure 38 on page 104.

SAVE This command saves any changes you have made during this invocation of System Definitions.

Also available from **File** in the action bar.

FIND string

This command (or **F**) looks for the specified character string in all columns or a subset of columns in the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use **F5** or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is displayed. Use **F5** or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Also available from **Edit** in the action bar.

SORT GROUP|DEscription

This command sorts the list of Groups by name (the default) or description. The order is retained on exit.

Also available from **Edit** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions.

Also available from **Edit** in the action bar.

VIEW SYSTEMS|FILES

This command takes you to the Systems or Files view. Updates are saved when you change views.

Also available from **View** in the action bar.

MENU

This command takes you to the System Definitions Menu. Updates are saved when you go to the menu.

Also available from **View** in the action bar.

Set Filter (Groups)

The Set Filter panel is displayed when you select **Filter->Set Filter** in the action bar of the Groups panel.

```

----- Set Filter -----
Command ==> _____
Specify or revise filtering criteria then press Enter.
Group Name . . . _____ (Blank or pattern)

```

Figure 37. System Definitions: Set Filter (Groups)

This facility allows you to filter the amount of information displayed in the current view.

Specify a name or pattern for **Group Name** then press **Enter** to set the filter on. Masking characters % and * are allowed.

A group will only be displayed in the filtered view if the group name matches the pattern. For example, MRO% will display MRO1 but not MRO nor MRO999. MRO* will display all three.

Groups not displayed are not deleted. Exit, Save, or Cancel processing applies to the entire list of groups, regardless of whether they are displayed or filtered out.

When filtering is in effect **Filter Mode - More:** is displayed in the top right corner after the panel title. On initial entry to the Groups view, no filtering is in effect.

To reset the filter and redisplay all intervals and the row count, select **Filter->Set filter off** in the action bar. The filtering criteria will remain dormant in the Set Filter panel.

Systems in this Group

To display the panel for maintaining Systems that belong to a Group, enter the line action **S** (Select an existing Group) or **I** (Insert a new Group) from the Groups view.

```

File Edit Options Help
-----
Systems in this Group                                Row 1 to 4 of 4
Command ==> _____                               Scroll ==> ____

Group . . . . . : PRODMR01
Description . . . : Production MRO_____

/ System + Type   Image           Description
- CICS__P1__ CICS   SYSA      Production AOR System 1_____
- CICS__P2__ CICS   SYSA      Production AOR System 2_____
- CICS__P3__ CICS   SYSA      Production FOR System_____
- DB2__P___ DB2    SYSA      Production DB2 System_____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F5=Rfind     F6=Resize
F7=Backward  F8=Forward   F10=Actions  F12=Cancel

```

Figure 38. System Definitions: Systems in this Group

This panel allows you to specify the systems that belong to the Group. To select one or more from a list of available systems, position the cursor on the System field and press **Prompt** (F4) or enter the **S** line action.

A group is identified by its name and description:

Group

The name of a Group to uniquely identify a group of systems. The name can be up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters.

A Group name is an arbitrary name used to identify a group of related CICS systems for reporting purposes, such as those systems that connect via IRC/MRO, ISC/APPC, IPIC, or transaction grouping.

Description

Description is free-format text up to 36 characters to describe the group.

Each system in the list has the following attributes:

System, Type, Image

A System is identified by the combination of:

- System name which is one of the following depending on the type:
 - CICS generic APPLID
 - MVS (SMF) Image ID
 - DB2 Subsystem ID
 - WebSphere MQ Subsystem ID
 - MVS System Logger
- Type of System: CICS, Image, DB2, MQ, or Logger
- MVS (SMF) Image ID

You can enter a system name directly. Alternatively, to select one or more from a list, enter the line action **S** or press **Prompt** (F4) from the System field.

Description

Description is free-format text up to 36 characters to describe the system. This is for your reference only, although CICS PA will insert it as a comment in your Report Set JCL.

Line Actions

- /** Display the menu of line actions.
- S** Select System(s) from a list.
- I** Insert a blank row after this row to specify a related System.
- R** Repeat this row.
- C** Copy this row.
- M** Move this row.
- A** Move/Copy after this row.
- B** Move/Copy before this row.
- D** Delete this row. Only the relationship is deleted, not the System itself.

Note: You can only specify known Systems; you cannot define new Systems from this panel.

Primary Commands

FIND string

This command (or **F**) looks for the specified character string in all columns or a subset of columns in the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use **F5** or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message **Bottom of data reached** is

displayed. Use **F5** or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Also available from **Edit** in the action bar.

SORT SYSTEM|TYPE|IMAGE|DESCRiption

This command sorts the list of Systems on the specified column. The default is SYSTEM (then TYPE and IMAGE). The order is retained on exit.

Also available from **Edit** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

Select Systems

The Select Systems panel is displayed when you press **Prompt** (F4) from a System field or enter line action **S** on the Systems in this Group panel.

It displays the systems that are not already defined to the Group. This list is a subset of the systems maintained in the System Definitions view (see Figure 16 on page 77).

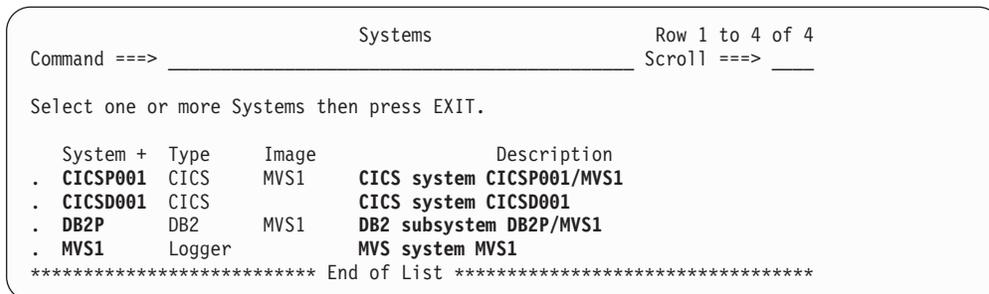


Figure 39. System Definitions: Select Systems (for a Group)

This panel displays a list of systems that are available for selection.

Enter a **/** or **S** line action to select one or more systems from the list.

Press **Exit** (F3) to complete your selection.

Personal Take-Up from SMF File

The Data Take-up panel is displayed when you select option 4 **Take-Up from SMF File** from the System Definitions Menu. However, if you opted to bypass the menu and go straight to System Definitions, you can redisplay the Menu by selecting **View->Menu** in the action bar or by entering the **MENU** command.

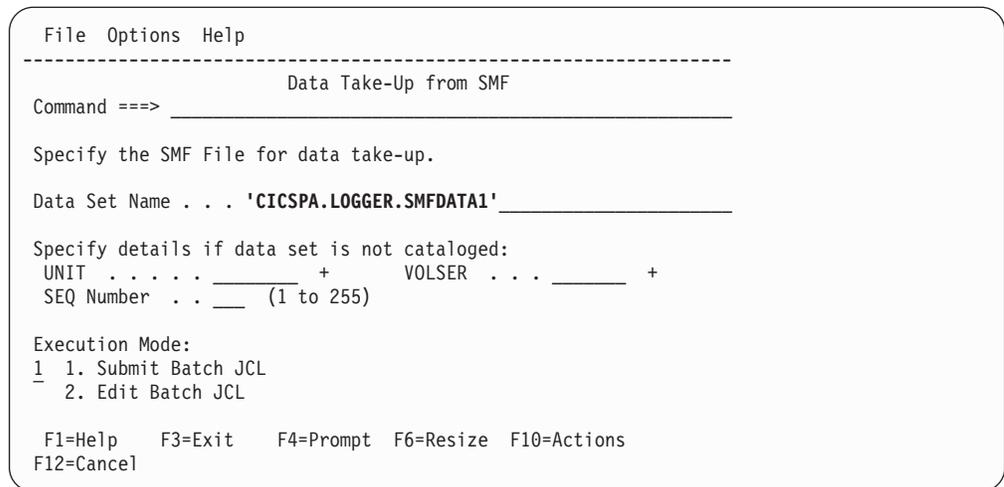


Figure 40. Personal System Definitions: Take-Up from SMF File

CICS PA can automatically populate your System Definitions with details extracted from SMF Files. This panel allows you to specify details of an SMF File for data take-up.

Specify the data set name and if not cataloged, the unit, sequence number, and up to 16 volume serial numbers.

A batch job is generated to extract the take-up details from the SMF data set. You can choose to submit the job immediately or first edit the JCL. See “Take-Up JCL” on page 108.

The options are:

Data Set Name

The name of an SMF data set from which you want CICS PA to extract System details for automatic take-up into your System Definitions.

Normal ISPF data set conventions apply. Fully qualified data set names must be enclosed in quotes, except if **PROFILE NOPREFIX** is set.

If the data set is not cataloged, then specify UNIT, SEQ, or VOLSER

UNIT The generic or esoteric device type of the data set, such as 3390, SYSDA, or CART. This must be a device type that is defined as either TAPE or DASD in the Eligible Device Table of the current processor. To select one from a list of possible Units, position the cursor on the UNIT field and press **Prompt** (F4).

SEQ The File Sequence Number is only required for uncataloged tape data sets. It identifies the relative position of the data set on a tape volume. Omit, or code 0 or 1 to indicate the first data set on the tape volume.

VOLSER

The volume serial number of the data set. It is only required for uncataloged data sets. If a VOLSER is specified, then a UNIT must also be specified.

If the data set spans multiple volumes, only the first one is displayed on this panel. To specify up to 16 volumes, position the cursor on the VOLSER field and press **Prompt** (F4) to display the VOLSER List.

Execution Mode

Specify **1** to submit the batch job immediately.

Specify **2** to edit the JCL. From the edit panel, then enter the **SUBMIT** (or **SUB**) command to run the job.

Check the results of the batch job. See “Job output.”

When you next invoke System Definitions, you are prompted to update your System Definitions with the results of the batch job. See “Applying Take-Up details” on page 109.

Take-Up JCL

Figure 41 is an example of the JCL that is generated to extract the take-up details from the SMF file.

```
File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT      user.SPFTEMP1.CNTL                      Columns 00001 00072
Command ==> SUB                               Scroll ==> PAGE
***** Top of Data *****
000001 //CICSPA JOB (ACCOUNT),'NAME',REGION=4M
000002 //* CICS PA V5R1 Take-Up JCL
000003 //CICSPA EXEC PGM=CPASIDTU
000004 //STEPLIB DD DSN=CICSPA.V5R1M0.SCPALINK,
000005 //          DISP=SHR
000006 //CPATABL DD DSN=user.CICSPA.TABL,
000007 //          DISP=SHR
000008 //SYSPRINT DD SYSOUT=*
000009 //SMFIN001 DD DSN=CICSPA.LOGGER.SMFDATA1,
000010 //          DISP=SHR
***** Bottom of Data *****
```

Figure 41. Personal System Definitions: JCL for data take-up

Job output

Review the take-up job output to see the systems detected by CICS PA in the SMF file.

```
V5R1M0    17:29:39  1/13/2013    CICS Performance Analyzer    Page 1
                               Personal Systems Take-up from SMF

CPA2012I  Processing started for SMF file SMFIN001
CPA2017I  SMF records for System MVS1 start at 1/13/2013 15:41:38.39
CPA2014I  CMF record for CICS system found, APPLID=CICPTOR1 Release=6.8.0
CPA2014I  CMF record for CICS system found, APPLID=CICPAOR1 Release=6.8.0
CPA2014I  CMF record for CICS system found, APPLID=CICPAOR2 Release=6.8.0
CPA2014I  CMF record for CICS system found, APPLID=CICPDOR1 Release=6.8.0
CPA2015I  DB2 Accounting record found, DB2 SSID=DB2P Release=10.1
CPA2016I  MVS System Logger record found, System=MVS1LOGR
CPA2013I  Processing ended for SMF file SMFIN001 - 6 system(s) found
CPA2000I  Take-up processing has completed, RC=0
```

Figure 42. Personal System Definitions: Take-up job output

When the take-up job has completed, you can then apply the results of the Take-up. Next time you enter System Definitions, you are prompted to apply the results of Take-up.

Applying Take-Up details

The following panel is displayed on entry to System Definitions when you have not yet processed the results of completed batch take-up jobs.

```
Command ==> _____ Data Take-Up from SMF

*****
*           Take-Up from SMF           *
*****

CICS PA has completed extracting systems from the following
SMF File:

Data Set . . : 'CICSPA.LOGGER.SMFDATA1'

Instructions:
  Press ENTER to continue adding the systems.
  Enter DEFER command to defer adding the systems.
  Enter END or CANCEL command to cancel adding the systems.
```

Figure 43. Personal System Definitions: Take-up (apply results)

You have three choices:

- Press **Enter** to proceed with the take-up. CICS PA merges the results of the take-up into your System Definitions. Only systems and files not already defined are added.
- Enter the **DEFER** command to defer the take-up but proceed with System Definitions as normal. Next time you invoke System Definitions you will again be prompted to process the results of the take-up.
- Enter **END** (F3) or **CANCEL** (F12) to discard the results of the take-up and continue with System Definitions as normal.

Example: Working with Personal Systems

The System Definitions facility in the CICS PA dialog requires some planning to ensure that you are able to best meet your reporting requirements. CICS PA has some powerful features that will help you to define your System Definitions. This section provides some useful tips on how to use these features.

As you work through this example, if you do not understand some points, please see Chapter 6, “Personal System Definitions,” on page 71 for clarification.

1. The System Definitions menu.

From the Primary Option Menu, option 1 **System Definitions** takes you to the System Definitions menu. From this menu, you are able to define your CICS systems, and maintain your SMF Files and Groups.

2. Using Take-up to define your CICS systems.

You can explicitly define you CICS systems, but an easier way to define your systems is by using option 4 **Take-up from SMF File**. Take-up populates your System Definitions with systems found in your SMF File.

```

File Options Help
-----
Data Take-Up from SMF
Command ==> _____
Specify the SMF File for data take-up.
Data Set Name . . . 'MVS1.SMFDATA' _____
Specify details if data set is not cataloged:
UNIT . . . . . _____ + VOLSER . . . _____ +
SEQ Number . . _____ (1 to 255)
Execution Mode:
1 1. Submit Batch JCL
2. Edit Batch JCL

```

Specify the SMF File that contains records from the systems that you want to define, and then press Enter to submit the Take-up job.

Review the Take-up job output to see the systems detected by CICS PA in the File.

```
V5R1M0 17:29:39 1/13/2013 CICS Performance Analyzer Page 1
                        Take-up from SMF
```

```

CPA2012I Processing started for SMF file SMFIN001
CPA2017I SMF records for System MVS1 start at 1/13/2013 15:41:38.39
CPA2014I CMF record for CICS system found, APPLID=CICPTOR1 Release=6.8.0
CPA2014I CMF record for CICS system found, APPLID=CICPAOR1 Release=6.8.0
CPA2014I CMF record for CICS system found, APPLID=CICPAOR2 Release=6.8.0
CPA2014I CMF record for CICS system found, APPLID=CICPDOR1 Release=6.8.0
CPA2023I CICS TG record for CICS system found, APPLID=CICSTG01
CPA2015I DB2 Accounting record found, DB2 SSID=DB2P Release=10.1
CPA2016I MVS System Logger record found, System=MVS1LOGR
CPA2013I Processing ended for SMF file SMFIN001 - 8 system(s) found
CPA2000I Take-up processing has completed, RC=0

```

After the take-up job has completed, you can then apply the results of the Take-up. Next time you enter System Definitions, you are prompted to apply the results of Take-up.

```

Data Take-Up from SMF
Command ==> _____
*****
*           Take-Up from SMF           *
*****
CICS PA
has completed extracting systems from the following
SMF File:

Data Set . . . : 'MVS1.SMFDATA'

Instructions:
Press ENTER to continue adding the systems.
Enter DEFER command to defer adding the systems.
Enter END or CANCEL command to cancel adding the systems.

```

Press Enter to complete the Take-up process.

3. Updating your System Definitions.

You can now update your System Definitions by using option 1 **Define Systems, SMF Files and Groups**.

```

Personal System Definitions                               Row 1 from 8
Command ==> _____ Scroll ==> PAGE

Select a System to edit its definition, SMF Files and Groups.

/ System Type Image Description SMF Files
- MVS1 Image MVS1 Production MVS Image is MVS1 MVS1
- CICPAOR1 CICS MVS1 Production AOR #1 MVS1
- CICPAOR2 CICS MVS1 Production AOR #2 MVS1
- CICPDOR1 CICS MVS1 Production DOR #1 MVS1
- CICPTOR1 CICS MVS1 Production TOR #1 MVS1
- CICSTG01 CICS MVS1 Production CICS TG #1 MVS1
- DB2P DB2 MVS1 Production DB2 subsystem MVS1
- MVS1LOGR Logger MVS1 System Logger for Image MVS1 MVS1
***** End of list *****

```

You will notice that your CICS (and possibly DB2, MQ, System Logger, and CICS Transaction Gateway) systems are defined. Update the System descriptions for easier identification.

Note the SMF Files indicators. Image MVS1 “owns” the SMF File, MVS1.SMFDATA. All other systems can use Image MVS1’s file because their definitions specify the same Image name of MVS1, that is, these systems run on Image MVS1.

The systems are now ready for immediate reporting, however we will assign the systems to a Group to demonstrate Cross-System style reporting.

4. Defining a Group.

You can group your systems together by defining them to a Group by using option 3 **Maintain Group definitions**. Use the **NEW** command to define a new Group.

```

Systems in this Group                               Row 1 to 1 of 1
Command ==> _____ Scroll ==> PAGE

Group . . . . . PROD
Description . . . Production CICS MRO Group

/ System + Type Image Description
S _____
***** End of list *****

```

Use the **S** line action to select systems for Group PROD.

```

Systems                               Row 1 to 11 of 11
Command ==> _____ Scroll ==> PAGE

Select one or more Systems then press EXIT.

System Type Image Description
S CICPAOR1 CICS MVS1 Production AOR #1
S CICPAOR2 CICS MVS1 Production AOR #2
S CICPDOR1 CICS MVS1 Production DOR #1
S CICPTOR1 CICS MVS1 Production TOR #1
S CICSTG01 CICS MVS1 Production CICS TG #1
S DB2P DB2 MVS1 Production DB2 subsystem
S MVS1 Image MVS1 Production MVS Image is MVS1
S MVS1LOGR Logger MVS1 System Logger for Image MVS1
***** End of List *****

```

All CICS systems, the CICS Transaction Gateway system, the DB2 subsystem, and the System Logger are selected. Exit to insert these systems into Group PROD.

```

Command ==> _____ Systems in this Group Row 1 to 6
Scroll ==> PAGE

Group . . . . . PROD
Description . . . Production CICS MRO Group

/ System + Type Image Description
- CICPAOR1 CICS MVS1 Production AOR #1
- CICPAOR2 CICS MVS1 Production AOR #2
- CICPDOR1 CICS MVS1 Production DOR #1
- CICPTOR1 CICS MVS1 Production TOR #1
- CICSTG01 CICS MVS1 Production CICS TG #1
- DB2P DB2 MVS1 Production DB2 subsystem
- MVS1LOGR Logger MVS1 System Logger for Image MVS1
***** End of list *****

```

Group PROD is now ready for immediate reporting.

5. Running a Report Set.

Select Primary Option Menu option 2 **Report Sets** to invoke the Report Sets facility.

This section will not go into the detail of specifying reports in a Report Set, but rather give examples of how to specify System Selection at run time. Note that you can specify the System(s) to be reported by defining them explicitly in the Report Set, but we will specify them at run time.

```

Command ==> _____ Report Sets Row 1 to 4 of 4
Scroll ==> PAGE

Report Sets Data Set . . : user.CICSPA.RSET

/ Name Description Changed ID
___ CROSSSYS Cross-System reporting 2012/12/13 16:08 CICSPA
___ DAILY Daily CICS Performance reports 2012/12/13 16:08 CICSPA
RUN DB2 DB2 reporting 2012/12/13 16:08 CICSPA
___ WEEKLY Weekly CICS Performance reports 2012/12/13 16:09 CICSPA
***** End of list *****

```

Enter the **RUN** command to run Report Set DB2. This displays the Run Report Set panel from where you are able to specify the Systems to be reported.

6. Running a Report Set against an individual System.

To run a Report Set against an individual System, specify the CICS APPLID, DB2 SSID, MQ SSID, or Logger system name. In this example, we will run the DB2 Report Set against CICS APPLID CICPDOR1 that uses DB2 SSID DB2P.

```

File Systems Options Help
-----
Run Report Set DB2
Command ==> _____

Specify run Report Set submission options then press Enter to continue submit.

System Selection:
CICS APPLID . . . CICPDOR1 + Image . . MVS1____ + Group . . _____ +
DB2 SSID . . . DB2P + Image . . MVS1____ + Group . . _____ +
MQ SSID . . . _____ + Image . . _____ + Group . . _____ +
Logger . . . _____ + Image . . _____ + Group . . _____ +

_ Override System Selections specified in Report Set
_ Read SMF File to EOF

Missing SMF Files Option:
2 1. Issue error message
_ 2. Leave DSN unresolved in JCL
  3. Disregard offending reports

----- Report Interval -----
                YYYY/MM/DD HH:MM:SS.TH
From 2012/11/08 09:00:00.00
To 2012/11/08 16:00:00.00

Enter "/" to select option
/ Edit JCL before submit

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

The generated JCL will request the DB2 report to be run against the specified CICS APPLID CICPDOR1 using DB2 SSID DB2P:

```

//JOBNAME JOB (ACCOUNT),'NAME'
//* CICS PA V5R1 Report JCL
//CICSPA EXEC PGM=CPAMAIN
//STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
//* SMF Input Files
//SMFIN001 DD DSN=MVS1.SMFDATA,DISP=SHR
. . .
//* Command Input
//SYSIN DD *
* Report Set =DB2
* Description=DB2 reporting
    CICSPA SMFSTART(2012/11/08,09:00:00.00),
          SMFSTOP(2012/11/08,16:00:00.00)
* Reports for System=CICPDOR1
*      Image =MVS1
*      Description=Production DOR #1
    CICSPA IN(SMFIN001),
          APPLID(CICPDOR1),
          DB2(OUTPUT(DB2R0001),
          SSID(DB2P),
          LONGSUM)
/*

```

Notice that the APPLID and SSID operands specify the CICS generic APPLID and DB2 Subsystem ID that were requested for reporting.

7. Running a Report Set against a Group of Systems.

To run a Report Set against a Group, specify the Group name. In this example, we will run the CROSSSYS Report Set against Group PROD.

```

                                Run Report Set CROSSSYS
Command ==> _____

Specify run Report Set submission options then press Enter to continue submit.

System Selection:
CICS APPLID . . . _____ + Image . . _____ + Group . . PROD _____ +
DB2 SSID . . . _____ + Image . . _____ + Group . . _____ +
MQ SSID . . . _____ + Image . . _____ + Group . . _____ +
Logger . . . . _____ + Image . . _____ + Group . . _____ +

_ Override System Selections specified in Report Set
_ Read SMF File to EOF

----- Report Interval -----
Missing SMF Files Option:          YYYY/MM/DD  HH:MM:SS.TH
2 1. Issue error message          From 2012/11/08  09:00:00.00
_ 2. Leave DSN unresolved in JCL   To   2012/11/08  16:00:00.00
  3. Disregard offending reports

Enter "/" to select option
/ Edit JCL before submit

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

The generated JCL will request the Cross-System report to be run against the specified Group PROD:

```

//JOBNAME JOB (ACCOUNT),'NAME'
//* CICS PA V5R1 Report JCL
//CICSPA EXEC PGM=CPAMAIN
//STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
//* SMF Input Files
//SMFIN001 DD DSN=MVS1.SMFDATA,DISP=SHR
. . .
//* Command Input
//SYSIN DD *
* Report Set =CROSSSYS
* Description=CICS PA Report Set
      CICSPA SMFSTART(2012/11/08,09:00:00.00),
      SMFSTOP(2012/11/08,16:00:00.00)
* Reports for Group=PROD
*      Description=Production CICS MRO Group
      CICSPA IN(SMFIN001),
      APPLID(CICPAOR1,
      CICPAOR2,
      CICPTOR1,
      CICPDOR1),
      CROSS(OUTPUT(CROS0001),
      EXTERNAL(CPAXW001),
      PRINTMULTIPLE,NOPRINTSINGLE,NOWRITE)
/*

```

Notice that the APPLID operand specifies all CICS generic APPLIDs belonging to group PROD which was the Group requested for reporting.

8. Running a Report Set against all Systems on an MVS Image.

To run a Report Set against an Image, specify the Image name. In this example, we will run the DAILY Report Set against Image MVS1.

```

                                Run Report Set DAILY
Command ==> _____

Specify run Report Set submission options then press Enter to continue submit.

System Selection:
CICS APPLID . . _____ + Image . . MVS1_____ + Group . . _____ +
DB2 SSID . . . _____ + Image . . _____ + Group . . _____ +
MQ SSID . . . _____ + Image . . _____ + Group . . _____ +
Logger . . . . _____ + Image . . _____ + Group . . _____ +

_ Override System Selections specified in Report Set
_ Read SMF File to EOF

Missing SMF Files Option:
2 1. Issue error message
_ 2. Leave DSN unresolved in JCL
  3. Disregard offending reports

----- Report Interval -----
                YYYY/MM/DD HH:MM:SS.TH
From 2012/11/08 09:00:00.00
To 2012/11/08 16:00:00.00

Enter "/" to select option
/ Edit JCL before submit

F1=Help      F3=Exit      F4=Prompt    F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

The generated JCL will request the Performance Summary report to be run against the specified Image MVS1. Note the NOAPPLID operand, which specifies that all CICS systems are reported.

```

//JOBNAME JOB (ACCOUNT),'NAME'
/* CICS PA V5R1 Report JCL
//CICSPA EXEC PGM=CPAMAIN
//STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
/* SMF Input Files
//SMFIN001 DD DSN=MVS1.SMFDATA,DISP=SHR

. . .
/* Command Input
//SYSIN DD *
* Report Set =DAILY
* Description=Daily CICS Performance reports
      CICSPA SMFSTART(2012/11/08,09:00:00.00),
          SMFSTOP(2012/11/08,16:00:00.00)
* Reports for Image=MVS1
*      Description=Production MVS Image is MVS1
      CICSPA IN(SMFIN001),
          NOAPPLID,
          SUMMARY(OUTPUT(SUMM0001),
              INTERVAL(00:15:00),
              FIELDS(STOP(TIMES),
                  TRAN,
                  TASKCNT,
                  RESPONSE(AVE),
                  RESPONSE(MAX),
                  DISPATCH(TIME(AVE)),
                  CPU(TIME(AVE)),
                  SUSPEND(TIME(AVE)),
                  DISPWAIT(TIME(AVE)),
                  FCWAIT(TIME(AVE)),
                  FCAMCT(AVE),
                  IRWAIT(TIME(AVE)),
                  SC24UHWMM(AVE),
                  SC31UHWMM(AVE)),
              TITLE1(
                  'Transaction Summary by Time-of-Day
/*

```

Chapter 7. Shared System Definitions

Shared System Definitions define the CICS and other related systems to be reported via Report Sets or HDB. Shared System Definitions are saved in the Repository, and can be referenced by everyone who shares the same Repository.

Use Shared or Personal?

Shared System Definitions offer an alternative to using Personal System Definitions (see Chapter 6, “Personal System Definitions,” on page 71). The advantages of using Shared System Definitions include:

- All CICS PA users can share the same definitions, avoiding duplication.
- SMF File selection for batch reporting requests is automated.
- One or more Personal System Definitions can be consolidated in to a single Shared System Definition repository by using Take-up.
- Support for SMF data in log streams.

At Report Set or HDB run time, you can choose to use either Personal System Definitions or Shared System Definitions to select the SMF input data sets, or to merge both sets of definitions. Merging Personal and Shared definitions gives great flexibility in combining systems without the need for duplicating definitions.

Use **Systems** in the action bar to switch between using only Personal System Definitions, only Shared System Definitions, or both. If you choose to use both, you can specify which is to take precedence if there are two definitions with the same name. In the following figure, option 5 is selected so the Personal System Definitions would take precedence.

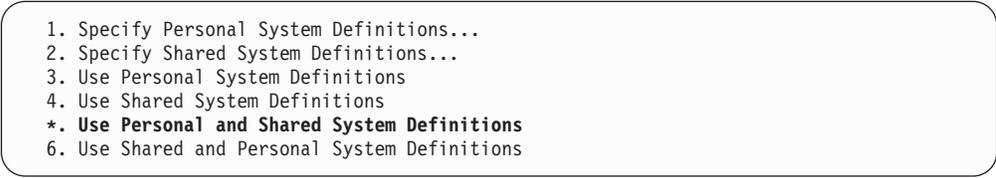
- 
1. Specify Personal System Definitions...
 2. Specify Shared System Definitions...
 3. Use Personal System Definitions
 4. Use Shared System Definitions
 - *. Use Personal and Shared System Definitions
 6. Use Shared and Personal System Definitions

Figure 44. Systems action bar: Use Personal or Shared System Definitions

Shared SMF File definitions

Shared SMF File definitions provide automatic SMF file selection when you generate Report Set or HDB load JCL. There are three types of SMF File definitions: daily SMF files, cyclic SMF files, and SMF log streams.

Daily SMF files

Daily SMF files span a period of time for the current day (today). They are used when you request reporting for today.

Daily SMF files are typically GDGs, one generation created by each SMF dump (IFASMFDP) job. They can only be defined by the **Take-up from SMF File** facility.

A daily SMF file remains available for reporting until you uncatalog or delete its data set. When a daily SMF data set is uncataloged or deleted,

CICS PA marks its SMF file definition as “expired” (no longer available for reporting). To delete expired daily SMF file definitions, run the HDB housekeeping utility.

Cyclic SMF files

There are two types of cyclic SMF file:

Cyclic files with an origin

These files cover a known period of time, according to the origin, interval, and DISP values that you specify. CICS PA uses these values to determine which data sets to select for a requested reporting period. These cyclic SMF files are typically GDGs. For example, a weekly SMF GDG where the most recent cycle (generation 0) spans the current week, -1 is last week, and so on. CICS PA supports various intervals, including daily, weekly, monthly, yearly and fixed (number of days) cycles.

Cyclic files with no origin

Cyclic SMF files with an origin value of NONE (no origin) cover an undetermined period of time. Specify an origin of NONE when you want to explicitly select a particular SMF data set for reporting, regardless of the reporting period.

You cannot report on a mix of cyclic SMF files with and without origins. If a system contains definitions for cyclic SMF files with and without origins, then you must either exclude the files with no origin, or exclude all of the others.

You specify one or more cyclic SMF file definitions that match the way you collect and manage long-term SMF data at your installation.

SMF log streams

CICS PA can read SMF log streams directly, giving you access to very recent data without the need for the SMF dump utility to first create an offline file. CICS PA can locate and process the required SMF data quickly, regardless of whether the reporting period spans several months or the last few minutes.

Like data sets, log streams are referenced by name. Wherever a log stream is specified in the product, the name must be prefixed with IFASMF and cannot be enclosed in quotes. Example:

```
IFASMF. FTS1.SMF.MAN1
```

There are two types of log stream: Coupling Facility (CF) and DASD-only. CF log streams are available to all images in the plex and do not require any special processing. DASD-only log streams are created by and can only be accessed by their local MVS Image. DASD-only log streams require the CICS PA job to be run on their local system and therefore require special handling.

It is possible to route different SMF records to separate log streams, so that for example one log stream contains CMF records, while another contains DB2 records, and yet another contains WebSphere MQ records. Since some CICS PA reports combine records from different data sources, CICS PA supports multiple log streams as input into reports.

Log streams have almost unlimited capacity. Therefore, when processing log streams in CICS PA, specification of the reporting time range is mandatory.

The DASDONLY profile option (menu option 0.5) determines the log stream type for all log streams in all system definitions. If selected, this option indicates that all log streams will be treated as DASD-only and will require an Image name to execute. If DASDONLY is not selected, all log streams are treated as CF log streams.

Note: Sites that have a mix of CF and DASD-only log streams are limited in their ability to combine the two log stream types. For example, if CICS SMF records are written to a DASD-only log stream and DB2 records are written to a CF log stream in different system images, a System Definition must be defined for every combination of DB2 and Image since the CICS and DB2 Images must be the same to be selected for DASD-only log streams.

Log stream retention period (RETPD)

SMF log streams have a retention period specified in days (0-65536). Records older than the retention period are considered inactive but might not be deleted immediately. Inactive records that are still stored in the log stream are available for reporting through CICS PA.

You can specify a RETPD value in the system definition. This value is used to calculate a start date for CICS PA reporting. It has no effect on the SMF log stream itself. Specify a value in the following range:

0 All records in the log stream are eligible for reporting.

(< the log stream retention period)

Records older than this are not eligible for reporting.

(= the log stream retention period)

Recommended. All active records are eligible for reporting.

(> the log stream retention period)

Records within this period are eligible for reporting even if they are inactive.

65536 The maximum value.

File selection at run time

When Shared System Definitions are used, all batch requests (that require SMF input) will have their SMF file DD statements generated automatically from either the Daily SMF File or Cyclic SMF File or log stream definitions. Specify the required reporting interval, and CICS PA will automatically select the required SMF files for your job.

If reporting is required for today, then CICS PA will use the Daily SMF Files (if available). Otherwise, CICS PA will use the Cyclic SMF File definitions to satisfy your request. If no SMF file definitions cover the required reporting interval, then CICS PA will honor the “Missing SMF Files Option” on the run panel.

A log stream is only selected if the report interval Start time falls within the span of the log stream and the “Use Log Streams when available” profile option is selected. Otherwise, normal file selection is performed. The log stream retention period (RETPD) in the System Definition is used to determine the start time of the first record in the log stream.

To avoid double accounting of SMF data, JCL generation prevents the use of a log stream with SMF files. However, you can define a log stream and SMF files in the same System Definition and either the log stream or files will be selected based on the specified report interval.

Shared System Definitions Menu

Shared System Definitions are saved in the Repository.

To maintain Shared System Definitions, select option 1 **Systems** from the Primary Option Menu, and then select option 2 **Shared Systems** from the Systems menu. Alternatively, you can select **Systems** in the action bar of reporting panels (see Figure 44 on page 117). The Shared System Definitions Menu panel is shown in Figure 45.

```

File Options Help
-----
                          Shared System Definitions Menu
Command ==> _____

Select an option then press Enter

1 1. Define Systems and their SMF Files
  2. Maintain Group definitions
  3. Take-up from Personal System Definitions
  4. Take-up from SMF File

Enter "/" to select option
_ Always go directly to Systems View

Repository . . . 'CICSPA.XYX.REPOSTRY' _____ +

F1=Help   F3=Exit   F4=Prompt   F6=Resize   F10=Actions   F12=Cancel

```

Figure 45. Shared System Definitions Menu

Maintaining Shared System Definitions

Select option 1 **Define Systems and their SMF Files** from the Shared System Definitions Menu.

```

File Edit Filter View Mass_Update Options Help
-----
                          Shared System Definitions                      Row 1 from 44
Command ==> new dynamic cics_____ Scroll ==> CSR_

Select a System to edit its definition and SMF Files.

/ System Type      Image      Description                                     SMF Files
- IYK2Z1V2 CICS      MV2CCICS  SELUOW Testing                               System
- MV2CCICS Image                                     Image inserted by System IYK2Z1V2       IYK2Z1V2
- A640     CICS      640       CICS TS 3.1 Support testing                 A640
- A@$2     Image                                     System added by take-up                 A@$2
- A@$2LOGR Logger   A@$2     System added by take-up                 A@$2
- CICS     Image                                     System added by take-up                 CICS
- SCSCPJA6 CICS      SC66     System added by take-up                 SCSCPJA6
- CICS53A1 CICS      P390     copy from previous one                   CICS53A1
- CICS53T1 CICS      P390     System added by take-up                 P390
- CICSTG1  CICS      640     CICS TG system added by take-up          CICS

```

Figure 46. Shared System Definitions: List of systems

The Shared System Definitions list is similar to the Personal System Definitions list. Shared systems differ slightly from personal systems because the file definitions are different.

Enter the **NEW** command or press **F6** to define a new system, or enter line action **S** to select a system from the list.

CICS PA supports the following types of system definitions:

- CICS (APPLID)
- MVS Image
- DB2
- MQ
- System Logger

CICS System (APPLID) definition

The CICS System details are presented across three views:

1. System Definition attributes
2. Cyclic SMF Files
3. Daily SMF Files

Press **Next** (F11) or **Prev** (F10) to move between the views.

View 1. System Definition attributes

The first view displays all the System Definition attributes.

```

File Dictionary Options Help
-----
EDIT                               CICS System                More: < >
Command ==>> _____

CICS System definition:
APPLID . . . . . DYNAMIC_ MVS Image . . . _____ VRM . . :
Description . . . . . ** New CICS system ** _____

System View:
 1 1. Attributes   2. Cyclic SMF Files   3. Daily SMF Files

Specify System Attributes:
MCT Suffix . . . . . _
MCT Load Library . . _____
SDFHLOAD Library . . _____
Dictionary DSN . . . _____
SMF Log Stream . . . _____ RETPD _____

F1=Help   F3=Exit   F7=Backward F8=Forward F10=Prev   F11=Next
F12=Cancel
  
```

Figure 47. Shared CICS System attributes

View 2. Cyclic SMF Files

The second view displays Cyclic SMF File definitions.

Cyclic SMF files are the definitions of SMF Files that cover a continuously recurring period of time, and consistently contain data for this system.

Cyclic SMF files are typically GDGs. For example, a weekly SMF GDG where the most recent cycle (generation 0) spans the current week, -1 is last week, and so on.

You specify one or more Cyclic SMF file definitions that match the way you collect and manage long-term SMF data at your installation. CICS PA supports the many ways you can setup your SMF environment, including daily, weekly, monthly, yearly and fixed (number of days) cycles.

The Cyclic SMF File definitions are used at report request time. Cyclic SMF Files are automatically inserted into your Report request JCL when you request reporting for a time period that is spanned by an active generation of a cycle, and Shared System Definitions are active (not Personal. Refer to **Systems** in the action bar when submitting a Report request).

For systems that share SMF Files, it is recommended that Cyclic SMF Files be defined to the associated MVS Image (rather than each System repetitively). CICS PA will detect this and use the SMF Files defined to the Image.

```

File Edit Options Help
-----
EDIT                               CICS System                Row 1 of 1 More: < >
Command ==>> _____ Scroll ==>> PAGE

CICS System definition:
APPLID . . . . . DYNAMIC_ MVS Image . . . _____ VRM . . :
Description . . . . . ** New CICS system ** _____

System View:
_ 1. Attributes   2. Cyclic SMF Files   3. Daily SMF Files

/ Exc Cyclic SMF File GDG Base or Data Set Name      Origin      Interval DISP
-----
***** Bottom of data *****

F1=Help      F3=Exit      F5=Rfind      F7=Backward  F8=Forward  F10=Prev
F11=Next     F12=Cancel

```

Figure 48. Shared CICS System Cyclic SMF Files

The Cyclic File details are:

Cyclic SMF File GDG Base or Data Set Name

The SMF File GDG Base name, or the SMF File data set name. For example:

```
'SMF.MVS1.DAILY'
'CICSPROD.SMF.WEEKLY'
```

You can use the following symbolic variables in an SMF File data set name:

- &YYYY** 4-digit year
- &YY** 2-digit year (20yy)
- &MM** Month (01–12)
- &DD** Day of the month (01–31)
- &DDD** Day of the year (001–366)

For example:

```
'CICSPROD.SMF.D&YY&MM&DD'
'CICSPROD.SMF.D&YY.&MM.&DD'
```

You can optionally terminate a variable name with a period. This period will not appear in the resolved data set name, so these examples resolve to

the same name. If you want a period to appear after a variable value in the resolved name, insert a second period:

```
'CICSPROD.SMF.Y&YYYY..D&DDD'
```

If you use symbolic variables:

- In the Origin field, use asterisks to represent the digits of the origin date that are determined by symbolic variables.
- The origin date and the interval must be compatible with the symbolic variables. For example, if you use the variable &DDD, then the origin date must be in Julian format.

Origin

The starting point of each new interval, defining the point in time when the SMF file was created. Origin can be:

Day A new cycle starts every day, defining a daily cycle.

Day of the week

A new cycle starts on the specified day, defining the start of a weekly cycle. Allowed values are the seven days of the week: MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY.

Date The first cycle starts on the specified date, and continues cycling forwards from that point in time. Cycles that commence on a date are monthly, yearly or fixed number of days cycles.

If the SMF data set name does not include symbolic variables, then the allowed values are:

```
yyyy-mm-dd
****-mm-dd
yyyy-ddd
****-ddd
```

where **** specifies the current year, indicating that the cycle restarts from this point every year.

If the SMF data set name includes symbolic variables, then there are many more allowed values: you use asterisks in the origin value to match the symbolic variables in the data set name. For some examples, see "How CICS PA selects cyclic SMF files for reporting" on page 125.

CDATE

A new cycle starts on the file creation date. The SMF file contains data starting from the date the file was created.

Note: If you specify CDATE, CDATE+*nnn*, or CDATE-*nnn*, and the value resolves to a date earlier than 2000/01/01 (January 1, 2000), then the date is treated as if you had specified 2000/01/01.

CDATE+*nnn*

A new cycle starts *nnn* number of days after the file creation date. That is, the SMF file contains data starting *nnn* number of days after the file was created. For example, CDATE+1 specifies a file that is created before midnight to contain tomorrow's data.

CDATE-*nnn*

A new cycle starts *nnn* number of days before the file creation date. That is, the SMF file contains data starting *nnn* number of

days before the file was created. For example, CDATE-5 specifies a file that is created and then filled with data starting from five days ago.

NONE

No origin. Specify NONE when you want to explicitly select a particular SMF file for ad-hoc reporting, rather than CICS PA selecting appropriate SMF files for a requested reporting period. You cannot report on a mix of files with and without origins. If a system contains cyclic SMF file definitions with an origin of NONE and cyclic SMF file definitions with other origin values, then you must either exclude the files with an origin of NONE, or exclude all of the others.

Interval

The time duration of one cycle of data. Interval can be a number of days (0 indicating an indefinite interval) or DAY, WEEK, MONTH, YEAR.

The allowed interval values depend on the Origin specification:

Origin Interval

DAY 1 (day)

Day of the week

WEEK

Date All allowed values

DISP Specifies whether the SMF file accumulates (DISP=MOD) data or does not accumulate (DISP=OLD) data over the interval.

DISP=MOD

New cycles commence at the start of an interval, and continuously append new data to the SMF file until the end of the interval. For example, a daily SMF file is created at the start of the day and is continuously updated during the day by the SMF dump process. The most recent generation of the SMF file contains data for the current interval (today). DISP=MOD cycles cover the current interval (up until today).

DISP=OLD

New cycles are created at the end of the interval. For example, a weekly SMF file that is created at the end of the week from the daily SMF files for that week. The most recent generation contains data for the previous interval (last week), not the current interval (this week). Note that a weekly SMF file could also be defined as DISP=MOD if it is being built on a daily basis. DISP=OLD cycles do not cover the current interval. Other cyclic (or Daily) SMF Files are required in this case.

Line Actions: The valid line actions for the Cyclic SMF Files view are:

- /** Display the selection list of line actions
- I** Insert a blank row for entry of a related file
- R** Repeat this row
- C** Copy this row
- M** Move this row
- A** Move/Copy after this row
- B** Move/Copy before this row
- D** Delete this row
- X** Reverse Exclude Status (CICS PA omits excluded files from report requests)

- S Show a list of the data sets that belong to the GDG base or that match the data set name for this SMF file

Methods of managing SMF data sets

Cyclic file definitions support several methods of managing SMF data sets. Select one (or more) of the following methods that best suits your environment:

GDG SMF files

Generation Data Group data sets span a regular interval: for example, daily, weekly, monthly, yearly, and fixed (number of days) cycles. Define GDG cyclic files by specifying the GDG base name. CICS PA will use this definition when one or more of the generations cover the required reporting period.

SMF files with symbolic date variables

SMF files with symbolic date variables have data set names that change according to the date they were created. For example, `CICSPROD.D&YY&MM&DD..SMF` defines an SMF file that is created daily to contain today's SMF data. In this case, `CICSPROD.D060331.SMF` contains data for March 31, 2006.

SMF files with fixed data set names

SMF files with fixed data set names cover a period of time determined by the interval that you specify. For example, `CICSPROD.JULY.SMF` contains SMF data for the month of July.

Ad hoc SMF files

Ad hoc SMF files have fixed data set names, cover an undetermined period of time (an origin value of NONE), and are used for every report request regardless of the requested reporting period. For example, `CICSPROD.SMF` has SMF data that covers a recent time period that you want to use for every report request. Ad hoc SMF files are selected in the same way as SMF files defined in personal system definitions; that is, they are always selected if not excluded. Ad hoc SMF files cannot be specified with other cyclic SMF file types as they are incompatible.

How CICS PA selects cyclic SMF files for reporting

You cannot report on a mix of cyclic SMF files with and without origins. If a system contains some cyclic SMF file definitions with origins and some without, then you must either exclude the files with no origin, or exclude all of the others. CICS PA does not select excluded files for reporting.

If you exclude the files with origin values, then CICS PA selects all of the files with no origin, regardless of the requested reporting period.

Otherwise, CICS PA calculates a "from" date and a "to" date for each file, indicating the date range of its SMF records. If this range overlaps or falls entirely within the requested reporting period, then CICS PA might use this file, depending on whether or not other files also meet this requirement. If a sequence of several files covers the same required date range, without gaps, as a single file, then CICS PA uses the sequence of files instead of the single file. CICS PA selects the combination of files that result in the least gap in data, without any overlaps. This ensures that, while a report can contain gaps, it will never contain duplicate data.

CICS PA calculates "from" and "to" dates based on the origin, interval, and DISP values for each cyclic SMF file. The following table shows the allowed combinations of origin, interval, and DISP, and the resulting "from" and "to" dates.

Tip: To view the “from” and “to” date for a cyclic SMF file, enter line action S next to the file definition. To view the “from” and “to” dates for all cyclic SMF files for the system, enter SHOW on the command line.

Table 2. Allowed combinations of origin, interval, and DISP for cyclic SMF files

| Origin | Interval | DISP | From date | To date |
|--|---|----------------|--|---|
| DAY | 1 | MOD | Today | |
| | | OLD | Yesterday | |
| <i>day of week</i> | WEEK | MOD | If <i>day of week</i> is today, then the “from” date is today. Otherwise, the “from” date is the previous occurrence of that day of the week. | “From” date + (interval - 1 day) For example, for an interval of WEEK: “From” date + 6 days |
| | | OLD | As for MOD, but one week prior. For example, if <i>day of week</i> is Friday, and today is Monday, then the “from” date is not the Friday just passed, but the Friday before that. | |
| <i>yyyy-mm-dd</i> <i>yyyy-ddd</i> | DAY WEEK MONTH YEAR <i>number of days</i> | MOD | If the range of dates from the origin to “origin + interval” includes today, then the “from” date is the origin. Otherwise, step the date range forwards one interval at a time until the date range includes today. The “from” date is the start of that date range. | |
| | | OLD | As for MOD, but one interval prior. | |
| | 0 | Not applicable | Origin | Today |
| <i>****-mm-dd</i> <i>****-ddd</i> | Any | MOD | Origin (with current year in place of ****) | “From” date + (interval - 1 day) |
| | | OLD | One interval before the origin | |
| See “Origin values for data set names with symbolic variables” on page 127 for other allowed values. | | | | |
| CDATE CDATE+ <i>nnn</i> CDATE- <i>nnn</i> | DAY WEEK MONTH YEAR <i>number of days</i> | Not applicable | File creation date (plus or minus <i>nnn</i> days) | “From” date + (interval - 1 day) For a GDG, only the “to” date of the latest generation is calculated in this way. For earlier generations, the “to” date is determined by the “from” date of the next generation. |
| NONE | Not applicable | | | |

Origin values for data set names with symbolic variables

Table 2 on page 126 shows the origin values with asterisks that are allowed if you do not use symbolic variables to specify the data set name of the SMF file. If you use symbolic variables, then there are many more allowed combinations of origin values with asterisks: you use asterisks in the origin value to match the symbolic variables in the data set name. For example (this is not a comprehensive list of the combinations):

Table 3. Example SMF data set names with symbolic variables, and their allowed origin values

| Data set name | Origin |
|------------------------------|------------|
| SMF.DAILY.D&YY.&MM.&DD..SAVE | 20**_**_** |
| SMF.DAILY.D&MM&DD | ***_**_** |
| SMF.DAILY.J&DDD | ***_*** |
| SMF.DAILY.D&DD | ***_**_** |
| SMF.MONTHLY.M&YY&MM | 20**_**-dd |
| SMF.MONTHLY.M&MM | ***_**-dd |
| SMF.A&YYYY | ***-ddd |
| SMF.A&YY | ***-mm-dd |
| SMF.D&YYYY&DDD | ***_*** |

Verifying that you have correctly defined your cyclic SMF files

CICS PA uses cyclic SMF file definitions to determine which SMF data sets to use for a report request. Except for SMF files with no origin, CICS PA uses the origin, interval, and DISP values in these definitions to calculate the “from” and “to” date range for each SMF file, and uses this range to determine whether to use the file for a particular reporting period.

To verify that you have correctly defined a cyclic SMF file, so that its data sets covers the expected date range, enter line action S next to the file definition.

To show the date ranges for all SMF files for the system, enter SHOW on the command line.

For details on how CICS PA determines these dates, see “How CICS PA selects cyclic SMF files for reporting” on page 125.

```

VIEW          JCH.SPFTEMP1.CNTL                      Columns 00001 00072
Command =====>                                Scroll ==> PAGE
***** ***** Top of Data *****
000001 //*
000002 //* APPLID . . . . . DYNAMIC
000003 //* MVS Image . . . . .
000004 //* Description . . . . . ** New CICS system **
000005 //*
000006 //* 1. DSN=CPPX.SMF1.DAILY
000007 //SMFIN001 DD DSN=CPPX.SMF1.DAILY(-11),
000008 //          DISP=SHR From: 2006/03/25           To: 2006/03/25
000009 //SMFIN002 DD DSN=CPPX.SMF1.DAILY(-10),
000010 //          DISP=SHR From: 2006/03/26           To: 2006/03/26
000011 //SMFIN003 DD DSN=CPPX.SMF1.DAILY(-9),
000012 //          DISP=SHR From: 2006/03/27           To: 2006/03/27
000013 //SMFIN004 DD DSN=CPPX.SMF1.DAILY(-8),
000014 //          DISP=SHR From: 2006/03/28           To: 2006/03/28
000015 //SMFIN005 DD DSN=CPPX.SMF1.DAILY(-7),
000016 //          DISP=SHR From: 2006/03/29           To: 2006/03/29
000017 //SMFIN006 DD DSN=CPPX.SMF1.DAILY(-6),

```

Figure 49. Showing the available cyclic SMF data sets, and their from and to dates

Cyclic GDG examples

Here are some examples of Cyclic SMF File GDGs.

One day cycle for each day of the week

SMF.DAILY(0) contains data for today, SMF.DAILY(-1) contains data for yesterday, and so on.

GDG Base: SMF.DAILY Origin: DAY Interval: DAY DISP: MOD

Weekly cycle

Each cycle contains data for a whole week, from Monday to Sunday inclusive. SMF.WEEKLY(0) contains data for previous week starting on Monday, SMF.WEEKLY(-1) contains data for two weeks ago, and so on. Data for this week (starting on Sunday) can only be obtained from the SMF.DAILY cycle.

GDG Base: SMF.WEEKLY Origin: MONDAY Interval: WEEK DISP: OLD

Monthly cycle

Each cycle contains data for a whole calendar month, from the first of the month to the end. SMF.MONTH(0) contains data for previous calendar month, SMF.MONTH(-1) contains data for two months ago, and so on.

GDG Base: SMF.MONTH Origin: ****-001 Interval: MONTH DISP: OLD

Fixed number of Days cycle

Each cycle contains data for a 28 day period. The oldest cycle starts on 2004-03-07.

GDG Base: SMF.DAYS28 Origin: 2004-03-07 Interval: 28 DISP: OLD

Yearly cycle

Each cycle contains data for a whole calendar year, from January to December inclusive. SMF.YEAR (0) contains data for last year, SMF.YEAR(-1) contains data for two years ago, and so on..

GDG Base: SMF.YEAR Origin: ****-001 Interval: YEAR DISP: OLD

Cyclic SMF File Data Set Name examples

Here are some examples of Cyclic SMF File data set names.

Today SMF.TODAY contains data for the current day (today).

DSN: SMF.TODAY Origin: DAY Interval: DAY DISP: MOD

Either run **HDB Housekeeping** to remove expired Daily SMF File definitions or enter line action **D** to delete unwanted Daily SMF File definitions from the list.

Image definition

Like CICS System details, Image details are presented across three views:

1. System Definition attributes
2. Cyclic SMF Files
3. Daily SMF Files

The first view displays the System Definition attributes. Press **Next** (F11) or **Prev** (F10) to move between the views.

```

File Options Help
-----
EDIT                               MVS Image
Command ==>>> _____

MVS Image System definition:
MVS Image . . . . MVS2_____
Description . . . . . ** New Image system ** _____

System View:
 1 1. Attributes   2. Cyclic SMF Files  3. Daily SMF Files

Specify System Attributes:
SMF Log Stream . . . _____ RETPD _____

```

Figure 51. Shared Image attributes

Cyclic and Daily SMF File views for an Image are the same as for a CICS System. See “View 2. Cyclic SMF Files” on page 121 and “View 3. Daily SMF Files” on page 129.

DB2 System definition

Like CICS System details, DB2 System details are presented across three views:

1. System Definition attributes
2. Cyclic SMF Files
3. Daily SMF Files

The first view displays the System Definition attributes. Press **Next** (F11) or **Prev** (F10) to move between the views.

```

File Options Help
-----
EDIT                               DB2 Subsystem
Command ==>>> _____

DB2 System definition:
DB2 SSID . . . . . DB2_  MVS Image . . . _____
Description . . . . . ** New DB2 system ** _____

System View:
 1 1. Attributes   2. Cyclic SMF Files  3. Daily SMF Files

Specify System Attributes:
SMF Log Stream . . . _____ RETPD _____

```

Figure 52. Shared DB2 Subsystem attributes

Cyclic and Daily SMF File views for a DB2 System are the same as for a CICS System. See “View 2. Cyclic SMF Files” on page 121 and “View 3. Daily SMF Files” on page 129.

MQ System definition

Like CICS System details, MQ System details are presented across three views:

1. System Definition attributes
2. Cyclic SMF Files
3. Daily SMF Files

The first view displays the System Definition attributes. Press **Next** (F11) or **Prev** (F10) to move between the views.

```

File  Options  Help
-----
EDIT                               MQ Subsystem
Command ==>>> _____

MQ System definition:
MQ SSID . . . . . MQ2_  MVS Image . . . _____
Description . . . . . ** New MQ system ** _____

System View:
 1 1. Attributes  2. Cyclic SMF Files  3. Daily SMF Files

Specify System Attributes:
SMF Log Stream . . . _____ RETPD _____

```

Figure 53. Shared MQ Subsystem attributes

Cyclic and Daily SMF File views for an MQ System are the same as for a CICS System. See “View 2. Cyclic SMF Files” on page 121 and “View 3. Daily SMF Files” on page 129.

Logger System definition

Like CICS System details, Logger details are presented across three views:

1. System Definition attributes
2. Cyclic SMF Files
3. Daily SMF Files

The first view displays the System Definition attributes. Press **Next** (F11) or **Prev** (F10) to move between the views.

```

File  Options  Help
-----
EDIT                               System Logger
Command ==>>> _____

System Logger definition:
Logger . . . . . MVSLOG2_ Image . . . _____
Description . . . . . ** New LOGGER system ** _____

System View:
 1 1. Attributes  2. Cyclic SMF Files  3. Daily SMF Files

Specify System Attributes:
SMF Log Stream . . . _____ RETPD _____

```

Figure 54. Shared System Logger attributes

Cyclic and Daily SMF File views for a Logger System are the same as for a CICS System. See “View 2. Cyclic SMF Files” on page 121 and “View 3. Daily SMF Files” on page 129.

Maintaining Shared Group Definitions

Select option 2 **Maintain Group definitions** from the Shared System Definitions Menu. This facility allows you to define groups of systems for reporting purposes.

```
File Edit View Options Help
-----
                                Shared Groups                                Row 1 from 4
Command ==> _____ Scroll ==> _____

Select to review the Systems in the Group.

/  Use  Group              Description
-  13  PRODMR01  Production MRO
-  34  WEEKLY    Weekly SMF data
-  8   MONTHLY  Monthly SMF data
5  2   YEARLY    Yearly SMF data
***** End of list *****

F1=Help      F3=Exit      F5=Rfind     F6=New       F7=Backward  F8=Forward
F10=Actions  F12=Cancel
```

Figure 55. Shared Group Definitions

Shared Group Definitions operate in a similar way to personal Group Definitions. For more information, see “Maintaining Personal Groups” on page 101.

Mass Updating Shared CICS System Definitions

Suppose that, some time ago, you created CICS System Definitions in CICS PA using version-specific data set names for the MCT and SDFHLOAD libraries. Now you want to upgrade your CICS System Definitions in CICS PA to match this change in your system environment. Rather than selecting and then editing each system definition individually, you can upgrade several (or all of them) together.

For details, see “Mass Update of Personal CICS System Definitions” on page 82.

Take-up from Personal System Definitions

Select option 3 **Take-up from Personal System Definitions** from the Shared System Definitions Menu.

Before proceeding with loading your personal systems into the shared definition repository, a confirmation pop-up is displayed.

```

Take-Up from Personal System Definitions
Command ==>> _____

Select the types of definition that you want to copy from
your personal profile library to the Repository. This does
not replace definitions that already exist in the
Repository.

Required Definitions:
- Systems and Groups
- Files

Instructions:
Press ENTER to continue.
Enter END or CANCEL to cancel Take-Up.

```

Figure 56. Shared System Definitions: Take-up from personal definitions

This take-up copies the personal system definitions from your personal profile library to the shared system definitions in a repository. This makes the definitions available to all users of the repository.

You can select the types of definition to copy:

Systems and groups, but not files

If a group in your personal system definitions already exists in the repository, then take-up adds the systems to the group in the repository.

Files, but not systems or groups

Only copies files belonging to systems that already exist in the repository.

Systems, groups, and files

All definitions.

Before performing take-up, delete any personal system definitions that you do not want copied to the repository. Consider making a backup copy of your personal profile library and the repository.

Take-up does not replace definitions with the same name in the repository. If a file with the same data set name exists in both your personal system definitions and the repository, then take-up does not affect the file definition in the repository.

Take-up copies files to the repository as cyclic files with an Origin value of NONE. If the file has an origin, then, after take-up, edit the file definition in the repository.

Take-up from SMF File

Option 4 **Take-up from SMF File** from the Shared System Definitions Menu provides the facility to take-up system and file information from one SMF File.

Data Take-up from SMF File is a two-step process. First the system details are extracted from the file, then they are used to automatically update your Shared System Definitions. Successful completion of the first step generates a Recap report that provides information about all the systems contained on the SMF Files.

Take-up of Shared Systems from an SMF File optionally performs the following functions:

1. Defines new shared systems, including CICS, DB2, MQ, Logger, and Images
2. Defines Daily SMF Files, and associates them to either Systems with data on the file or its MVS Image

Because log streams can contain very large amounts of data, you can specify a time interval to limit the number of SMF records that must be processed. SMF Interval is mandatory for log streams but optional for data sets. To further improve the performance of take-up processing, the panel also includes options to specify Image and System types.

If system definition take-up finds CICS TS and CICS TG systems with the same APPLID, it creates a single CICS system definition. System definitions taken up from SMF 111 records have a blank VRM field value (this field is for CICS TS versions, not CICS TG versions). To help distinguish CICS TS systems from CICS TG systems, definitions taken up from SMF 111 records have the description "CICS TG system added by Take-up".

```

File  Options  Help
-----
                        System Definitions Take-Up
Command ==> _____

Specify the DSN or Log stream for system take-up.

Data Set Name . . 'CICSPA.LOGGER.SMFDATA1' _____
Log Stream . . . . _____ RETPD _____

Required Definitions:          Connect files to:
/  Systems                    2  1. System
/  Files                      2  2. Image

System Selection:             _____ SMF Interval _____
Image . . _____ +         YYYY/MM/DD  HH:MM:SS.TH
Group . . _____ +         From _____
Type . .  _ CICS  _ DB2       To _____
      _ MQ      _ Logger

Recap Report:                 Enter "/" to select option
DDname . . . SDTU0001      /  Edit JCL before submit

F1=Help   F3=Exit   F6=Resize F12=Cancel

```

Figure 57. Shared System Definitions: Take-Up from SMF File

Take-up options

The take-up options are:

Data Set Name

The name of an SMF data set from which you want to extract System details for automatic take-up into your System Definitions. Normal ISPF data set conventions apply. Data Set Name and Log Stream are mutually exclusive. This option generates the IN keyword.

Log Stream

The name of an SMF log stream from which you want to extract System details for automatic take-up into your System Definitions. The first qualifier must be IFASMF. The log stream name must not be enclosed in quotes. Data Set Name and Log Stream are mutually exclusive. This option generates the IN keyword.

RETPD

The log stream retention period, specified in days (0-65536). This value is used to calculate a start date for determining what records are candidates for take-up processing.

Required Definitions

The following options apply to both SMF files and log streams.

Systems

Select Systems to take-up all the CICS systems and related subsystems with data on the SMF File are defined to shared system definitions. Existing system definitions are not replaced. This option generates the SYSTEMS keyword.

Files Select Files to take-up the specified SMF File. The specified SMF File is registered as a Daily SMF File and connected to the systems that have SMF records on the file.

The **Connect files to** setting is only applicable when the Files option is selected. This setting specifies the type of systems the Daily SMF File is to be connected to:

1. System

Connects the Daily SMF file to all systems with SMF records on the file, including CICS, DB2, MQ, and Logger, as well as the MVS Image that owns the file.

The System option generates the FILESYSTEM keyword. This option ensures that, while the daily SMF file is defined to multiple systems, only SMF files that actually contain data for this system are connected to this system.

2. Image

Connects the Daily SMF file only to the MVS Image that owns the file. CICS and other subsystems that belong to the Image can request the selection of their SMF files from the Image if they do not have their own Daily SMF Files.

The Image option generates the FILEIMAGE keyword. This option ensures that the SMF File is only defined once, and is shared by all systems that belong to the Image.

For more information, see “Example: choosing between System and Image” on page 136.

System Selection

System Selection is used to filter the records processed by take-up in order to minimize the processing time. These options apply to both log streams and data sets.

Image Use to specify the image (MVSID) for which SMF records will be processed by take-up. Records for all other images will be ignored. Only one image name can be specified. Wildcard characters are not supported. Mutually exclusive with Group.

Group Specifies a group containing one or more image definitions. Used when records for more than one image are required for take-up. Mutually exclusive with Image. Only systems whose Type=Image in the group are used. Other types are ignored. Group is not allowed when the DASDONLY profile option is selected.

Types System types to be taken up. This option is used to generate a list of SMF record codes.

SMF Interval

The interval of SMF records to process from the log stream or data set. SMF Interval is mandatory for log streams but optional for data sets.

These fields generate the SMFSTART and SMFSTOP operands.

Example: choosing between System and Image

Consider the following example to help you choose between the System option (FILESYSTEM) and the Image option (FILEIMAGE).

Take-up is run against two daily SMF files for Image MVS1:

1. DAILY.SMF(0) contains data for CICS systems CICS1 and CICS2
2. DAILY.SMF(-1) contains data for CICS systems CICS2 and CICS3

The **SYSTEMS** option will define the three CICS systems: CICS1, CICS2 and CICS3, and one image MVS1.

FILEIMAGE defines both SMF files to image MVS1. All three CICS systems are eligible to use both files because each system belongs to image MVS1. The drawback is that CICS3 has no data on generation 0, and CICS1 has no data on generation -1. But at report submission time, CICS PA has no way of knowing which image file has data for the selected system, so both files are selected. For example, reporting against CICS1 will select both files, even though generation -1 contains no relevant data.

FILESYSTEM defines the SMF file to image MVS1, and also defines it to each CICS system that has data on the file. CICS1 has one daily SMF file definition only, generation 0. Now at report submission time, CICS PA will select only generation 0. The drawback is that the file is defined to multiple systems. But this is not really a problem because daily SMF file maintenance is handled automatically by HDB housekeeping which deletes expired daily SMF file definitions, and the dialog itself which ignores expired daily SMF files.

TAKEUP command syntax

The take-up command is:

```
CICSPA SMFSTART(YYYY/MM/DD, hh:mm:ss.nn),
        SMFSTOP(YYYY/MM/DD, hh:mm:ss.nn)
CICSPA IN(ddname|logstream),
        [MVSID(mvsids),]
        TAKEUP(SHARED,           analyze SMF file contents
        [SYSTEMS,]              load systems
        [FILEIMAGE|FILESYSTEM,] load files, connect to either image or system
        [TYPE(CICS,|DB2,|MQ,|LOGGER),]
        [RETPD(0-65536),]
        [OUTPUT(ddname)])      DDname for Recap report output
```

Take-up JCL

Take-up JCL can be generated from the dialog. It is recommended that the take-up JCL is incorporated into your SMF Dump process. Sample job CPAHDB in library SCPASAMP provides an example of how to do this. Refer also to "Example: Working with Shared Systems" on page 138.

```

//CPAHDB JOB ,CLASS=A,NOTIFY=&SYSUID
//* SMF Dump
//SMFDUMP EXEC PGM=IFASMFDP
//INDD DD DSN=SYS1.MAN1,DISP=SHR
//OUTDD1 DD DISP=(NEW,CATLG),DSN=CICSPROD.SMFDAILY(+1)
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
        INDD(INDD,OPTIONS(ALL))
        OUTDD(OUTDD1,TYPE(110))
/*
/**
/** CICS PA Take-up, HDB Load, and selected reports
//CICSPA EXEC PGM=CPAMAIN,REGION=4M,PARM=NOSTAE
//STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
/** SMF Input Files
//SMFIN001 DD DISP=(SHR,KEEP),DSN=CICSPROD.SMFDAILY(+1)
/** Repository
//CPAHDBRG DD DISP=SHR,DSN=<CPA.HDB.REPOSTRY>
/**
/** CICS PA command requests
//SYSIN DD *
        CICSPA IN(SMFIN001),
                APPLID(*),

*   Take-up from SMF into Shared System Definitions
    TAKEUP(SHARED,SYSTEMS,FILESYSTEM,OUTPUT(SDTU0001))

*   HDB Load requests
    HDB(LOAD(WEEKLY),OUTPUT(WEEKLY)),
    HDB(LOAD(DAILY),OUTPUT(DAILY)),
    HDB(LOAD(STATS),OUTPUT(STATS)),

*   CMF Performance report requests
    SUMMARY(FIELDS(TRAN),OUTPUT(SUMM0001)),
    WAITANAL(BY(TRAN),OUTPUT(WAIT0001))
/*

```

Figure 58. Sample JCL CPAHDB - SMF Dump, Take-up, HDB Load, then reports

Step 1 is the SMF Dump process that reads online SMF MANx data sets (or other SMF data) and creates an extract data set of SMF records to be used for reporting purposes.

Step 2 is the CICS PA batch process that can perform the following tasks in parallel:

1. Take-up to define the systems and SMF file to shared System Definitions.
2. HDB Load requests to load performance data into Historical Databases.
3. CICS PA Performance reporting to produce one or more reports for performance analysis.

Note that by combining take-up, HDB load and reporting into a single job step, all CICS PA functions can be performed by a single pass of the SMF data.

Take-up Recap report

The following example shows part of the Recap report that is generated at the end of file processing.

The Recap report provides a list of all the Systems with data on the SMF file together with a count of all SMF 110 records on the file. With this information you can elect to take-up Systems or Files or both, and specify whether to connect the Files to the System or the Image.

Note that the Recap report is showing what is available for take-up from the SMF files, it is *not* showing the results of take-up. Review the Shared System Definitions in the dialog to see the results of take-up.

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CICS Performance Analyzer
System Take-up Recap Report By Data Set

SDTU0001 Printed at 12:03:45 04/17/2013 Data from 12:35:00 10/12/2012 to 12:56:00 10/15/2012 Page 1

| -----System----- | | -----Start----- | | -----Stop----- | | -----System----- | | | Page | |
|------------------|------|-----------------|------------|----------------|------------|------------------|----------|--------|------|--------|
| Name | Type | Imag | Date | Time | Date | Time | Name | Type | Imag | Record |
| SMFIN001 | | | 2012-10-13 | 20.30.00 | 2012-10-14 | 12.00.00 | SCL0G | Logger | FTS2 | 64 |
| | | | | | | | FTS2 | Image | | 64 |
| | | | 2012-10-14 | 11.10.38 | 2012-10-14 | 12.00.11 | CCVT22T | CICS | FTS1 | 3030 |
| | | | | | | | FTS1 | Image | | 29390 |
| | | | | | | | CCVT31M | CICS | FTS1 | 68 |
| | | | | | | | CCVT22C | CICS | FTS1 | 12122 |
| | | | | | | | CCVT31T | CICS | FTS1 | 122 |
| | | | | | | | CCVT31C | CICS | FTS1 | 323 |
| | | | | | | | CCVT23C | CICS | FTS1 | 6426 |
| | | | | | | | CCVT41C | CICS | FTS1 | 432 |
| | | | | | | | CCVT23T | CICS | FTS1 | 3747 |
| | | | | | | | CCVT31CX | CICS | FTS1 | 51 |
| | | | | | | | CCVT23CX | CICS | FTS1 | 72 |
| | | | | | | | CCVT41CX | CICS | FTS1 | 72 |
| | | | | | | | CCVT22CX | CICS | FTS1 | 228 |
| | | | | | | | CCVT22M | CICS | FTS1 | 201 |
| | | | | | | | CCVT41M | CICS | FTS1 | 72 |
| | | | | | | | SCL0G | Logger | FTS1 | 102 |
| | | | 2012-10-14 | 10.02.16 | 2012-10-14 | 11.10.13 | CCVT22T | CICS | FTS1 | 8470 |
| | | | | | | | FTS1 | Image | | 34229 |
| | | | | | | | CCVT31M | CICS | FTS1 | 272 |
| | | | | | | | CCVT22C | CICS | FTS1 | 4655 |
| | | | | | | | CCVT31T | CICS | FTS1 | 375 |
| | | | | | | | CCVT31C | CICS | FTS1 | 374 |
| | | | | | | | CCVT23C | CICS | FTS1 | 12852 |
| | | | | | | | CCVT41C | CICS | FTS1 | 360 |
| | | | | | | | CCVT23T | CICS | FTS1 | 3600 |

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CICS Performance Analyzer
System Take-up Recap Report By System

SDTU0001 Printed at 12:03:45 04/17/2013 Data from 12:35:00 10/12/2012 to 12:56:00 10/15/2012 Page 3

| -----System----- | | -----Start----- | | -----Stop----- | | Page | |
|------------------|--------|-----------------|------------|----------------|------------|----------|--------|
| Name | Type | Imag | Date | Time | Date | Time | Record |
| SCL0G | Logger | FTS2 | 2012-10-13 | 20.30.00 | 2012-10-14 | 12.00.00 | 64 |
| | | | 2012-10-13 | 16.30.00 | 2012-10-13 | 20.00.00 | 16 |
| FTS2 | Image | | 2012-10-13 | 20.30.00 | 2012-10-14 | 12.00.00 | 64 |
| | | | 2012-10-13 | 16.30.00 | 2012-10-13 | 20.00.00 | 16 |
| CCVT22T | CICS | FTS1 | 2012-10-14 | 11.10.38 | 2012-10-14 | 11.53.40 | 3030 |
| | | | 2012-10-14 | 10.02.51 | 2012-10-14 | 11.09.00 | 8470 |
| | | | 2012-10-14 | 08.21.37 | 2012-10-14 | 09.57.37 | 12685 |
| | | | 2012-10-14 | 06.25.38 | 2012-10-14 | 08.16.59 | 8544 |
| | | | 2012-10-13 | 20.09.11 | 2012-10-14 | 00.00.00 | 266 |
| FTS1 | Image | | 2012-10-14 | 11.10.38 | 2012-10-14 | 12.00.11 | 29390 |
| | | | 2012-10-14 | 10.02.16 | 2012-10-14 | 11.10.13 | 34229 |
| | | | 2012-10-14 | 08.19.31 | 2012-10-14 | 10.02.14 | 50835 |
| | | | 2012-10-14 | 06.25.38 | 2012-10-14 | 08.18.08 | 39768 |
| | | | 2012-10-13 | 20.00.51 | 2012-10-14 | 00.00.00 | 8720 |

Figure 59. Shared System Take-up Recap report

Example: Working with Shared Systems

Consider an MVS Image MVS1 that runs our production CICS regions. We will implement Daily and Cyclic SMF File definitions to help us run our report requests against the SMF data collected for this system.

The first (optional) step is to implement Take-up for Daily SMF Files.

Daily SMF files are recommended when your SMFDUMP process creates extract GDG data sets whenever SMF is switched throughout the day. Daily files allow you to run report requests against today's SMF data without having to explicitly specify the data set names.

Tip: Append the take-up step to the end of your SMFDUMP job so that daily data sets are defined automatically. See “Take-up from SMF File” on page 133 for more information.

```
//SMFDUMP JOB ,CLASS=A,NOTIFY=&SYSUID
/* SMF Dump for MVS Image MVS1
//SMFDUMP EXEC PGM=IFASMFDP
//INDD DD DSN=SYS1.MAN1,DISP=SHR
//OUTDD1 DD DISP=(NEW,CATLG),DSN=MVS1.SMF(+1)
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
    INDD(INDD,OPTIONS(ALL))
    OUTDD(OUTDD1,TYPE(110))
/*
/* CICS PA Shared System Definitions Take-up
//CICSPA EXEC PGM=CPAMAIN,REGION=4M
//STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SMFIN001 DD DISP=(SHR,KEEP),DSN=MVS1.SMF(+1)
. . .
//SYSIN DD *
    CICSPA IN(SMFIN001),
        TAKEUP(SHARED,SYSTEMS,FILESYSTEM,OUTPUT(SDTU0001))
/*
```

Figure 60. SMFDUMP job

CICS PA Take-up will define Image MVS1 if it is not already defined, and attach the new daily SMF file MVS1.SMF(+1) to the system.

The result when you view the daily SMF files for system MVS1 (System View 3) is the list of daily data sets definitions created by take-up, and the time interval they span.

```
File Edit Options Help
-----
EDIT                               MVS Image                               Row 1 of 8 More: >
Command ==> _____ Scroll ==> CSR_

MVS Image System definition:
MVS Image . . . . MVS1_____
Description . . . Image MVS1 that runs CICS Production

System View:
 3 1. Definition  2. Cyclic SMF Files  3. Daily SMF Files

SMF Data Set Name                ----- Start ----- - Stop -
MVS1.SMF.G1493V00                 2012-07-17 10.38.02 11.57.03
MVS1.SMF.G1491V00                 2012-07-17 08.00.44 10.20.25
MVS1.SMF.G1489V00                 2012-07-17 04.01.04 07.56.54
MVS1.SMF.G1487V00                 2012-07-17 00.01.33 03.57.04
MVS1.SMF.G1485V00                 2012-07-16 20.03.12 00.00.00
MVS1.SMF.G1483V00                 2012-07-16 15.52.42 *EXPIRED
MVS1.SMF.G1481V00                 2012-07-16 14.09.02 *EXPIRED
MVS1.SMF.G1479V00                 2012-07-16 10.52.18 *EXPIRED
***** Bottom of data *****
```

Figure 61. Shared MQ Subsystem Daily SMF Files

Now when you report against system MVS1 or any of its CICS systems, the daily files are used when required.

Scroll Left (F10) to view the Cyclic SMF file definitions (System View 2).

Figure 62 shows a typical SMF configuration:

1. Weekly SMF file GDG where one generation contains data for one week, is built at end of the day from the daily SMF files (defined previously), and is rolled over every Sunday.
2. Monthly SMF file GDG where one generation contains data for one calendar month, and is rolled over on the first day of each month.

```

File Edit Options Help
-----
EDIT                               MVS Image                               Row 1 of 2 More: >
Command ==> _____ Scroll ==> CSR_

MVS Image System definition:
MVS Image . . . MVS1_____
Description . . . Image MVS1 that runs CICS Production

System View:
_ 1. Definition  2. Cyclic SMF Files  3. Daily SMF Files

/ SMF Data Set Name (or GDG Base)      Origin      Interval DISP
- 'MVS1.SMF.WEEKLY'_____            SUNDAY      WEEK      MOD
- 'MVS1.SMF.MONTHLY'_____            ****-01-01  MONTH    MOD
***** Bottom of data *****

```

Figure 62. Shared MQ Subsystem Cyclic SMF Files

To use shared System Definitions in preference to personal System Definitions, you need to change your personal profile. The **Systems** action bar is available on all run-time panels, for example Run Report Set. Select option 4 **Use Shared System Definitions**. With this setting you can now use the shared system definitions and their SMF Files.

Shared SMF File selection is controlled by the Report Interval you specify at run time.

File Selection example 1

In this example, we specify a relative date of 0 (zero) to signify today, say July 17, 2012 (2012-07-17).

```

File Systems Options Help
-----
Run Report Set MYREPS
Command ==> _____

Specify run options then press Enter to continue submit.

System Selection:
CICS APPLID . . CICSPI__ + Image . . MVS1____ + Group . . _____ +
DB2 SSID . . . . ____ + Image . . _____ + Group . . _____ +
MQ SSID . . . . ____ + Image . . _____ + Group . . _____ +
Logger . . . . _____ + Image . . _____ + Group . . _____ +

/ Override System Selections specified in Report Set
_ Read SMF File to EOF

Missing SMF Files Option:
1 1. Issue error message
_ 2. Leave DSN unresolved in JCL
  3. Disregard offending reports

----- Report Interval -----
                YYYY/MM/DD HH:MM:SS.TH
From 0 _____ 06:00:00.00
To 0 _____ 09:00:00.00

Enter "/" to select option
/ Edit JCL before submit
_

```

Figure 63. Run Report Set: specify relative dates

CICS PA will automatically generate the JCL that includes the daily SMF files that cover this period.

```

//* SMF Files for Image=MVS1
//SMFIN001 DD DSN=MVS1.SMF.G1489V00,DISP=SHR      2012-07-17 04.01.04 07.56.54
//SMFIN002 DD DSN=MVS1.SMF.G1491V00,DISP=SHR      2012-07-17 08.00.44 10.20.25

```

Figure 64. File selection

File Selection example 2

In this example, we specify a date range covering one working week from Monday July 16 to Friday July 20, 2012.

```

File Systems Options Help
-----
Run Report Set MYREPS
Command ==> _____

Specify run options then press Enter to continue submit.

System Selection:
CICS APPLID . . CICSPI__ + Image . . MVS1____ + Group . . _____ +
DB2 SSID . . . . ____ + Image . . _____ + Group . . _____ +
MQ SSID . . . . ____ + Image . . _____ + Group . . _____ +
Logger . . . . _____ + Image . . _____ + Group . . _____ +

/ Override System Selections specified in Report Set
_ Read SMF File to EOF

Missing SMF Files Option:
                YYYY/MM/DD HH:MM:SS.TH
1 1. Issue error message      From 2012/07/16 _____
_ 2. Leave DSN unresolved in JCL To 2012/07/20 _____
  3. Disregard offending reports

Enter "/" to select option
/ Edit JCL before submit
_

```

Figure 65. Run Report Set: specify relative dates

CICS PA will automatically generate the JCL that includes the cyclic SMF files that cover the specified reporting interval.

```
//* SMF Files for Image=MVS1  
//SMFIN001 DD DSN=MVS1.SMF.WEEKLY(-1)
```

Figure 66. File selection

CICS PA always chooses the smallest cyclic SMF file that covers the entire reporting period. This explains why, in the previous example, the weekly SMF GDG was chosen ahead of the monthly GDG.

CICS PA also knows the number of generations (GDG LIMIT) for each cycle. Therefore if only four generations of the weekly file are available, a reporting request for 5 weeks ago would be satisfied by the monthly GDG cycle, MVS1.SMF.MONTHLY(-1).

Part 3. Requesting reports using the dialog

These topics tell you how to use the CICS PA dialog to request reports and extracts and submit them for batch processing.

Chapter 8. Report Sets

A Report Set is used to request a set of reports and extracts. Reporting options and record selection criteria can be specified at the global-level to apply to all the reports and extracts in the Report Set, or at the report-level to apply to the individual report or extract. Report-level specifications take precedence unless at run time you choose to override them.

When you run a Report Set, CICS PA first prompts you to specify run-time options. Then CICS PA generates a one-step JCL deck with a command stream including active reports and extracts in active report categories.

The topic on 'Defining a Report Set for daily monitoring' in the CICS Performance Analyzer for z/OS *Getting Started Guide* provides a guided tour or worked example of how to define a report set.

Report Set tree

Reports are displayed using a tree structure. The report tree structure is a hierarchical representation of report categories and reports; similar to the way some PC tools display folders and their contents. Report categories act as folders that can expand (to show) and collapse (to hide) the reports contained within them. The + or - character to the left of each report category shows its current display status, expanded (-) or collapsed (+). This allows you to view only the reports that you are currently interested in. Use your mouse or line action **S** against a report category to toggle the expand/collapse status of the category.

You can also enter line action **S** at the top of the Reports tree. This will expand all categories that are not already expanded. If all categories are expanded, then it will collapse all categories.

The following example shows the Performance Reports category expanded and all other categories collapsed.

```

File Systems Confirm Options Help
-----
EDIT                               Report Set - MYREPS
Command ==> _____ Scroll ==> PAGE

Description . . . CICS PA Report Set _____

Enter "/" to select action.

---      ** Reports **                Active
+ ---    Options                      Yes
+ ---    Selection Criteria            No
- ---    Performance Reports          Yes
        --- List                      No
        --- List Extended              No
        --- Summary                    Yes
        --- Totals                     No
        --- Wait Analysis               No
        --- Transaction Profiling      No
        --- Cross-System Work          No
        --- Transaction Group          No
        --- BTS                        No
        --- Workload Activity          No
        --- Transaction Tracking List  No
        --- Transaction Tracking Summary No
+ ---    Exception Reports            No
+ ---    Transaction Resource Usage Reports No
+ ---    Statistics Reports           No
+ ---    Subsystem Reports            Yes
+ ---    System Reports               Yes
+ ---    Performance Graphs          No
+ ---    Extracts                     No
        --- ** End of Reports **

```

Figure 67. Report Set tree

If your terminal emulation software permits, it is recommended that you configure your Mouse Options to activate the Lightpen function. Then you can flip the display status of Report Categories by (left button) clicking the + (to expand) and - (to collapse) characters with your mouse. Use of your mouse as a lightpen might vary depending on your terminal emulation software.

Activating reports

Each category and report has an **Active** status indicator, displayed to the right of the report tree. Change the Active status to Yes to ensure the report is run.

When the Active status indicator for a category is set to Yes, reports in the category with an Active status of Yes will run. When set to No, no reports in the category will run, regardless of their Active status. Note that the Report Options have their Active status set to Yes automatically if there are active reports. This is because the options must always be used. You cannot deactivate them. CICS PA will deactivate them only when all reports are deactivated.

You can use line action **A** to activate a report or a report category and you can use line action **D** to deactivate.

You can use line action **AA** against a report category to activate all reports in the report category and the category itself. Line action **DD** will similarly deactivate all. These line actions entered at the top of the Reports tree will activate or deactivate *all* reports and options in the Report Set.

Running Report Sets

The **RUN** command is used to run (submit) Report Sets. It oversees the specification of run-time options and the generation of JCL. The **SUBmit** and **JCL** commands are still available and considered to be specialized RUN requests to either submit JCL immediately or edit JCL before submit.

RUN can also be entered as a line action at the report category and individual report level. The RUN line action temporarily overrides the Active status. When used in this way, the selected categories and reports are run regardless of the Active status.

Figure 68 shows how to use the **RUN** line action to request the Summary, Totals and Wait Analysis Performance reports, as well as all active reports in the Subsystem Reports category, in this case the DB2 report.

```
File Systems Confirm Options Help
-----
EDIT                               Report Set - MYREPS
Command ==> _____ Scroll ==> PAGE

Description . . . CICS PA Report Set _____

Enter "/" to select action.

___  + ___  ** Reports **                Active
+ ___  Options                          Yes
+ ___  Selection Criteria                 No
- ___  Performance Reports               Yes
    ___  List                            No
    ___  List Extended                    No
    RUN Summary                          Yes
    RUN Totals                           No
    RUN Wait Analysis                     No
    ___ Transaction Profiling             No
    ___ Cross-System Work                 No
    ___ Transaction Group                 No
    ___ BTS                              No
    ___ Workload Activity                 No
    ___ Transaction Tracking List         No
    ___ Transaction Tracking Summary     No
+ ___ Exception Reports                  No
+ ___ Transaction Resource Usage Reports No
+ ___ Statistics Reports                  No
- RUN Subsystem Reports                  Yes
    ___ DB2                              Yes
    ___ WebSphere MQ                     No
    ___ OMEGAMON                          No
- ___ System Reports                     Yes
    ___ System Logger                     Yes
+ ___ Performance Graphs                 No
+ ___ Extracts                           No
    ** End of Reports **

F1=Help   F3=Exit   F7=Backward F8=Forward F10=Actions F12=Cancel
```

Figure 68. RUN line action

You can also use RUN line actions in conjunction with the RUN primary command (from the command line). This generates JCL command input for all active reports in all active categories, as well as for categories and reports selected via the RUN line actions.

For more information on running Report Sets, see "Running Report Sets" on page 275.

Maintaining Report Sets

To display the list of Report Sets in the current Report Sets data set, select option 3 **Report Sets** from the CICS PA Primary Option Menu. From this panel you can review, update, or submit a selected Report Set for batch processing or create new one.

Tip: To set or change the current Report Sets data set, use the **Options** menu on the action bar or enter **CDS** from the command line.

```
File Systems Confirm Options Help
-----
Report Sets                               Row 1 to 6 of 6
Command ==> _____ Scroll ==> PAGE

Report Sets Data Set . . : xxxx.CICSPA.RSET

/   Name           Description           Changed           ID
--- BTS1          BTS Report           2005/01/01 00:00 CICSPA
--- DAILY         Daily CMF Reports    2005/01/01 00:00 CICSPA
--- EXCEPT1     Exception Reports    2005/01/01 00:00 CICSPA
--- PERF1         Performance Reports  2005/01/01 00:00 CICSPA
--- TRANGP1       Transaction Group Report 2005/01/01 00:00 CICSPA
--- WEEKLY        Weekly CMF Reports   2005/01/01 00:00 CICSPA
***** End of list *****
```

Figure 69. Report Sets

The Report Sets are listed with the following user-defined attributes:

Name 1-8 character name in ISPF member name format, used to uniquely identify the Report Set within the Report Sets data set. By default, the panel is sorted on the Name field.

Description

Free format text up to 32 characters that describes the contents and purpose of the Report Set.

Line Actions: The following line actions can be performed against a Report Set:

- /** Display the menu of line actions.
- E** Edit the Report Set.
- S** Select the Report Set (same as Edit).
- V** View the Report Set. This looks like the Edit panel but has no 'hold' on the data and has no Save capability, however SaveAs is available.
- RUN** Run the Report Set. Only active reports and extracts within active categories are selected. The Run Report Set panel is displayed for you to enter required run-time options before submission. See "Running Report Sets" on page 275 for more information. Alternative RUN commands are:
 - SUB** After your run-time options are validated, JCL is submitted directly for batch processing.
 - JCL** After your run-time options are validated, JCL is presented in an Edit session. You can alter the JCL before submission or save it in your JCL library.
- D** Delete the Report Set.
- R** Rename the Report Set.

Primary Commands: The following primary commands are available:

NEW name [MODEL dsn(modelname)]

This command creates a new Report Set. If all required parameters are specified, the Edit panel for the new Report Set is displayed. Otherwise, the New Report Set window is displayed to allow you to specify the name of the new Report Set and optionally the name of an existing Report Set to be used as a model. If the model is in the current Report Sets data set, specify just the name of the Report Set. If it is in another data set, specify both the name of the data set and the Report Set in the format **datasetname(modelname)**.

Also available from **File** in the action bar.

See “Creating new Report Sets” for information on how to proceed.

SELECT name

This command (or **S**) selects the specified Report Set for editing. If the Report Set does not exist, it is created as if the **NEW** command was used.

Also available from **File** in the action bar.

Sort Name | Description | Changed | Id

This command sorts the list of Report Sets on one or two columns. The default sort field is **Name**. The sort disregards upper and lower case. The sort sequence is ascending for all except the Changed column which is descending. The sort order is retained only until Exit or another **Sort** command is issued.

LOCATE string

This command (or **L** or **LOC**) is used to locate an entry in the list based on the primary sort field. By default, **LOCATE** operates on the **Name** field. The string should be no longer than the primary sort field and not enclosed in quotes. The display will scroll to the entry which matches the string, or the entry preceding it if an exact match is not found.

CONFIRM ON|OFF

CONFIRM ON (or **CONFIRM**) instructs CICS PA to prompt for confirmation when you request to Delete a Report Set.

With **CONFIRM OFF**, Delete requests are actioned immediately. Deleted Report Sets cannot be reinstated.

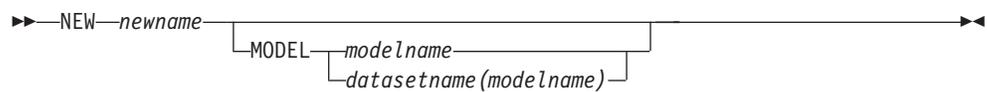
This command changes the setting only for the current invocation of the Report Sets panel. On exit, it reverts to the default set by **Delete Confirmation** in CICS PA Settings.

Also available from **Confirm** in the action bar.

Creating new Report Sets

To create a new Report Set, do either of the following:

- In the command line, enter **NEW** followed by the name of the new Report Set and an optional model Report Set using the following syntax:



- Select **File** from the action bar, then choose **New**. A pop-up dialog window is displayed as shown in Figure 70.

New Report Set

Command ==> _____

Specify the name of the new Report Set and optional model.

Name . . . TRANGP2_

Model . . TRANGP1

Figure 70. Specifying a New Report Set

This panel allows you to create a new Report Set. You must give the new Report Set a name. Optionally, you can model it on an existing Report Set, otherwise it is created empty with no reports or extracts defined.

You can bypass this panel by specifying all required details on the **NEW** command.

Name The name of the new Report Set. A 1-8 character name in ISPF member name format. The name must be unique within the Report Sets data set.

Model You can specify the name of an existing Report Set as a model so that your new Report Set is initialized with the same contents as the model. If the model is in the current Report Sets data set, specify just the member name. If it is in another data set, specify both the data set name and the Report Set name in the format **datasetname(modelname)**.

When you have specified the required details, press Enter to create the Report Set.

Specifying Report Set contents

The Report Set Edit panel is displayed when, from the Report Sets panel, you do either of the following:

- Create a new Report Set.
Use the **NEW** command or select **File->New** in the action bar.
- Select an existing Report Set.
Enter line action **E** or **S** against a Report Set or use the **SELECT** command

The Report Set panel describes the Report Set and lists all the reports and extracts that can be requested.

The Report Set description can be modified. Specify up to 32 characters of text to describe the purpose of the Report Set. The description is shown on the Report Sets panel to help you distinguish between the Report Sets displayed. It also appears as a comment in the JCL. The description is initially set to **CICS PA Report Set**.

The reports and extracts are grouped to indicate the type of output (**report**, **graph report**, or **extract**) and the type of SMF data they process, either CMF data (**performance**, **exception**, **transaction resource**, or **statistics** class data), subsystem data (**DB2**, **WebSphere MQ**, **OMEGAMON**), or MVS system data (**System Logger**). Also listed are three specifications which apply globally to all reports and extracts in the Report Set:

- **Global Options** apply to all reports and extracts. They specify the global system selection (CICS System, DB2 Subsystem, MVS System Logger, WebSphere MQ ID) and report formatting options (lines per page, time zone, date/time delimiters).
- **Performance Selection Criteria** apply to all performance reports and extracts. They provide filtering of CMF performance records based on field values.
- **Exception Selection Criteria** apply to all exception reports. They provide filtering of CMF exception records based on field values.

Note: You can override some of the global options by specifying them for individual reports or extracts. System Selection (System, Image, Group) and Selection Criteria are primary examples of this feature. Report-level specifications take precedence.

The reports, extracts, and global selection criteria can be activated (**Active=Yes**) or deactivated (**Active=No**). They are automatically activated when created, and can be explicitly deactivated or activated at any time. The global options are automatically activated if at least one report or extract is active, but they cannot be explicitly activated or deactivated.

Each Report Category can be activated or deactivated. Only active reports in active report categories are included in the Report Set at submit time. A Report Set can be submitted for processing if there is at least one active report in an active report category.

However, there is a convenient exception. You can use the **RUN** line action to temporarily override the active status of a report or report category.

Line Actions

*Line Actions (** Reports **):*

The line actions that are valid for **** Reports **** at the top of the Report Set tree are:

- /** Display the menu of line actions.
- S** Expand/Collapse all categories.
- A** Activate all categories.
- AA** Activate all categories and reports.
- D** Deactivate all categories.
- DD** Deactivate all categories and reports.
- RUN** Run the Report Set. Only active reports within active categories are selected, together with any categories or reports selected by the **RUN** line action.

Line Actions (Global Options Category):

- /** Display the menu of line actions.
- S** Expand/Collapse category.

Line Actions (Global Options):

- /** Display the menu of line actions.
- S** Select (edit) the global options.

Line Actions (Selection Criteria Category):

- / Display the menu of line actions.
- S Expand/Collapse category.
- A Activate category.
- AA Activate category and all selection criteria.
- D Deactivate category.
- DD Deactivate category and all selection criteria.

Line Actions (Performance and Exception Selection Criteria):

- / Display the menu of line actions.
- S Select for edit or review.
- A Activate the Selection Criteria.
- D Deactivate the Selection Criteria.

Line Actions (Report and Extract Categories):

- / Display the menu of line actions.
- S Expand/Collapse the category.
- A Activate the category.
- AA Activate the category and all its reports and extracts.
- D Deactivate the category.
- DD Deactivate the category and all its reports and extracts.
- RUN Run the active reports and extracts in the category, plus any selected by the **RUN** line action.

Line Actions (Reports and Extracts):

- S Select for edit or review.
- A Activate the report or extract.
- D Deactivate the report or extract.
- RUN Run the report or extract, ignoring the active status.

Primary Commands

SAVE This command is only available from Edit mode and saves any changes you have made. To save any changes made in View mode, use **SAVEAS**.
Also available from **File** in the action bar.

SAVEAS rsetname | datasetname(rsetname)

This command is available from both Edit and View mode to save the contents of this Report Set under another name, either in the current data set (assumed if no data set name is provided) or in another data set (if the name of a valid PDS is provided). If you then Cancel from this panel, the contents of the current Report Set remain unchanged.

Also available from **File** in the action bar.

RUN Run the Report Set. Only active reports and extracts within active categories are selected. The Run Report Set panel is displayed for you to

enter required run-time options before submission. See “Running Report Sets” on page 275 for more information. Alternative RUN commands are:

- SUB** After your run-time options are validated, JCL is submitted directly for batch processing.
- JCL** After your run-time options are validated, JCL is presented in an Edit session. You can alter the JCL before submission or save it in your JCL library.

Also available from **File** in the action bar.

CONFIRM ON|OFF

CONFIRM ON (or **CONFIRM**) instructs CICS PA to prompt for confirmation when you request to Cancel from the Report Set panel when there have been updates.

With **CONFIRM OFF**, Cancel requests are actioned immediately, discarding any changes.

This command changes the setting only for the current Edit/View session. On exit, it reverts to the value set by **Cancel Confirmation** in CICS PA Settings

Also available from **Confirm** in the action bar.

Note: The **SAVE** and **SAVEAS** commands are only available on the Report Set panel, being at the top of the panel hierarchy. Changes made on the associated panels (global options, selection criteria, reports, extracts) are only saved when the Report Set is saved.

Global Options

To display the Global Options panel, enter line action **S** to select **Global** in the **Options** category on the Report Set panel.

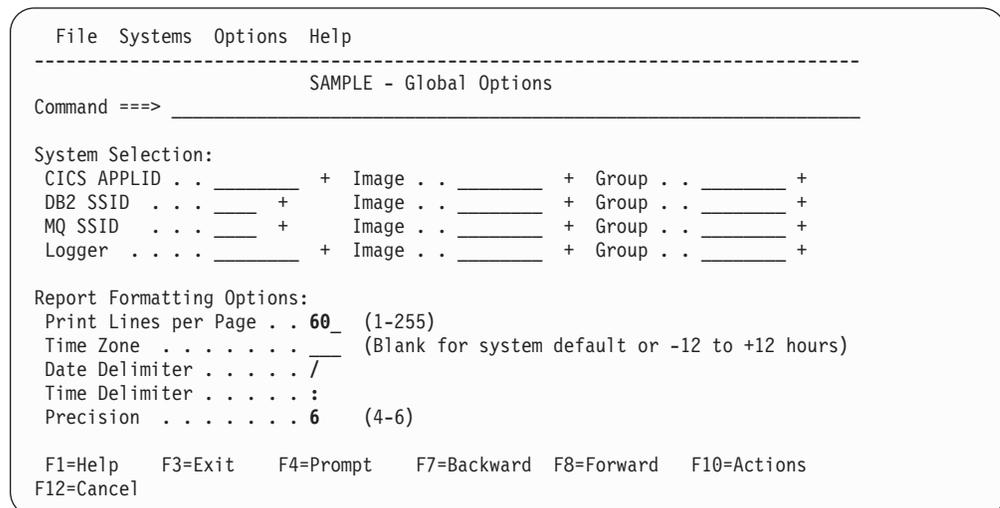


Figure 71. Global Options

The Global Options define general control information applying to all reports and extracts in the Report Set. They specify the global System Selection (CICS System, DB2 Subsystem, MQ Subsystem, MVS System Logger) and report formatting options (lines per page, time zone, date/time delimiters). You can accept the default formatting options or change them to suit your requirements.

System Selection can be left blank, provided the systems are specified at the report-level, or when the Report Set is submitted.

The Global Options are:

System Selection:

At Report Set run-time, CICS PA needs to determine which systems the reports will analyze. System Selection identifies these systems. The systems must be defined in your System Definitions. You can type in the system names, or select from a list of defined systems using **Prompt (F4)**.

If the required system is not defined to CICS PA, you can link directly to System Definitions to define it by selecting **Systems** in the action bar or entering the **SYSDEFS** command.

You can specify System Selection in three places:

1. Locally for each report within the Report Set. The local selection applies only to this single report.
2. In the Report Set Global Options. The global selection will only apply to reports that do not specify their own local selection.
3. At run time. If specified, this selection overrides the Report Set Global Options. In addition, if the **Override System Selections** option is requested, then the run-time selection also overrides the local report selections.

Each point of selection is optional, but at least one must be specified before CICS PA can proceed with JCL generation. You could choose not to specify any System Selections in your Report Set. Then at run time, you are prompted to specify the systems you want to report against.

You can specify four types of systems:

1. **CICS APPLID:** The CICS Generic APPLIDs you want reported. Specify either:
 - A unique APPLID.
 - An APPLID for a particular MVS Image. This identifies a particular CICS system when there are multiple CICS systems with the same APPLID.
 - An MVS Image. CICS PA will report on all APPLIDs running on this Image using the SMF files defined for the Image.
 - An APPLID and Image combination plus a Group. This is useful for uniquely identifying CICS systems when there are duplicate IDs defined in System Definitions.
 - A Group alone. CICS PA will report on all APPLID and Image combinations in the Group to produce a single consolidated report. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA generates the APPLID(*applid1,applid2,applid3,...*) and Input(*SMFIN001,SMFIN002,SMFIN003,...*) operands, and corresponding *//SMFINnnn* DD statements.

2. **DB2 SSID:** The DB2 Subsystem IDs. This is only used by the DB2 Report and Record Selection Extract. If the CICS APPLID Group contains the DB2 SSIDs, then it can be omitted.

CICS PA generates the SSID(*ssid1,ssid2,ssid3,...*) operands for the DB2 or RECSEL commands and the DD statements for the associated files.

3. **MQ SSID:** The MQ Subsystem IDs. This is only used by the WebSphere MQ Report and Record Selection Extract. If the CICS APPLID Group contains the MQ SSIDs, then it can be omitted.

CICS PA generates the operand `SSID(ssid1,ssid2,ssid3,...)` operands for the MQ or RECSEL commands and the DD statements for the associated files.

4. **Logger:** The MVS System Logger. This is only used by the System Logger Report, System Logger Extract, and Record Selection Extract. If the CICS APPLID Group contains the System Loggers, then it can be omitted.

CICS PA generates the DD statements for the associated files.

Print Lines per Page

The maximum number of lines, including headings, to print on each page of the report. Valid values are from 1 to 255. The default is **60**.

The global value applies to all reports. (It is not applicable to extracts.) If a value is specified on the report panel, the report value takes precedence over the global for that report only.

CICS PA JCL generation translates this field to:

```
LINECount(nnn)
```

Time Zone

This provides a way to override your local CPU time zone setting and convert CMF, DB2, MQ, and System Logger clock fields to a different time zone. It is only useful if the data you are reporting was generated by a system running with a different time zone.

CMF, DB2, MQ, and Logger records have clock fields in STCK format based on Greenwich Mean Time (GMT). Every CMF record includes time zone conversion factors SMFMNLSO (Leap Second Offset) and SMFMNDTO (Date/Time Offset). CICS PA uses these to convert the time stamps to reflect the local time of the SMF data.

DB2, MQ, and System Logger records, however, do not have time zone conversion factors. CICS PA uses the reporting system's time zone obtained from the conversion factors CVTLISO (Leap Second Offset) and CVTLDTO (Date/Time Offset) in the CVT. When you run the DB2, MQ, or Logger report on a system with a different time zone setting to that of the SMF data, then you must specify the time zone option to match that of the SMF data. The time zone specification is used to convert the CMF, DB2, MQ, and Logger time stamps to reflect the local time of the SMF data.

Specify the time zone as an integer from **-12** to **+12** to represent the number of hours that local time is west or east of GMT. For example, specify **-5** for New York, **10** for Sydney. CICS PA will then convert GMT STCK values to the required local time for all record types.

The default is blank (not specified).

CICS PA JCL generation translates this field to:

```
ZONE(time-zone)
```

Date Delimiter

The separator character for the dates in reports and extracts. Any character or a space can be specified. The default is a slash (/).

CICS PA JCL generation translates this option to:

```
FORMAT(time-delimiter,date-delimiter)
```

Time Delimiter

The separator character for the time-of-day in reports and extracts. Any character or a space can be specified. The default is a colon (:).

CICS PA JCL generation translates this option to:

```
FORMAT(time-delimiter,date-delimiter)
```

Precision

The precision of numeric fields, and of time stamp fields that specify the TIMEP format. Numeric fields can be formatted to either 4, 5, or 6 decimal places. The default is 4.

- 4 decimal places is 0.0001 precision
- 5 decimal places is 0.00001 precision
- 6 decimal places is 0.000001 (microsecond) precision

For details on the TIMEP format, see “Suboperands for Time Stamp fields” on page 387.

This option generates the PRECISION(n) global operand.

Selection Criteria

Some reports allow you to specify selection criteria to filter records based on their field values before they are passed on to report processing. This enables you to tailor your reports to include only the information that you are interested in. For example, you can specify selection criteria to restrict reports to:

- A particular date/time range
- A group of related Transaction IDs
- Transaction response times that exceed your thresholds

There are several types of Selection Criteria, to support the various types of record processed by CICS PA:

Table 4. Selection Criteria, the record types they apply to, and the reports they affect

| Type of Selection Criteria | Filters these types of record... | For these reports... | Global? |
|----------------------------|------------------------------------|---|---------|
| Performance | CMF performance (SMF 110) | All Performance Reports, Transaction Resource Usage Reports, Performance Graphs Some Extracts: Cross-System Work, Record Selection | Yes |
| | DB2 accounting (SMF 101) | DB2 reports (in the Subsystem Reports category) | Yes |
| | WebSphere MQ accounting (SMF 116) | WebSphere MQ reports (in the Subsystem Reports category) | Yes |
| | OMEGAMON XE for CICS (SMF 112) | OMEGAMON reports (in the Subsystem Reports category) Record Selection extract (in the Extracts category) | Yes |
| Transaction Resource Usage | CMF performance (SMF 110, class 5) | Transaction Resource Usage Reports | Yes |
| Exception | CMF exception (SMF 110) | All Exception Reports Record Selection extract (in the Extracts category) | Yes |
| Logger | System logger (SMF 88) | Logger report (in the System Reports category) Logger extract and Report Selection (in the Extracts category) | No |

You can specify Performance, Transaction Resource Usage, and Exception Selection Criteria in your Report Set in two places:

- Global Selection Criteria, which apply to all reports in the Report Set, except those that have their own Selection Criteria. Global Selection Criteria are accessed from the Report Set panel.
- Report Selection Criteria, which apply only to a specific report. When Report Selection Criteria are defined, they take precedence over the Global Selection Criteria. Report Selection Criteria are specified on the individual Report panels.

You specify Logger Selection Criteria individually for each System Report/Extract in your Report Set.

You can also specify Performance Selection Criteria in a Report Form. If Selection Criteria are specified in both the Report and the Report Form it uses, records must satisfy both criteria to be selected for the report. For details, see “Selection Criteria in Report Forms” on page 168.

Selection Criteria consist of one or more Select Statements. Select Statements in turn consist of one or more INCLUDE/EXCLUDE conditions. You specify these conditions to instruct CICS PA to check field values against the values you specify. For example, you might want to:

- INCLUDE only transactions that ran between 10am and 12pm, and
- INCLUDE only Transaction IDs whose names match the pattern ST*, and
- INCLUDE only transactions with a response time greater than 100 milliseconds.

For each record, the Select Statements are checked one at a time until the record is either included in or excluded from report processing.

Specifying multiple Select Statements provides you with a powerful facility to enhance your reporting capability. For example, suppose that you have two application systems, FINANCE and STOCK. Each system has its own performance thresholds that must be met. FINANCE transactions, prefixed by FI, must have a response time less than or equal to 100 milliseconds during peak period. STOCK transactions, prefixed by ST, must have a response time less than or equal to 200 milliseconds during peak period.

In this case, you would specify two Select Statements, one for each application:

Table 5. Select Statements Example

| Selection Criteria | Select Statement | Conditions |
|---------------------------|-------------------------|---|
| Global or Report | FINANCE | TRAN=FI* RESPONSE time from 0 to 100 Active during 09:00 to 16:00 |
| | STOCK | TRAN=ST* RESPONSE time from 0 to 200 Active during 09:00 to 16:00 |

Each CMF Performance record is checked against the Select Statements. The first Select Statement for the FINANCE system is checked first. If its conditions are met, then the record is passed to report processing with no further checking. Otherwise, the second Select Statement for the STOCK system is checked next. If its conditions are met, then the record is passed to report processing with no further checking. CMF records failing both Select Statements bypass report processing.

For a detailed discussion and examples, see “Using SELECT statements” on page 516.

When you select Selection Criteria for the first time, you are taken directly to specify a Select Statement. When you have specified at least one, a list is displayed. You can then select (edit), delete, or include/exclude any Statements in the list, or add new ones.

Thus the panel flow is:

1. Edit/View Report Set
2. Selection Criteria (List of Select Statements)
3. Select Statement

Specifying Selection Criteria

To specify Global Performance or Exception Selection Criteria that will apply to all reports in the Report Set, scroll to the **Selection Criteria** category on the Report Set panel, and then enter line action **S** to select **Performance** or **Exception**.

To specify Selection Criteria for an individual report, select the report on the Report Set panel, and then enter line action **S** next to the **Selection Criteria** field on that Report panel.

If Select Statements have already been specified for this type of Selection Criteria, the Performance Selection Criteria panel is displayed. Otherwise, the Select Statement panel is displayed for you to define your first statement; see “Specifying Select Statements” on page 159.

```
File Filter Edit Options Help
-----
                SAMPLE - Performance Selection Criteria                Row 1 from 2
Command ==> _____ Scroll ==> PAGE

/ Exc Description
S   ACTIVE from 2005/01/15 to 2005/01/20;RESPONSE 3;CPU COUNT 50-1000
-----
_   RSYSID RMTE;Excl TRAN XYZ;
-----
***** End of list *****
```

Figure 72. Performance Selection Criteria

This panel lists the Select Statements which together make up the Selection Criteria that you have chosen to specify. One or more Select Statements make up the Selection Criteria against which CICS PA compares each input record to determine whether to include or exclude it in the report. You can select (edit), delete, or include/exclude any statement, insert new ones, or rearrange them (move/copy). The order of the rows is important to the report processor as the final decision on whether to include or exclude a record in the report can depend on the order of the Select Statements against which it is compared.

Each description is translated by CICS PA JCL generation into a SELECT(PERFORMANCE(...)), SELECT(EXCEPTION(...)), or SELECT(LOGGER(...)) operand, depending on the type of Selection Criteria.

The options are:

Exc Exclude Indicator. An asterisk * in this field indicates that this Select Statement is excluded from report processing and will not be used to filter records.

To reverse the Exclude indicator, enter line action **X**.

Description

This is a summary of the Select Statement, truncated to fit the panel width. EXCLUDE is abbreviated to Excl and INCLUDE is omitted.

To display and edit the full specification, enter line action **S**.

Line Actions: Valid line actions are:

/ Display the menu of line actions.
S Select this row for review or modification
I Insert a row
R Repeat this row
C Copy this row
M Move this row
A Move/Copy after this row
B Move/Copy before this row
D Delete this row
X Reverse the Exclude indicator (Include/Exclude)

Specifying Select Statements

The Select Statement panel is where you specify the details of the Select Statements to filter records. A Select Statement consists of one or more clauses that include or exclude Report Intervals (Performance, and Exception Selection Criteria only) or Field Values (all Selection Criteria).

CICS PA JCL generation translates the Report Intervals into operands with the format:

```
SELECT(PERFORMANCE|EXCEPTION(INCLUDE|EXCLUDE(  
ACTIVE|START|STOP(FROM(date,time),TO(date,time))),...))
```

The Field Values translate to:

```
SELECT(PERFORMANCE|EXCEPTION|LOGGER(INCLUDE|EXCLUDE(  
field(values)),...))
```

To display the Select Statement panel for Global Selection Criteria, enter line action **S** next to **Performance** or **Exception** in the Selection Criteria category on the Report Set panel. For individual Report Selection Criteria, select the report on the Report Set panel, and then enter line action **S** next to the Selection Criteria field. If the Selection Criteria panel is displayed, enter line action **S** against a particular Select Statement listed there.

The Select Statement panels are similar for Performance, Exception, and Logger Selection Criteria. The differences are:

- Performance and Exception Selection Criteria allow you to specify date/time ranges ("report intervals") based on transaction start, stop, or active times. Logger Selection Criteria allow you to specify report intervals based on SMF recording interval end time only.
- The Performance Select Statement panel has two views. To display the second view (showing field lengths and dictionary definitions), press **F11**.

```

File Edit Lists Options Help
-----
SAMPLE - Performance Select Statement      Row 1 of 2 More: >
Command ==>                               Scroll ==> PAGE

      Active ----- Report Interval -----
Inc  Start ----- From ----- To -----
Exc  Stop  DD/MM/YYYY HH:MM:SS.TH DD/MM/YYYY HH:MM:SS.TH
_ INC  ACTIVE 15/01/2005           20/01/2005

-----

Inc  Field ----- Value or Range -----
/ Exc Name +   Type  Value/From   To       List +
_ INC RESPONSE  _____ >=3           _____ Milliseconds
_ INC CPU       COUNT_ 50           1000     _____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F7=Backward F8=Forward F10=Actions
F11=Right    F12=Cancel

```

```

File Edit Lists Options Help
-----
SAMPLE - Performance Select Statement      Row 1 of 2 More: >
Command ==>                               Scroll ==> PAGE

      Active ----- Report Interval -----
Inc  Start ----- From ----- To -----
Exc  Stop  DD/MM/YYYY HH:MM:SS.TH DD/MM/YYYY HH:MM:SS.TH
_ INC  ACTIVE 15/01/2005           20/01/2005

-----

Inc  Field ----- - User Field -
/ Exc Name +   Length Dictionary Definition Offset Length
_ INC RESPONSE  8  RESP  CICSPA D901  _____
_ INC CPU       8  USRCPUT DFHTASK S008  _____
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F7=Backward F8=Forward F10=Actions
F11=Right    F12=Cancel

```

Figure 73. Performance Select Statement panel - default view and second view

The options for the **Report Intervals** are:

Inc/Exc

Specify **INC** to include data records in the report or extract if their transaction Start/Stop time is within the specified time range.

Specify **EXC** if data records whose transaction Start/Stop time is within the specified time range are to be excluded from the report or extract.

Active/Start/Stop

START refers to when the transaction was attached or when processing continued from a conversational transaction.

STOP refers to when the transaction was detached or a conversational transaction waited for terminal input.

ACTIVE refers to the entire time span between when the transaction started and stopped. Any part of the transaction active time that occurs between the specified report interval is considered a match. It can be used to make sure long-running transactions are included when their Start or Stop times fall out of the selection range.

For OMEGAMON records, Report Interval selection is limited to the START time; the STOP and ACTIVE options are ignored.

For System Logger records, Report Interval selection is limited to the STOP time.

Report Interval

This is used to specify a *date/time range* or a *time slot* (times only).

From and **To** together specify the report interval. **Date** is either a calendar date in your preferred format or a relative date. **Time** is a time-of-day. (The same edit rules apply as for Report Set Start/Stop.)

Relative dates are specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both From and To dates are specified, they must be in the same format.

For a *date/time range*:

- Either From or To can be omitted to indicate that the range is open-ended.
 - If From is omitted, it defaults to the first input record.
 - If To is omitted, it defaults to the end of file.
- If From date is specified with no time, the start of day is assumed.
 - If To date is specified with no time, the end of day is assumed.

For a *time slot*, both times must be present with no dates to signify the same time slot every day. The times can span midnight.

More +

CICS PA allows up to 14 report intervals in a Select Statement. You can specify the first report interval on this panel. Enter line action **S** against the first report interval to display the window where you can specify multiple report intervals (see Figure 74 on page 163).

More + is displayed at the end of the first report interval to indicate that more than one report interval has been specified.

The options for the **Field Values** are:

Inc/Exc

Specify **INC** if a data record is to be included in the report or extract when it matches the field and value specification.

Specify **EXC** if the data record is to be excluded from the report or extract if it matches the field and value specification.

Field Name

The CICS PA name of the data field against which the record is compared. To select one from a list of available names, press **Prompt** (F4) from Field Name (see "Select a field" on page 164 or enter line action **S** (see "Field selection" on page 164).

For the Transaction Resource Usage reports you can specify FILENAME, TSQNAME, or DPLNAME to filter the CMF transaction resource class data on File name, Temporary Storage Queue name, or distributed program link (DPL) name. FILENAME, TSQNAME, and DPLNAME are ignored for CMF performance class data.

Type Some fields require you to specify a type. For example, clock fields require either **COUNT** or **TIME**.

Value or Range

Enter the Field Value or Range against which the data records are compared.

- For **Character** fields, specify the Field Value. The value must not exceed the maximum field length. If the value is shorter than the field, it is padded to the right with blanks. Scroll **Right** (F11) to view the field length. The length of character type fields is commonly 8 bytes or less. However, UOWID is 6 bytes hexadecimal requiring an entry of 12 hexadecimal characters (0-F). TSQNAME can be up to 16 characters. Masking characters % (exactly one character) and * (any number of characters) are allowed. For example, specify TR* to match all values starting with TR.
To specify a null value, specify two single quotes ' ' or ".
If you need to specify a list of values, use an Object List.
- For Numeric (**Count** and **Time**) fields, specify a Range. The range can be specified as a From and To value. For example, from 1 to 100. If the To value is not specified then the From value is assumed.
Alternatively you can precede the From value with a comparison operator. For example, specify >=1 for a comparison of greater than or equal to 1. Allowed operators are:
= > >= < <=
Specify time values in seconds (using a decimal point) or milliseconds. For example, we can request RESPONSE in the range 1.12 to 1.25 seconds or the equivalent 1120 to 1250 milliseconds. CICS PA displays **Seconds** or **Milliseconds** accordingly.

List The name of an Object List in the current Object Lists data set. You can type in the name directly or to select one from a list of available Object Lists, place the cursor where you want the name inserted and press **Prompt** (F4). See Figure 78 on page 167 for an example of the Object List selection panel. The values in the Object List must be the same type (character or numeric) as the field for which the Object List is specified.
When Report Set JCL is generated, the values in the Object List are listed in the **SELECT** statements along with the explicitly specified values. The order in which the values are listed in the SELECT statement is the same order as they are specified in the Selection Criteria and Object List panel(s), however this order is of no consequence to CICS PA report processing.

Length

The length of the field.

Dictionary Definition (Performance Selection Criteria only)

The description of the CMF data field in the format:

informalname owner xnnn

where:

- *informalname* is the CMF field name
- *owner* is the CICS component that 'owns' the field
- *x* indicates the data type:
 - A - 32- or 64-bit count
 - C - character string
 - D - CICS PA derived time
 - P - packed decimal number
 - S - clock (time-count)
 - T - STCK time stamp
 - X - CICS PA calculated count
- *nnn* is the field identifier

Some special fields, such as APPLID and RESPONSE, are not defined in the CMF Dictionary and are given an owner of 'CICSPA'. They are either derived from the fixed section of the CMF record (for example, APPLID), or calculated from two or more other CMF fields (for example, RESPONSE).

User fields can be specified in Select Statements. However, you must specify in Global Options a CICS System that has user fields defined in its MCT. CICS PA recognizes the APPLID associated with the Select Statement, and when a row is selected (**S** line action), the list of field names will include the user fields at the bottom of the list.

User Field Offset and Length (Performance Selection Criteria only)

For character user fields when only part of the field is to be checked. **Offset** is the starting character position and **Length** is the number of characters from this position to be checked. For example, if the user field contains the value ABCDEFG, then specifying offset 3 and length 5 gives CDEFG. Both values are required for character user fields and default to the entire field (offset 1 and maximum length).

CICS PA JCL generation translates these values to:
 FIELDS(Character(SUBSTR(offset,length)),...)

Line Actions (field rows): The valid line actions for the **Field Value** rows are:

- / Display the menu of line actions.
- S Select a field name from a list (see "Field selection" on page 164).
- I Insert a field.
- R Repeat this row.
- C Copy this row.
- M Move this row.
- A Move/Copy after this row.
- B Move/Copy before this row.
- D Delete this row.

Specifying more than one report interval

To specify more than one **Report Interval**, enter line action **S** against the first Report Interval at the top of the Select Statement panel. **More +** is displayed at the end of the first Report Interval to indicate that more than one report interval has been specified.

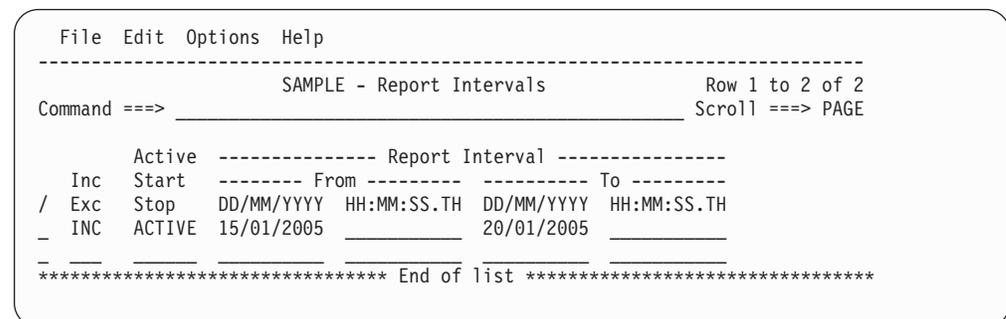


Figure 74. Performance Report Intervals

This panel is used to specify multiple report intervals for CMF performance record selection.

Line Actions: The valid line actions on this panel are:

- / Display the menu of line actions.

- I Insert a row.
- R Repeat this row.
- C Copy this row.
- M Move this row.
- A Move/Copy after this row.
- B Move/Copy before this row.
- D Delete this row.

Field selection

Field Selection allows you to view expanded field descriptions and select a field name for insertion into your Selection Criteria. To display the Field Selection panel, enter line action **S** against a field or blank row on the Select Statement panel where you want to insert the selected field name.

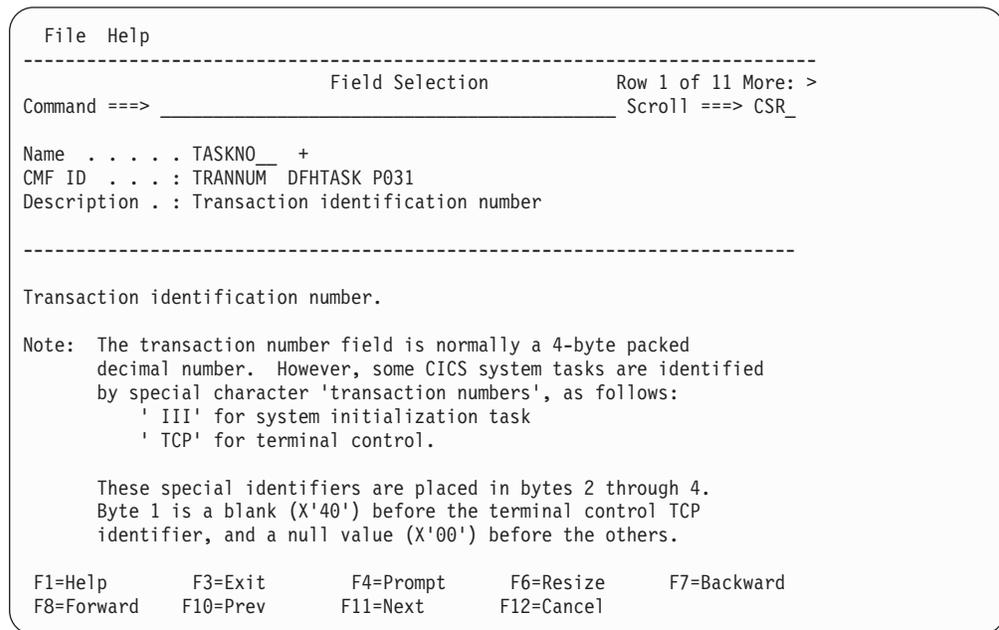


Figure 75. Performance field selection

The panel cycles through all the CMF performance class fields and transaction resource class fields available for selection. Each field is displayed in turn with its expanded description like that in “Performance field help” on page 166. Details are only available for CICS-defined fields, not user fields.

To cycle through the list of fields, press **F11** or **F10** to move Forward or Backward through the list. You can restart anywhere in the cycle by entering a valid field name then move Forward or Backward from that point.

You can press **Prompt** (F4) from the Name field to display a selection list of fields (see Figure 76 on page 165).

When the required field is displayed in the Name field, press **Exit** (F3) to select it.

Select a field

Field selection allows you to select a field name for insertion into your Select Statement. The panel lists all CMF performance class and transaction resource class fields available for selection.

To display the selection list, press **Prompt** (F4) from the Name field of the Select Statement.

Performance Selection Criteria, Exception Selection Criteria, and Logger Selection Criteria each present a different list of fields, matching the different record types to which they apply.

```

File Help
-----
Select a Performance Field          Row 1 of 249 More: >
Command ==> _____ Scroll ==> PAGE

Field
/ Name      Description
- ABCODEC   Current ABEND code
- ABCODEO   Original ABEND code
- APPLID    CICS Generic APPLID
- APPLTRAN  Application naming Tran ID
- APPLPROG  Application naming Program
- BAACDCCT  BTS Activity Data Containers requests
- BAACQPCT  BTS Acquire Process/Activity requests
- BADACTCT  BTS Define Activity requests
- BADCPACT  BTS Cancel Process/Activity requests
- BADFIECT  BTS Define-Input Event requester
- BADPROCT  BTS Define Process requests
...

```

Figure 76. Select a performance field

Scroll **Right** (F11) to see all columns of information about the fields.

```

File Help
-----
Select a Performance Field          Row 1 of 249 More: >
Command ==> _____ Scroll ==> PAGE

Field
/ Name      Dictionary Definition
- ABCODEC   ABCODEC  DFHPROG C114
- ABCODEO   ABCODEO  DFHPROG C113
- APPLID    APPLID    CICSPA  C903
- APPLTRAN  APPLNAME  DFHAPPL C001
- APPLPROG  APPLNAME  DFHAPPL C001
- BAACDCCT  BAACDCCT  DFHCBTS A217
- BAACQPCT  BAACQPCT  DFHCBTS A214
- BADACTCT  BADACTCT  DFHCBTS A209
- BADCPACT  BADCPACT  DFHCBTS A213
- BADFIECT  BADFIECT  DFHCBTS A220
- BADPROCT  BADPROCT  DFHCBTS A208
...

```

To help locate a particular field, you can use the **FIND** and **RFIND** commands, which search in all the displayed fields for a specified string.

To leave without selecting, use Exit or Cancel.

The columns are:

Field Name

The CICS PA name for the CMF data field. User fields are listed if an APPLID has been specified in Global Options and its MCT has user fields defined. User fields display at the bottom of the selection list.

Enter line action **S** to select a field. It is inserted into the Select Statement in the row where the cursor is positioned.

Description

This is a short description of the field. Enter line action **H** (Help) for a more detailed description. See Figure 77 for an example of the help details displayed in a pop-up window.

Dictionary Definition

The description of the CMF data field in terms of the CMF informal name, CICS owner, data type, and field identifier. See page "Dictionary Definition (Performance Selection Criteria only)" on page 162 for further information.

Performance field help

On the Select a Performance Field panel, if you enter the line action **H** against a field, a pop-up window will display a more detailed explanation of the field.

```
File Help
-----
Command ==> _____ IRWAIT Explanation _____ Row 1 to 5 of 5
                                           Scroll ==> PAGE

Name . . . . : IRWAIT
CMF ID . . . : IRIOWTT DFHTERM S100
Description . : MRO link wait time

Elapsed time for which the user task waited for control at this end of
an MRO link.

Note: This field is a component of the task suspend time, SUSPTIME
(014), field.
***** End of list *****
F1=Help F3=Exit F6=Resize F10=Actions F12=Cancel
```

Figure 77. Performance field help

This panel provides a more detailed description of the field. It is only available for CICS-defined fields, not user-defined fields. The details are:

Name The name of the field as it is known to CICS PA.

CMF ID

The description of the CMF data field in terms of the CMF informal name, CICS owner, data type, and field identifier. See page "Dictionary Definition (Performance Selection Criteria only)" on page 162 for further information.

Description

A short description of the field followed by the expanded description.

Select an Object List

To display the Object Lists selection list, position the cursor in the **Object List** field of the Select Statement and press **Prompt** (F4).

```

File Help
-----
                        Object Lists                Row 1 to 3 of 3
Command ==> _____ Scroll ==> PAGE

Select an Object List then press Enter.

      Name                Description
.   HRTRANS   HR application transactions
.   USERNETW  Userids of Network Team
S   ODDNUMS   Odd Numbers
***** End of list *****

```

Figure 78. Select an Object List

This panel displays the Object Lists defined in the current Object Lists data set.

Enter line action **S** (or point-and-shoot) to select an Object List name to insert into your Select Statement.

Fields checked by Performance Selection Criteria

The field selection list for Performance Selection Criteria displays fields from several record types (described in Table 4 on page 156), even when you are specifying Selection Criteria for a report that processes only one of those record types. If you specify conditions for fields that do not belong to the record type for the report, those conditions are ignored for that report. The following topics list the Performance Selection Criteria fields that are checked for each record type.

Selecting DB2 accounting records

The only Performance Selection Criteria fields checked against DB2 accounting records are:

- START
- STOP
- ACTIVE
- UOWID

All other fields are ignored.

DB2 accounting record selection applies to the DB2 report (see Figure 126 on page 227) and the Record Selection extract (see Figure 146 on page 262). Time-based selection depends on whether the DB2 thread Begin-End times are within the specified report intervals.

Selecting MQ accounting records

The only Performance Selection Criteria fields checked against MQ accounting records are:

- START
- STOP
- ACTIVE
- TASKNO
- TRAN

All other fields are ignored.

MQ accounting record selection applies to the WebSphere MQ report (see WebSphere MQ Report) and the Record Selection extract (see Figure 146 on page 262). Time-based selection depends on whether the MQ thread Begin-End times are within the specified report intervals.

Selecting OMEGAMON records

CICS PA checks only the following Performance Selection Criteria fields when filtering OMEGAMON records:

APPLID

CICS APPLID

FILENAME

Database (or file) name

NETUOWPX

Originating System VTAM network name

START

Task start time.

Note: Report Interval-based selection for OMEGAMON XE for CICS records is limited to the Attach (START) time; the STOP and ACTIVE options are ignored.

TASKNO

Transaction identification number

TRAN CICS transaction ID

UOWID

Unit of work ID

All other fields are ignored.

OMEGAMON record selection applies to the OMEGAMON reports (see "OMEGAMON reports" on page 235).

Selecting Transaction Resource Class records

The Transaction Resource Usage Summary reports process both transaction resource class and performance class data. The Transaction Resource Usage List report processes only transaction resource class data. These reports use Performance Selection Criteria to filter both classes of data. For more information, see "Performance Selection Criteria" on page 220.

Selection Criteria in Report Forms

In addition to specifying Selection Criteria in Report Sets, Selection Criteria can be used in Report Forms (and also in the History Database; see "Performance Selection Criteria" on page 640). For example, the Sample Report Form BADFILE reports the top 20 Worst File Request transactions. It specifies Selection Criteria (FCTOTAL>0) to ensure only transactions that use File Control services are considered for reporting.

Report Form Selection Criteria specification has two benefits:

1. Only transactions that use File Control Services (the focus of this Report Form) are selected.
2. CICS PA only processes (sorts) selected records, significantly reducing the time and overhead of generating the report.

Report Set and Report Form Selection Criteria can be used together:

- **Report Form Selection Criteria** typically focuses on the type of data being reported. For example, if your Form is targeting File Control activity then its Selection Criteria can specify FCTOTAL>0 to include only transactions that used File Control services.

Report Set Selection Criteria generates batch commands using the SELECT operand.

- **Report Set Selection Criteria** typically focuses on the application targeted by the Form. For example, if the Report is targeting MY application then its Selection Criteria can specify TRAN = MY* to include only transactions in MY application.

Report Form Selection Criteria generates batch commands using the SELECT2 operand.

The resultant report will include data for transactions matching MY* that use File Control services. For example:

```
CICSPA  SELECT(PERF(INCL(TRAN(MY*)))),
        SELECT2(PERF(INCL(FCTOTAL(>0)))),...
```

Both SELECT and SELECT2 must match for the record to be processed.

Requesting reports and extracts

In a Report Set, you can request any number of reports and extracts, and any number of instances of them with different reporting options specified. For example, you might request three variations of the Performance List report, one Performance Summary report, and two different Cross-System Work extracts.

When you select a report or extract from the Report Set panel:

- If there is at least one of this type already defined, a list is displayed. You can then select (edit), delete, or include/exclude any in the list, define new ones, or rearrange them (move/copy).
- The list is bypassed if none of this type of report or extract is defined yet, and the Report or Extract definition panel is displayed directly.

Thus the panel flow is:

1. List of Report Sets
2. Edit/View Report Set
3. List of Reports/Extracts
4. Define Report/Extract

For Report Set JCL generation, you must specify the systems that you want to analyze. The systems and files must be defined in System Definitions. You can link directly there by selecting **Systems** in the action bar.

It is recommended that you specify your System Selection at run time, not within the Report Set. This will allow you to run your Report Sets against any of your defined systems.

Performance reports

The Performance Reports process CMF performance class data to produce tabular-style reports.

Performance List report

The Performance List report provides a detailed list of the CMF performance class records.

To request the report, enter line action **S** against the **List** Performance Report on the Report Set panel. If reports of this type have been previously specified, the list of Performance List Reports is displayed. Otherwise, the Performance List Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
                                SAMPLE - Performance List Reports                                Row 1 from 4
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/  Exc  APPLID + Image + Group + Output  Form + Alert + Selection
S      CICSP001 _____ LIST0001  TRANLIST _____ YES
-      DEVT _____ MVS1 _____ LIST0002  RESPLIST _____ NO
-      CICST001 _____ LIST0003  TRANLIST _____ YES
-      * _____ RSYSGRP1 LIST0004 _____ NO
***** End of list *****

```

Figure 79. Performance List Reports

This panel displays the list of Performance List Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options are:

Exc An asterisk * in this field indicates that the report or extract is excluded from report processing.

Use line action **X** to reverse the Exclude indicator.

System Selection

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICSP1 can be specified if CICSP* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(applid1,applid2,applid3,...) and INPUT(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Output

The DDname for the report output which CICS PA uses when generating the JCL to run the Report Set.

This option generates the OUTPUT(ddname) operand.

Form The name of a Report Form to be used to tailor the format and content of the report. The report must use a Report Form of a compatible type, that is LIST or LISTX. If not specified, CICS PA uses the default Form. See Figure 164 on page 303 for the default LIST Report Form.

CICS PA JCL generation translates the Report Form specification into the FIELDS operand.

Alert The name of a Performance Alert Definition to be used to report performance non-compliance.

Selection Criteria

This indicator is generated by CICS PA.

YES indicates that Selection Criteria are activated for this report or extract.

NO indicates that Selection Criteria are not activated for this report or extract. This can mean that no Selection Criteria have been specified, all Select Statements are Excluded, or the Selection Criteria have been deactivated.

Line Actions: The valid line actions on the list of reports panel are:

| | |
|---|---|
| / | Display the menu of line actions |
| S | Select this row for review or modification |
| I | Insert a row |
| R | Repeat this row |
| C | Copy this row |
| M | Move this row. |
| A | Move/Copy after this row |
| B | Move/Copy before this row |
| D | Delete this row |
| X | Reverse the Exclude indicator (Include/Exclude) |

Primary Commands: The following primary commands are valid for this panel:

SHOW

This command shows all items in the list, both Included and Excluded. This is the default on entry to the panel.

Also available from **Filter** in the action bar.

HIDE This command hides all Excluded items which have * in the **Exc** column. Only the Included items, where **Exc** is blank, are displayed. If all items are Excluded, a blank row is inserted to accept entry of a new data set

specification. Row n from m after the panel title indicates the total number of items in the list. HIDE is only in effect until exit from this panel, or until the next SHOW command is issued.

Also available from **Filter** in the action bar.

EXCLUDE

This command Excludes all items by displaying * in their Exc column.

Also available from **Edit** in the action bar.

INCLUDE

This command Includes all Excluded items by removing the * from their Exc column.

Also available from **Edit** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

SYSDEFS

This command opens the Personal System Definitions dialog.

Also available from **Systems** in the action bar.

To display the Performance List Report panel, enter line action **S** against the **List Performance Report** on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
SAMPLE - Performance List Report
Command ==> _____

System Selection:
APPLID . . CICSP001 +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . LIST0001
Print Lines per Page . . ____ (1-255)

Report Focus:
Form . . . TRANLIST +
Alert . . _____ +
Severity _____ +

Report Options:
Title . . _____

Selection Criteria:
_ Performance *

Repository . . :
F1=Help F3=Exit F4=Prompt F7=Backward F8=Forward F10=Actions
F12=Cancel

```

Figure 80. Performance List Report

Use this panel to specify report options, report format, and record selection criteria for the Performance List report. The only mandatory option is the DDname for the report output. You can let the other options default.

The precision of numerical fields in the report is specified in Global Options (see Figure 71 on page 153).

The options are:

System Selection

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICSP1 can be specified if CICSP* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(*applid1,applid2,applid3,...*) and INput(*SMFIN001,SMFIN002,SMFIN003,...*) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Report Output DDname

The DDname for the report output. Specify 1-8 alphanumeric characters starting with an alphabetic character. The DDname is mandatory and should be unique to separate the output of multiple reports. Multiple reports of the same type can use the same DDname without consequence, however a mix of reports using the same DDname might interleave the print lines.

CICS PA assigns a default DDname **LISTnnnn** where nnnn is a sequential number **0001-9999** to ensure each report has a unique DDname.

This option generates the OUTPUT(*ddname*) operand.

Print Lines per Page

The maximum number of lines, including headings, to print on each page of the report. Valid values are from 1 to 255. The default is 60.

A global value can be specified to apply to all reports. If a value is also specified here on the report panel, it takes precedence over the global for this report only.

CICS PA JCL generation translates this field to the LINECount operand.

Report Form

The name of a LIST Report Form to be used to tailor the format and content of the report.

To select the name from a list of compatible Report Forms, position the cursor on the Form field and press **Prompt** (F4).

CICS PA JCL generation translates the Report Form specification into the FIELDS operand.

If a Report Form is not specified, CICS PA uses the default Form. See Figure 164 on page 303 for the default Report Form for the LIST report.

Alert

The name of a Performance Alert Definition.

To select from a list of predefined names, position the cursor on the Alert field and press **Prompt** (F4).

CICS PA JCL generation translates the Alert specification into the ALERTDEF operand.

Severity

When an Alert name is specified, this sub-option allows you to specify the minimum severity level to be reported and type of transactions reported.

The minimum severity level selected for reporting is used to report transactions that have at least that level of reporting in *any* of the severity fields. This could result in transactions being reported with severity lower than the specified severity when the transaction also has one or more severity fields that meets the specified severity criteria. For example, if you specify SEVERITY(CRITICAL) for the report, only transactions with Critical severity are reported, however, if a transaction also exceeds Warning or Info thresholds, the lower severity will be also reported.

Press **Prompt** (F4) to select from the list of available options which are:

CRITICAL

Only Critical transactions are reported.

WARNING

Only Critical and Warning transactions are reported.

INFO All alerts are reported: Critical, Warning and Informational transactions.

ELIGIBLE

Only eligible transactions are processed and reported. Eligible transactions are those that have resource values that match resource values specified in the alert definition. The resulting report will include eligible only transactions with and without alerts.

This option provides the means to filter out transactions that would never generate an alert because their resource values do not match resource values specified in the alert definition.

ALL or blank

All transactions are reported, whether or not they generate an alert and whether or not they are eligible. This is the default.

CICS PA JCL generation translates the Severity specification into the SEVERITY(CRITICAL|WARNING|INFO|ELIGIBLE|ALL) operand.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

If the report uses a Report Form, and a title is specified on both, the title on this report panel takes precedence.

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

Performance Selection Criteria

You can specify Selection Criteria to filter the CMF records on time period and field values to restrict reporting to the data that is of interest to you.

CICS PA JCL generation translates Selection Criteria to the SELECT(PERFORMANCE operand.

If you specify a Report Form that also has Selection Criteria specified, CICS PA JCL generation translates the Form's Selection Criteria to the SELECT2(PERFORMANCE operand. If both the report and the Form specify Selection Criteria, then a record must pass selection by both specifications to be included in the report.

Line Actions:

- /** Display the menu of line actions.
- S** Display the subpanel where Selection Criteria can be specified for this report. For details, see "Specifying Selection Criteria" on page 158.
- A** Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you have specified here will not be used.

Repository

The data set name of the Repository that contains the Performance Alert Definitions.

Select a System (CICS APPLID)

To report on a particular system, you can select one from a list of available systems by pressing **Prompt** (F4) from the **CICS APPLID** field in System Selection. Only the systems of that type are displayed. See Figure 81 on page 176 for an example showing a list of CICS APPLIDs.

Enter line action **S** (or point-and-shoot) to select a system from the list to insert in your System Selection.

```

                                Systems                                Row 1 to 3 of 3
Command ==> _____ Scroll ==> PAGE

Select a System then press Enter.

   System  Image  Files  Description
.  CICSP001  MVS1   Yes   CICS system CICSP001/MVS1
.  CICSD001                Yes   CICS system CICSD001
.  CICST001                No    CICS testing
***** End of list *****

```

Figure 81. Select a System (CICS APPLID)

Select an MVS Image

To report on all systems belonging to a particular MVS Image, select an Image by pressing **Prompt** (F4) from an **Image** field in System Selection. All Images defined in System Definitions are listed. See the example in Figure 82.

```

File Help
-----
                                Images                                Row 1 to 1 of 1
Command ==> _____ Scroll ==> PAGE

Select an Image then press Enter.

   Image  Files  Description
.  MVS1   Yes   MVS System MVS1
***** End of list *****

```

Figure 82. Select an Image

This panel displays the Images defined in System Definitions.

Each row gives the Image name and description and shows whether it has files defined and eligible for JCL generation.

Enter line action **S** (or point-and-shoot) to select an Image to insert in System Selection.

Select a Group

To report on a particular group of systems, select a Group by pressing **Prompt** (F4) from a **Group** field in System Selection. All Groups defined in System Definitions are listed. See the example in Figure 83 on page 177.

```

File Help
-----
                                Groups                                Row 1 to 4 of 4
Command ==> _____ Scroll ==> PAGE

Select a Group then press Enter.

   Group   Files  Description
.  PRODMR01  Yes  Production MRO
.  WEEKLY   Yes  Weekly SMF data
.  MONTHLY  Yes  Monthly SMF data
.  YEARLY   No   Yearly SMF data
***** End of list *****

```

Figure 83. Select a Group

This panel displays the Groups defined in System Definitions.

Each row gives the Group name and description and shows whether it has files defined and eligible for JCL generation.

Enter line action **S** (or point-and-shoot) to select a Group to insert in System Selection.

Select a Report Form

To tailor the format of the report or extract, select a Report Form. Position the cursor on the **Form** field on the Report or Extract panel, then press **Prompt** (F4). Only Forms of compatible type are listed. See Figure 84 for an example of Report Forms for the Performance List Report.

```

File Help
-----
                                Report Forms                            Row 1 to 3 of 3
Command ==> _____ Scroll ==> PAGE

Select a Report Form then press Enter.

   Name     Type      Description
.  LISTFRM1 LIST    List Report Form
.  RESPLIST LIST    List Report Form
S  TRANLIST LIST    List Report Form
***** End of list *****

```

Figure 84. Select a Report Form (LIST Example)

This panel displays the Report Forms defined in the current Report Forms data set.

Enter line action **S** (or point-and-shoot) to select a Report Form to tailor your report.

Performance List Extended report

The Performance List Extended report provides a detailed list of the CMF performance class records. It differs from the Performance List report in that you can specify the sorting criteria for the performance class records.

To request the report, enter line action **S** against the **List Extended** Performance Report on the Report Set panel. If reports of this type have been previously specified, the list of Performance List Extended Reports is displayed. Otherwise, the Performance List Extended Report panel is displayed for you to define your

first report of this type.

```

File  Filter  Edit  Systems  Options  Help
-----
                SAMPLE - Performance List Extended Reports          Row 1 from 4
Command ==> _____ Scroll ==> ____

      ---- System Selection ----
/  Exc  APPLID + Image + Group + Output  Form + Selection
S      CICSP001 _____ _____ LSTX0001 LISTX1_ YES
-      DEVT _____ MVS1 _____ LSTX0002 LISTX2_ NO
-      CICST001 _____ _____ LSTX0003 LISTX1_ YES
-      * _____ _____ RSYSGRP1 LSTX0004 _____ NO
***** End of list *****

```

Figure 85. Performance List Extended Reports

This panel displays the list of Performance List Extended Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel. See “Performance List report” on page 169.

To display the Performance List Extended Report panel, enter line action **S** against the **List Extended** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File  Systems  Options  Help
-----
                SAMPLE - Performance List Extended Report
Command ==> _____

System Selection:
APPLID . . CICSP001 +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . LSTX0001
Print Lines per Page . . ____ (1-255)

Report Format:
Form . . . LISTX1_ +
Title . . _____

Selection Criteria:
_ Performance *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 86. Performance List Extended Report

Use this panel to specify report options, report format, and record selection criteria for the Performance List Extended report. The only mandatory option is the DDname for the report output. You can let the other options default.

The report options are the same as those for the Performance List Report. See “Performance List report” on page 169.

CICS PA provides a default **Report Output DDname** in the format **LSTXnnnn** where nnnn is **0001-9999**.

To select **Form** from a list of predefined LISTX Report Forms, use **Prompt** (F4). If a Form is not specified, CICS PA uses the default Form. See Figure 166 on page 311 for the default LISTX Report Form.

The precision of numerical fields in the report is specified in Global Options (see Figure 71 on page 153).

Performance Summary report

The Performance Summary report is a summary of the CMF performance class records.

To request the report, enter line action **S** against the **Summary** Performance Report on the Report Set panel. If reports of this type have been previously specified, the list of Performance Summary Reports is displayed. Otherwise, the Performance Summary Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
SAMPLE - Performance Summary Reports          Row 1 from 4
Command ==> _____ Scroll ==> _____

---- System Selection ----
/  Exc  APPLID + Image + Group + Output  Form + Alert + Selection
S      CICSP001 _____ SUMM0001  SUMMARY1 _____ YES
-      DEVT  _____ MVS1  _____ SUMM0002  SUMMARY2 _____ NO
-      CICST001 _____ SUMM0003  SUMMARY1 _____ YES
-      * _____ RSYSGRP1 SUMM0004  _____ _____ NO
***** End of list *****

```

Figure 87. Performance Summary Reports

This panel displays the list of Performance Summary Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel. See “Performance List report” on page 169.

To display the Performance Summary Report panel, enter line action **S** against the **Summary** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                        SAMPLE - Performance Summary Report
Command ==> _____

System Selection:                Report Output:
APPLID . . . C1CSP001 +         DDname . . . . . SUMM0001
Image . . . _____ +         Print Lines per Page . . ____ (1-255)
Group . . . _____ +

Report Focus:                    Report by time interval:
Form . . . TDSUM__ +           Interval . . . 00:01:00 (hh:mm:ss)
Alert . . . _____ +       Override Form _____ +
_ Eligible transactions only    Timestamp . . . _____ +

Reporting Options:
Totals Level . . . 8           (blank or 0-8)
Title . . . _____

Selection Criteria:              Execution Option:
_ Performance *                 / Use External Sort

Repository . . . : C1CSPA.XYX.REPOSTRY

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 88. Performance Summary Report

Use this panel to specify report options, report focus, and record selection criteria for the Performance Summary report. The only mandatory option is the DDname for the report output. You can let the other options default.

The precision of numerical fields in the report is specified in Global Options (see Figure 71 on page 153).

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169) but with the following additional options:

Alert Specifies the Performance Alert Definition name.

Eligible transactions only

Indicates that the report should only process transactions that are eligible for alert processing. That is, their resource values match those specified in the alert definition. This option results in only alert eligible transactions being summarized in the report regardless of whether they generate an alert or not. This option effectively makes it an alert specific report. This option is ignored if no Performance Alert Definition name is specified.

Report by time interval

Provide flexibility when reporting by time interval. You can override the Form key fields by prefixing, appending, or replacing it with one of the timestamp fields. This gives you an easy means of using a common Summary Form to generate various interval-based reports without creating individual Forms for each report. This is achieved by allowing you to manipulate the Form key through the use of these options to create the required reports.

Interval

The time interval applies when you want to summarize transaction activity over time. It is used when you specify a SUMMARY Report Form which has any of the key fields **OSTART**, **START**, or **STOP** included. When reporting, CICS PA accumulates the data for each interval in the report period and writes a report line for each.

Specify a value in the range **00:00:01** (1 second) to **24:00:00** (24 hours). The default is **00:01:00** (1 minute).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

1 becomes 00:01:00

1.1 becomes 00:01:00 (rounded down from 00:01:01)

1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL(hh:mm:ss) operand.

Override Form

Specifies whether to **PREFIX**, **APPEND** or **REPLACE** the key fields specified in the Form. Based on the action in this option, JCL generation will generate the required Form key using the override option and field specified in Timestamp. Ensure that the resulting key conforms to the Summary key rules. No action will be taken if this field is blank. The Form itself is not affected, only the generated FIELDS key fields.

This option is ignored if no Form is specified.

Timestamp

Specifies the field name to override the Form key fields. Valid timestamp fields are **START**, **STOP**, and **OSTART**.

Totals Level

This option applies only to the Summary report. Leave blank if you do not want to include total lines in the report. This generates the NOTOTALS operand.

Specify a number between 1 and 8 to accumulate subtotals for up to 8 sort fields, print the subtotals when the sort field changes, and print a grand total at the end of the report. This generates the TOTALS(n) operand where n is a value between 1 and 8. Default: **8**

Specify 0 for no subtotals, but print only the grand total. This generates the TOTALS(0) operand.

Use External Sort

Select / to use an external sort utility to process summary records. This is the default. It generates the **EXTERNAL(ddname)** operand. This provides the DDname of the work data set used by the external sort utility. CICS PA assigns an External Work File from a pool of External Work Files with default DDnames in the format **CPAXWnnn** where nnn is a sequential number **001-999** to uniquely identify the work file.

An external sort should be used when processing large volumes of data. Note that the volume of data is not determined by the number of input records. It depends on the number of unique values that have to be tracked for the SUMMARY report sort key.

For example:

- **FIELDS(TRAN)** will generate a report line for each Transaction ID and can usually be handled by an internal sort.
- **FIELDS(USERID,TRAN)** will generate a report line for every combination of Userid and Transaction ID. In this case, consider using an External Sort.

If this option is not selected, an internal sort is used. That is, CICS PA sorts the records in virtual storage.

Repository

The data set name of the Repository that contains the Performance Alert Definitions.

CICS PA provides a default **Report Output DDname** in the format **SUMMnnnn** where nnnn is **0001-9999**.

To select a **Form** from a list of predefined SUMMARY Report Forms, use **Prompt (F4)**. If a Form is not specified, CICS PA uses the default Form. See Figure 168 on page 316 for the default SUMMARY Report Form.

Performance Totals report

The Performance Totals report provides detailed statistics of all fields in the CMF performance class records. The statistics are accumulated during input file processing, and printed at the End of File.

To request the report, enter line action **S** against the **Totals** Performance Report on the Report Set panel. If reports of this type have been previously specified, the list of Performance Totals Reports is displayed. Otherwise, the Performance Totals Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
SAMPLE - Performance Totals Reports          Row 1 from 4
Command ==> _____ Scroll ==> _____

---- System Selection ----                Selection
/ Exc  APPLID + Image + Group + Output  Criteria
S      CICSP001 _____ _____ TOTL0001 YES
-      DEVT _____ MVS1 _____ TOTL0002 NO
-      CICST001 _____ _____ TOTL0003 YES
-      * _____ _____ RSYSGRP1 TOTL0004 NO
***** End of list *****

```

Figure 89. Performance Totals Reports

This panel displays the list of Performance Totals Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

To display the Performance Totals Report panel, enter line action **S** against the **Totals** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                        SAMPLE - Performance Totals Report
Command ==> _____

System Selection:                Report Output:
APPLID . . CICSP001 +          DDname . . . . . TOTL0001
Image . . _____ +          Print Lines per Page . . ___ (1-255)
Group . . _____ +

Report Format:
Title . . _____

Selection Criteria:
_ Performance *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 90. Performance Totals Report

Use this panel to specify report options and record selection criteria for the Performance Totals report. The report format is fixed. The only mandatory option is the DDname for the report output. You can let the other options default.

The report options are the same as those for the Performance List report (see “Performance List report” on page 169), except there is no Report Form.

CICS PA provides a default **Report Output DDname** in the format **TOTLnnnn** where nnnn is **0001-9999**.

Wait Analysis report

The Wait Analysis report provides a breakdown of wait activity by Transaction ID (or other ordering fields). You can see at a glance which CICS resources are causing your transactions to be suspended. This report can help you to quickly identify the possible source of a performance response time problem.

To request the report, enter line action **S** against the **Wait Analysis** Performance Report on the Report Set panel. If reports of this type have been previously specified, the list of Wait Analysis Reports is displayed. Otherwise, the Wait Analysis Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
                        SAMPLE - Wait Analysis Reports                Row 1 from 4
Command ==> _____                Scroll ==> _____

---- System Selection ----
/ Exc APPLID + Image + Group + Output Criteria
S    CICSP001 _____ WAIT0001 YES
-     DEVT_____ MVS1_____ WAIT0002 NO
-     CICST001 _____ WAIT0003 YES
-     * _____ RSYSGRP1 WAIT0004 NO
***** End of list *****

```

Figure 91. Wait Analysis Reports

This panel displays the list of Wait Analysis Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

To display the Wait Analysis Report panel, enter line action **S** against the **Wait Analysis** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                        SAMPLE - Wait Analysis Report
Command ==> _____

System Selection:                Report Output:
APPLID . . C1CSP001 +           DDname . . . . . WAIT0001
Image . . _____ +         Print Lines per Page . . ___ (1-255)
Group . . _____ +

Order by:
1 . . _____ + 2 . . _____ + 3 . . _____ +

Processing Options:
Time Interval . . . 00:01:00 (hh:mm:ss)

Report Format:
Title . . _____

Selection Criteria:
_ Performance *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 92. Wait Analysis Report

Use this panel to specify report options and record selection criteria for the Wait Analysis report. The report format is fixed. The only mandatory option is the DDname for the report output. You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form and there are additional ordering and processing options:

Order by

Specify the Field names that the Wait Analysis report is to be ordered by. If not specified, the report is ordered by Transaction ID. You can use **Prompt** (F4) to select from a list of allowed fields: TRAN, START, STOP, APPLID, PROGRAM, TERM, USERID, APPLPROG, APPLTRAN, FCTY, LUNAME, RLUNAME, RPTCLASS, SRVCLASS, TCLASSNM, TCPSRVCE, TERMCNNM, ISIPICNM, WBATMSNM, WBPIPLNM, WBPROGNM, WBSVCENM, WBSVOPNM, WBURIMNM.

Time Interval

The time interval applies when you want to summarize wait activity over time, and is only applicable when one of the Ordering fields is a time stamp (START or STOP). For example, specify 00:15:00 if you want to summarize activity over 15 minute intervals.

Specify a value in the range **00:00:01** (1 second) to **24:00:00** (24 hours). The default is **00:01:00** (1 minute).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For

example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

- 1 becomes 00:01:00
- 1.1 becomes 00:01:00 (rounded down from 00:01:01)
- 1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL(hh:mm:ss) operand.

CICS PA provides a default **Report Output DDname** in the format **WAITnnnn** where nnnn is **0001-9999**.

Transaction Profiling report

The Transaction Profiling report compares two sets of CMF performance class data. For example, the performance data for a particular CICS application in two different time periods, or the performance data for all applications on two systems. The two sets of data to be compared are known as the report data and the baseline data. The Transaction Profiling report can show differences between the report data and baseline data as a “delta” (report data values minus their equivalent baseline data values) or as a percentage change.

To understand how the Transaction Profiling report compares the two sets of data, it is useful to think of the Transaction Profiling report as a consolidated view of two Performance Summary reports: one for the report data and one for the baseline data. CICS PA summarizes the two sets of data separately, then consolidates them by finding a row in the summarized baseline data whose key fields match a row in the summarized report data. CICS PA then compares the values of the non-key fields in the two matched rows. For more information about Performance Summary reports, see “Performance Summary report” on page 179.

You can request the Transaction Profiling report as part of a Report Set, as described here, or you can request the report independently of any Report Set, using option 7 **Profiling** on the CICS PA Primary Option Menu. The Profiling option offers more flexibility than a Report Set for the source of the report data and baseline data. Using a Report Set, the report data must reside in one or more SMF files and the baseline data must reside in a performance HDB. Using the Profiling option, the report data and baseline data can reside in performance HDBs or SMF files. However, the Profiling option only allows you to request one Transaction Profiling report at a time, while a Report Set allows you to define many Transaction Profiling reports. For more information on the Profiling option, see “Requesting a Transaction Profiling report outside a Report Set” on page 194.

To request the report in a Report Set, enter line action S against the **Transaction Profiling** Performance Report on the Report Set panel. If reports of this type have been previously specified, the list of Transaction Profiling reports is displayed. Otherwise, the Transaction Profiling Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
SAMPLE - Transaction Profiling Reports          Row 1 from 4
Command ==> _____ Scroll ==> _____

---- System Selection ----
/ Exc APPLID + Image + Group + Output Form + HDB + Selection
S     CICSP001 _____ PROF0001 CPUSUM_ HDBP001_ YES
-     DEVT_ MVS1_ _____ PROF0002 CPUSUM_ HDBDEVT_ NO
-     CICST001 _____ PROF0003 TDSUM_ HDBT001_ YES
-     * _____ RSYSGRP1 PROF0004 TDSUM_ HDBGGRP1_ NO
***** Bottom of data *****

```

Figure 93. Transaction Profiling Reports

This panel displays the list of Transaction Profiling reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The line actions that you can perform are the same as those for the Performance List Reports panel. See “Performance List report” on page 169.

To display the Transaction Profiling Report panel, enter line action S against the **Transaction Profiling** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action S against a particular report in the list.

```

File Systems Options Help
-----
SAMPLE - Transaction Profiling Report
Command ==> _____

Report System Selection:          Report Output:
APPLID . . . _____ +      DDname . . . . . PROF0001
Image . . . _____ +      Print Lines per Page . . ____ (1-255)
Group . . . _____ +

Baseline Historical Database:     ---- Baseline Interval ----
HDB . . . _____ +      YYYY/MM/DD HH:MM:SS.TH
                               From _____
                               To   _____

Report Format:
Report Form . . . _____ +  Baseline Form . . . _____ +
Title . . . _____

Summary Options:                 Reporting Options:
Time Interval . . 00:01:00 (hh:mm:ss)  Lines . . . / Report / Baseline
Totals Level . . 8 (blank or 0-8)      / Delta / Change
Threshold . . ____ % Above
Selection Criteria:              ____ % Below Baseline
_ Performance                      Exclude . . . / Within threshold
Execution Option:                / Blank lines
/ Use External Sort

Repository . . : CICSPA.XYX.REPOSTRY

```

Figure 94. Transaction Profiling Report (in a Report Set)

Use this panel to specify the options of the Transaction Profiling report. The only mandatory options are DDname for the report output and Baseline Historical Database for the source of the baseline data. You can let the other options default.

The precision of numerical fields in the report is specified in Global Options (see Figure 71 on page 153).

The options are similar to the Performance Summary report, with additional options for Transaction Profiling:

Report System Selection

Identifies the CICS APPLIDs whose records you want to select from SMF files for processing as the report data (for comparison with the baseline data in an HDB).

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the **Prompt** key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select **Systems** in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICSP1 can be specified if CICSP* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(*applid1,applid2,applid3,...*) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Report Output DDname

The DDname for the report output. Specify 1-8 alphanumeric characters starting with an alphabetic character. The DDname is mandatory and should be unique to separate the output of multiple reports. Multiple reports of the same type can use the same DDname without consequence, however a mix of reports using the same DDname might interleave the print lines.

CICS PA assigns a default DDname PROFnnnn where nnnn is a sequential number 0001-9999 to ensure each report has a unique DDname.

This option generates the OUTPUT(ddname) operand.

Print Lines per Page

The maximum number of lines, including headings, to print on each page of the report. Valid values are from 1 to 255. The default is 60.

A global value can be specified to apply to all reports. If a value is also specified here on the report panel, it takes precedence over the global for this report only.

CICS PA JCL generation translates this field to the LINECount operand.

Baseline Historical Database

The List or Summary Performance HDB, in the current Repository, containing the baseline data that you want to compare with the report data. You must have already defined this HDB and loaded it with data.

The current repository is specified in either option 5 Historical Database or option 7 Profiling from the Primary Option Menu.

Baseline Interval

Specify a date/time range or a time slot (times only) to filter the baseline data based on the transaction start time (START field) in the HDB records. HDB records with a transaction start time (START field) within the specified From-To interval are processed by CICS PA, otherwise they are ignored.

You specify the Baseline Interval in the same way that you specify the Report Interval when you run the Report Set. For details, see the description of the Start Date/Time, Stop Date/Time option in "Set run-time options" on page 278.

Report Form and Baseline Form

The names of SUMMARY Report Forms that specify the key fields that you want report data and baseline data records to be grouped and sorted by, the "non-key" fields whose values you want to compare, and the functions for summarizing the non-key field values (for example, as an average or a total).

You must have already defined the SUMMARY Report Forms that you want to use. To select the name from a list of SUMMARY Report Forms, position the cursor on the field and press Prompt (F4).

CICS PA JCL generation translates the SUMMARY Report Form specification into the FIELDS operand.

To understand how the Transaction Profiling report uses the Report Form and the Baseline Form, it is useful to think of it as a comparison of two Performance Summary reports. See "Transaction Profiling report compares two Performance Summary reports" on page 194.

Using forms for the Transaction Profiling report involves the following additional considerations to using forms in the Performance Summary report:

- The Report Form specifies how the Transaction Profiling report summarizes the report data, and also which fields appear on the Transaction Profiling report.
- If you do not specify a Report Form, the Transaction Profiling report creates one:
 - If the report data resides in SMF files (see the following note), the Transaction Profiling report uses a default form.

- If the report data resides in an HDB, the Transaction Profiling report uses the HDB Template as the Report Form.

For a List HDB Template, the Transaction Profiling report treats all character and date fields as key fields, and uses the average function to summarize the other, non-key, fields. The key fields must precede the non-key fields in the Template: otherwise, CICS PA reports an error.

Note: If you request the Transaction Profiling report via the CICS PA ISPF dialog as part of a Report Set, then the report data must reside in SMF files. However, if you run the Transaction Profiling report independently of a Report Set, via the Profiling option on the CICS PA Primary Option Menu, then the report data can reside in SMF files or an HDB.

- The Baseline Form and the Report Form together specify how the Transaction Profiling report summarizes the baseline data:
 - The Transaction Profiling report ignores any fields in the Baseline Form that are not in the Report Form. For example, if the Baseline Form contains key fields that are not in the Report Form, then these key fields are ignored when summarizing the baseline data. Similarly, any non-key fields that appear in the Baseline Form but not the Report Form are ignored.
 - The Transaction Profiling report ignores the order of the fields in the Baseline Form. For example, when summarizing the baseline data, the Transaction Profiling report uses the key fields in the Baseline Form that also appear in the Report Form, but according to the order of those key fields in the Report Form.
 - If you do not specify a Baseline Form, the Transaction Profiling report creates one:
 - If the baseline data resides in an HDB (see the following note), the Transaction Profiling report uses the HDB Template as the Baseline Form. As for any Baseline Form, the Transaction Profiling report ignores any fields in the HDB Template that are not in the Report Form, and also ignores the order of the fields in the HDB Template. For a List HDB Template, the Transaction Profiling report treats character and date fields as key fields, and uses the average function to summarize the other, non-key, fields.
 - If the baseline data resides in SMF files, the Transaction Profiling report uses the Report Form as the Baseline Form.

Note: If you request the Transaction Profiling report via the CICS PA ISPF dialog as part of a Report Set, then the baseline data must reside in an HDB. However, if you run the Transaction Profiling report independently of a Report Set, via the Profiling option on the CICS PA Primary Option Menu, then the baseline data can reside in SMF files or an HDB.

- When summarizing baseline data, the Transaction Profiling report uses only the time-of-day part of any START or STOP key field (transaction start or stop), ignoring the date part. The summarized baseline data for a time-of-day interval matches the summarized report data for that time-of-day interval on any date. For example, if you specify a report data interval of five days and a baseline data interval of five days, then the Transaction Profiling report summarizes each day of report data separately, but summarizes the five days of baseline data together. The

Transaction Profiling report compares each daily set of summarized report data with the same set of summarized baseline data. To compare each weekday of the previous week with the same weekday from a week one year ago (compare Monday with another Monday, Tuesday with another Tuesday, etc.), you must run five separate Transaction Profiling reports.

- In a Performance Summary report, in addition to key fields, you can select one numeric field as Ascending or Descending to activate Alternate Sequencing. The Transaction Profiling report ignores any Alternate Sequencing.

Typically, you only need to specify a Report Form, not a Baseline Form: this ensures matching fields in the two sets of summarized data (assuming that the report data and the baseline data actually contain the fields specified in the form). However, a different Baseline Form is useful in the following cases:

- To specify selection criteria that apply only to the baseline data (you can specify selection criteria inside a form).
- To group the baseline data using fewer key fields than the Report Form uses to group the report data.

If you omit key fields from the Baseline Form that appear in the Report Form, then the Transaction Profiling report matches rows in the two sets of summarized data based on their common key fields. The typical effect is that several rows of summarized report data (with more key fields) match one row of baseline data.

- To limit which non-key fields show values in the Baseline, Delta, and Change lines.

If the Baseline Form omits some of the non-key fields specified by the Report Form, then the Transaction Profiling report shows blanks for these missing fields in the Baseline, Delta, and Change lines.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

If the report uses a Report Form, and a title is specified on both, the title on this report panel takes precedence.

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

Time Interval

The time interval applies when you want to summarize transaction activity over time. It is used when you specify a SUMMARY Report Form that includes time stamp sort key fields, such as START or STOP. When reporting, CICS PA accumulates the data for each interval in the report period and writes a report line for each.

Summary HDBs only Data in a Summary HDB is already summarized by the interval that was used to load the data into the HDB. To further summarize the data, specify a multiple of the interval that was used to load the data. If you specify an interval that is equal to or less than the interval used to load the data, the report uses the data as-is, without further summarization.

Specify a value in the range 00:00:01 (1 second) to 24:00:00 (24 hours). The default is 00:01:00 (1 minute).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

- 1 becomes 00:01:00
- 1.1 becomes 00:01:00 (rounded down from 00:01:01)
- 1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL(hh:mm:ss) operand.

Totals Level

Specify a number between 1 and 8 to accumulate subtotals for up to 8 sort fields, print the subtotals when the sort field changes, and print a grand total at the end of the report. This generates the TOTALS(n) operand for n between 1 and 8. Default: 8.

Specify 0 for no subtotals, but print only the grand total. This generates the TOTALS(0) operand.

Leave blank if you do not want to include total lines in the report. This generates the NOTOTALS operand.

Lines Specifies the lines of data that you want the Transaction Profiling report to show for each non-key field in the Report Form:

Report

Summarized report data value. This line is always implicitly specified.

Baseline

Summarized baseline data value.

Delta Report minus Baseline.

Change

Percentage difference between **Report** and **Baseline**. For example:

| | | |
|----------|---------|--------|
| Report | 1.0 | 0.1 |
| Baseline | 0.4 | 0.5 |
| Change% | +150.00 | -80.00 |

This option generates the REPORT, BASELINE, DELTA, and CHANGE values of the PRINT operand.

Threshold

Specifies minimum thresholds for the Change values that you want the report to include. Change values are the percentage difference between the report data and the baseline data (for details, see the Lines option):

- If a Change value is within the thresholds, the report excludes the Change value and its corresponding Delta value (shows them as blanks).
- If all values on a Change line are within the thresholds, and you have also specified the Exclude within threshold option, then the report excludes that entire block of report data (the Change line, its corresponding Report, Baseline, and Delta lines, and its key field values).

You can specify either or both of the following thresholds:

% Above Baseline

This threshold applies only to positive Change values; that is, where the Report value is greater than the Baseline value. The allowed values for this threshold are integers in the range 0-999.

For example, a threshold of 150 excludes Change values smaller than +150%.

If you specify a threshold of 0, the report includes all positive Change values.

% Below Baseline

This threshold applies only to negative Change values. The allowed values for this threshold are integers in the range 0-100.

For example, a threshold of 80 excludes Change values smaller than -80%.

If you specify a threshold of 0, the report includes all negative Change values.

If you omit both thresholds or you specify both thresholds as 0, the report includes all Change values.

If you specify a value for % Above Baseline but you omit % Below Baseline, then the report:

- Applies the threshold to positive Change values
- Excludes all negative Change values

If you specify a value for % Below Baseline but you leave % Above Baseline blank, then the report:

- Applies the threshold to negative Change values
- Excludes all positive Change values

This option generates the THRESHOLD(nnn,nnn) operand.

Exclude within threshold

Excludes all lines, including the Report line, where the difference between every non-key field in a row of summarized baseline data and the same fields in the matching row of summarized report data are all within the thresholds.

The Baseline Form can specify a subset of the non-key fields in the Report Form, leaving the summarized baseline data with fewer non-key fields than the summarized report data. Specifying this Exclude within threshold option, together with a Baseline Form that contains only one non-key field, enables you to produce a Transaction Profiling report that only shows data where that field is not within thresholds. For example, if you specify a Baseline Form where the only non-key field is average response time, then you can produce a Transaction Profiling report that shows only the transactions that are not within an acceptable percentage difference of a baseline average response time.

Selecting this option generates the EXCEPTIONSONLY value of the PRINT operand. Otherwise, the PRINT operand specifies FULL (the default value).

Exclude blank lines

Excludes any Baseline, Delta, or Change lines whose data consists entirely of blank values. Blank values on these lines indicate either fields with no baseline data or, on the Delta and Change lines, fields where the difference between the report data and the baseline data is within the specified

thresholds. This option has no effect on the Report line, which shows the summarized report data even when this option excludes all other lines. To exclude all lines, including the Report line, when the difference between the report data and the baseline data is within the thresholds, select the Exclude within threshold option.

Selecting this option generates the NOBLANKLINES value of the PRINT operand (the default value). Otherwise, the PRINT operand specifies BLANKLINES.

Performance Selection Criteria

You can specify Selection Criteria to filter input records on time period and field values to restrict reporting to the data that is of interest to you. These Selection Criteria apply to both the report data and to the baseline data.

CICS PA JCL generation translates these Selection Criteria to identical SELECT(PERFORMANCE operands in the PROFILING(REPORT(...))...)) operand and the PROFILING(BASELINE(...))...)) operand.

You can also filter report data and baseline data records using different Selection Criteria, by specifying Selection Criteria inside the Report Form or the Baseline Form. Selection Criteria in the Report Form apply only to the report data, even if you do not specify a Baseline Form. Selection Criteria in the Baseline Form apply only to the baseline data.

CICS PA JCL generation translates Selection Criteria in the Report Form to the SELECT2(PERFORMANCE operand in the PROFILING(REPORT(...))...)) operand, and Selection Criteria in the Baseline Form to the SELECT2(PERFORMANCE operand in the PROFILING(BASELINE(...))...)) operand.

If both the report and a Form specify Selection Criteria, then a record must pass selection by both specifications to be included in the report.

Line Actions:

- /** Display the menu of line actions.
- S** Display the subpanel where Selection Criteria can be specified for this report. For details, see “Specifying Selection Criteria” on page 158.
- A** Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you have specified here will not be used.

Use External Sort

Select / to use an external sort utility to process summary records. This is the default. It generates the **EXTERNAL(ddname)** operand. This provides the DDname of the work data set used by the external sort utility. CICS PA assigns an External Work File from a pool of External Work Files with default DDnames in the format **CPAXWnnn** where nnn is a sequential number **001-999** to uniquely identify the work file.

An external sort should be used when processing large volumes of data.

If not selected, an internal sort is used.

Transaction Profiling report compares two Performance Summary reports

It is useful to think of the Transaction Profiling report as a comparison of two Performance Summary reports: one for the report data and one for the baseline data.

The report data is specified by the PROFILING(REPORT(...), FIELDS(...)) operand. The baseline data is specified by the PROFILING(BASELINE(...), FIELDS(...)) operand.

Each Performance Summary report uses a SUMMARY Report Form (FIELDS operand) to:

1. Group and sort input records by key field values
2. Summarize the values of non-key fields in each group of records (for example, as an average or a total)

The Transaction Profiling report consolidates the two sets of summarized data by finding a row of summarized baseline data whose key fields match a row of summarized report data. The Transaction Profiling report then compares the values of the non-key fields in the two matched rows. Rows of summarized baseline data whose key field values do not match any rows of summarized report data are discarded.

When designing a Transaction Profiling report, you might find it useful to first run the two Performance Summary reports. This enables you to review the two sets of summarized data separately, before using the Transaction Profiling report to consolidate and compare them. Note that the Report Form and the Baseline Form both affect how the Transaction Profiling report summarizes baseline data. The Transaction Profiling report summarizes baseline data according to the order of the fields in the Report Form, and using only those fields that occur in both the Baseline Form and the Report Form.

Requesting a Transaction Profiling report outside a Report Set

To request a Transaction Profiling report independently of any Report Set, select option 7 Profiling on the CICS PA Primary Option Menu. This displays the Transaction Profiling Menu:

```
File Options Help
-----
Transaction Profiling Menu
Command ==> _____

Select an option then press Enter.

1 1. SMF data against SMF Baseline
   2. SMF data against HDB Baseline
   3. HDB data against HDB Baseline

Repository . . . . 'CICSPA.XYX.REPOSTRY' _____ +
```

Figure 95. Transaction Profiling Menu

This menu offers several combinations for the source of the report data and the baseline data that you want to compare:

- Option 2 SMF data against HDB Baseline offers the same combination as a Transaction Profiling report in a Report Set: it compares report data from SMF files with baseline data from a List or Summary Performance HDB.

- Options 1 and 3, SMF data against SMF Baseline and HDB data against HDB Baseline, are not available in a Report Set.

Log streams are supported in the Report System Selection but not the Baseline System Selection fields.

For the combinations that involve HDBs, this menu allows you to specify the Repository that contains the HDBs you want to use.

Select the combination that you want. CICS PA displays the Run Transaction Profiling Report panel for that combination of report data and baseline data sources. The following figure shows the Run Transaction Profiling Report panel for option 1 SMF data against SMF Baseline.

```

File Systems Options Help
-----
Run Transaction Profiling Report
Command ==> _____

Specify profiling data sources and options, then SUBmit to run.

Report System Selection:          Report Interval _____
APPLID . . _____ +          YYYY/MM/DD HH:MM:SS.TH
Image . . _____ +          From _____
Group . . _____ +          To _____

Baseline System Selection:       Baseline Interval _____
APPLID . . _____ +          YYYY/MM/DD HH:MM:SS.TH
Image . . _____ +          From _____
Group . . _____ +          To _____

Report Format:
Report Form . . . _____ +    Baseline Form . . _____ +
Title . . _____

Summary Options:                 Reporting Options:
Time Interval . . 00:01:00 (hh:mm:ss)  Lines . . . . / Report / Baseline
Totals Level . . 8 (blank or 0-8)      / Delta / Change
Threshold . . _____ % Above
Selection Criteria:              _____ % Below Baseline
- Performance                       Exclude . . . _____ Within threshold
                                      / Blank lines

Execution Option:                Missing SMF Files Option:
/ Use External Sort              2 1. Issue error message
                                  2. Leave DSN unresolved in JCL

Enter "/" to select option
/ Edit JCL before submit

```

Figure 96. Transaction Profiling Report (SMF data against SMF baseline)

This panel is similar to the panel for requesting a Transaction Profiling report in a Report Set, shown in Transaction Profiling Report (in a Report Set), except that you specify all of the details for the report on a single panel (there are no Report Set global options, such as Report Interval, to inherit), and rather than specifying the name of an HDB containing the baseline data, you specify system selection details to identify the appropriate SMF files. On the Run Transaction Profiling panel for option 3 HDB data against HDB Baseline, you specify HDB names for both the report data and the baseline data.

For details on specifying the options for the Transaction Profiling report, see “Transaction Profiling report” on page 185. To request the report, enter SUB on the command line.


```

File Systems Options Help
-----
                        SAMPLE - Cross-System Work Report
Command ==> _____

System Selection:                Report Output:
APPLID . . . _____ +      DDname . . . . . CROS0001
Image . . . _____ +      Print Lines per Page . . ____ (1-255)
Group . . MROPROD_ +

Processing Options:              Task Ordering Options:
1 1. UOWs with more than one record  1 1. Descending Stop time
    2. UOWs with a single record      2. Ascending Start time
    3. All UOWs

Report Format:
Form . . . _____ +
Title . . _____

Selection Criteria:
_ Performance (Record pre-processing) *
_ Performance (Unit-of-work post-processing)

F1=Help      F3=Exit      F4=Prompt      F7=Backward      F8=Forward      F10=Actions
F12=Cancel

```

Figure 98. Cross-System Work Report

Use this panel to specify report options, report format, and record selection criteria for the Cross-System Work report. The mandatory options are the Report Output DDname and the network unit-of-work (UOW) Processing Option. You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is an additional processing option and a LIST or LISTX Report Form can be specified:

Processing Options

Select option **1 - UOWs with more than one record** to report only the transaction performance records whose network unit-of-work spans multiple CMF records. This is the default. This selection generates the PRINTMULTIPLE operand.

Select option **2 - UOWs with a single record** to report only the transaction performance records consisting of network units-of-work that include only a single CMF record. This selection generates the PRINTSINGLE, NOPRINTMULTIPLE operand.

Select option **3 - All UOWs** to report all the transaction performance records. This selection generates the PRINTSINGLE, PRINTMULTIPLE operand.

Task Ordering Options

Controls the sorting order of tasks within UOW in the List report. You can choose to order tasks by descending stop time (the default order) or ascending start time.

This option generates the operand TASKORDER(START|STOP).

Report Form

The name of a Report Form to be used to tailor the format and content of the report. It can be either a LIST or LISTX Form. You can type the name directly, or to select one from a list of compatible Report Forms, use **Prompt** (F4).

CICS PA JCL generation translates the Report Form specification into the `FIELDS` operand of the `LISTX` command. This produces a Cross-System Work Extended report like that shown in Figure 202 on page 419.

Performance Selection Criteria

You can specify Selection Criteria to filter the CMF records on time period and field values to restrict reporting to the data that is of interest to you. For the Cross-System Work report, there are two levels of filtering available:

- **Record pre-processing.** CICS PA JCL generation translates Selection Criteria to the `SELECT(PERFORMANCE)` operand.
If you specify a Report Form that also has Selection Criteria specified, CICS PA JCL generation translates the Form's Selection Criteria to the `SELECT2(PERFORMANCE)` operand. If both the report and the Form specify Selection Criteria, then a record must pass selection by both specifications to be included in the report.
- **Unit-of-work post-processing.** Allows you to limit the report to specific units-of-work. This generates the `SELUOW` operand to provide filtering across tasks in multi-task UOWs. If one task in a UOW matches the `SELUOW` selection criteria, then the entire UOW is selected. For more information, see "CROSSsystem - Cross-System Work report and extract" on page 462.

CICS PA provides a default **Report Output DDname** in the format `CROSnnnn` where `nnnn` is `0001-9999`.

Transaction Group report

The Transaction Group report accepts data from one or more CICS systems, correlating the data by transaction group id. The default is to print only the CMF performance class records that are contained in a transaction group that includes multiple performance records.

The Transaction Group report can be used to understand the correlation of the performance class records for the transactions that CICS runs as part of the same incoming work request (for example, the `CWXN` and `CWBA` transactions for CICS Web support requests).

To request the report, enter line action **S** against the **Transaction Group Performance Report** on the Report Set panel. If reports of this type have been previously specified, the list of Transaction Group Reports is displayed. Otherwise, the Transaction Group Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
                        SAMPLE - Transaction Group Reports           Row 1 from 4
Command ==> _____ Scroll ==> ____

Select to edit report options.

      ---- System Selection ----
/ Exc APPLID + Image + Group + Output Selection
-      CICSP001          _____ TRGP0001 YES
-      DEVT  _____ MVS1 _____ TRGP0002 NO
-      CICST001          _____ TRGP0003 YES
-      * _____          RSYSGRP1 TRGP0004 NO
***** End of list *****

```

Figure 99. Transaction Group Reports

This panel displays the list of Transaction Group Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

To display the Transaction Group Report panel, enter line action **S** against the **Transaction Group** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                        SAMPLE - Transaction Group Report
Command ==> _____

System Selection:
APPLID . . CICSP001 +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . TRGP0001
Print Lines per Page . . ____ (1-255)

Processing Options:
1 1. Groups of more than one record
   2. Groups of a single record
   3. All Groups

Report Format:
Title . . _____

Selection Criteria:
_ Performance *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 100. Transaction Group Report

Use this panel to specify report options and record selection criteria for the Transaction Group report. The report format is fixed. The mandatory options are the Report Output DDname and the Transaction Group Processing Option. You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form and there is an additional processing option:

Processing Options

Select option **1 - Groups of more than one record** to report only the transaction performance records whose Transaction Group ID spans multiple CMF records. This is the default. This selection generates the PRINTMULTIPLE operand.

Select option **2 - Groups of a single record** to report only the transaction performance records consisting of a Transaction Group ID that includes only a single CMF record. This selection generates the PRINTSINGLE,NOPRINTMULTIPLE operand.

Select option **3 - All Groups** to report all the transaction performance records. This generates the PRINTSINGLE,PRINTMULTIPLE operand.

CICS PA provides a default **Report Output DDname** in the format **TRGPnnnn** where nnnn is **0001-9999**.

BTS report

The BTS report accepts data from one or more CICS systems, correlating the data by CICS BTS process ID (root activity ID).

To request the report, enter line action **S** against the **BTS Performance Report** on the Report Set panel. If reports of this type have been previously specified, the list of BTS Reports is displayed. Otherwise, the BTS Report panel is displayed for you to define your first report of this type.

```
File Filter Edit Systems Options Help
-----
SAMPLE - BTS Reports                               Row 1 from 4
Command ==> _____ Scroll ==> _____

---- System Selection ----                        Selection
/ Exc  APPLID + Image + Group + Output          Criteria
S      CICSP001 _____ CBTS0001             YES
-      DEVT _____ MVS1 _____ CBTS0002   NO
-      CICST001 _____ CBTS0003             YES
-      * _____ RSYSGRP1 CBTS0004           NO
***** End of list *****
```

Figure 101. BTS Reports

This panel displays the list of BTS (CICS Business Transaction Services) Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

To display the BTS Report panel, enter line action **S** against the **BTS Performance Report** on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                                SAMPLE - BTS Report
Command ==> _____

System Selection:                    Report Output:
APPLID . . C1CSP001 +                DDname . . . . . CBTS0001
Image . . _____ +                Print Lines per Page . . ___ (1-255)
Group . . _____ +

Report Format:
Title . . _____

Selection Criteria:
_ Performance *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 102. BTS Report

Use this panel to specify report options and record selection criteria for the BTS report. The report format is fixed. The only mandatory option is the DDname for the report output. You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form.

CICS PA provides a default **Report Output DDname** in the format **CBTSnnnn** where nnnn is **0001-9999**.

Workload Activity report

The Workload Activity report provides a transaction response time analysis by MVS Workload Manager (WLM) service and report class. This can be used in conjunction with the z/OS Resource Measurement Facility (RMF) workload activity reports to understand from a CICS perspective how well your CICS transactions are meeting their response time goals.

The report processes all CMF transaction performance class records for network units-of-work containing multiple performance records as well as those with only a single performance record.

Two reports can be requested:

1. **Workload Activity List.** This is a cross-system report that correlates CMF performance class data from single or multiple CICS systems for each network unit-of-work. Importantly, this report ties MRO and function shipping tasks to their originating task so that their impact on response time can be assessed.
2. **Workload Activity Summary.** This report summarizes response time by WLM service and report classes.

To request the report, enter line action **S** against the **Workload Activity Performance Report** on the Report Set panel. If reports of this type have been previously specified, the list of Workload Activity Reports is displayed. Otherwise, the Workload Activity Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
                          SAMPLE - Workload Activity Reports          Row 1 from 4
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/  Exc  APPLID + Image + Group + Output      Selection
      CICSPO01          WKLD0001      YES
-      DEVT  _____ MVS1  _____ WKLD0002      NO
-      CICST001          WKLD0003      YES
-      *          _____ RSYSGRP1 WKLD0004      NO
***** End of list *****

```

Figure 103. Workload Activity Reports

This panel displays the list of Workload Activity Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

To display the Workload Activity Report panel, enter line action **S** against the **Workload Activity** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                          SAMPLE - Workload Activity Report
Command ==> _____

System Selection:
APPLID . . CICSPO01 +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . WKLD0001
Print Lines per Page . . ____ (1-255)

Reports Required:
/ Summary
   Include EXE Y tasks
List
  1 1. Descending Stop Time
  2 2. Ascending Start Time

Peak Percentile . . 90 (50-100%)

Report Format:
Title . . _____

Selection Criteria:
_ Performance *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 104. Workload Activity Report

Use this panel to specify report options and record selection criteria for the Workload Activity report. The report format is fixed. The only mandatory option is the Report Output DDname. You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form, you can select the reports you require, and there is an additional processing option:

Reports Required

Enter / to select the reports you want produced.

- Select **List** to request the Workload Manager Activity List report, a detailed listing of transaction activity in begin-to-end (BTE) phases, completed execution phases (EXE Y), and incomplete execution phases (EXE N). This report requires an external sort.

You can choose how tasks are sorted within UOW in the List report: by descending stop time (the default order) or ascending start time. This option generates the operand `TASKORDER(START|STOP)`.

- Select **Summary** to request the Workload Manager Activity Summary report.

Select **Include EXE Y tasks** to summarize transactions in both completed execution phases (EXE Y) and begin-to-end (BTE) phases, otherwise the report contains BTE transactions only. EXE N transactions cannot be summarized. The Summary report with both BTE and EXE transactions requires an external sort.

The default is the Summary report with BTE transactions only. It is a very quick report as no external sort is required.

Peak Percentile

This option applies to the Workload Activity Summary report. Specify a number between 50 and 100 to report the response time within which that percentage of transactions completed. Computations assume a normal distribution. For example, 95 shows the response time that 95% of transactions completed within. The default is **90**.

CICS PA JCL generation translates this value to the `PEAK(percentile)` operand.

CICS PA provides a default **Report Output DDname** in the format `WKLDnnnn` where `nnnn` is `0001-9999`.

Transaction Tracking List report

The Transaction Tracking List report provides a view of the flow of related transactions through the various CICS systems. This report allows you to analyze transaction performance from the perspective of transaction flow. Each section of the report describes an originating transaction together with its subordinate group transactions.

To request the report, enter line action **S** against the **Transaction Tracking List Performance Report** on the Report Set panel. If reports of this type have been previously specified, the list of Transaction Tracking List reports is displayed. Otherwise, the Transaction Tracking List panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
                          SAMPLE - Transaction Tracking List          Row 1 from 4
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/  Exc  APPLID + Image + Group + Output  Origin  Group  Criteria
      CICSPO01 _____ TTLS0001  _____  _____  YES  YES
      DEVT  MVS2 _____ TTLS0002  TLFM3  TLGFM3  NO   YES
      CICST001 _____ TTLS0003  _____  _____  NO   YES
      CICSPO01 _____ DRDC01  TTLS0004  _____  _____  YES  NO
***** Bottom of data *****

```

Figure 105. Transaction Tracking List Reports

This panel displays the list of Transaction Tracking List reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The line actions are the same as those for the Performance List Reports panel. See “Performance List report” on page 169.

To display the Transaction Tracking List panel, enter line action **S** against the **Transaction Tracking List** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                          SAMPLE - Transaction Tracking List Report
Command ==> _____

System Selection:          Report Output:
APPLID . . CICSPO01  +    DDname . . . . . TTLS0001
Image . . _____ +    Print Lines per Page . . ____ (1-255)
Group . . _____ +

Report Focus:             Processing Options:
Origin Form . . . _____ +    1 1. Origins with multiple records
Group Form . . . _____ +    2. Origins with a single record
                                   3. All Origins

Report Format:
Title . . _____

Selection Criteria:
- Performance (Record pre-processing) *
- Performance (Groups post-processing) *
F1=Help    F3=Exit    F4=Prompt    F7=Backward    F8=Forward    F10=Actions
F12=Cancel

```

Figure 106. Transaction Tracking List Report

Use this panel to specify report options and record selection criteria for the Transaction Tracking List report. The mandatory options are the Report Output DDname and the Transaction Tracking List Processing Option. You can let the other options default.

The report options are similar to those for the Performance List Report (see “Performance List report” on page 169), except that:

- There is no option to specify an Alert definition.

- Separate Report Forms can be specified for the Origin and Group sections of the report. The report must use a Report Form of a compatible type (that is, LIST).
- There is an additional processing option:

Processing Options

Select option **1 - Origins with multiple records** to report only on Origin transactions that have Group transactions. This is the default. This selection generates the PRINTMULTIPLE,NOPRINTSINGLE operand.

Select option **2 - Origins with a single record** to report only on Origin transactions that do not have Group transactions. This selection generates the NOPRINTMULTIPLE,PRINTSINGLE operand.

Select option **3 - All Origins** to report all transactions. This generates the PRINTMULTIPLE,PRINTSINGLE operand.

- Selection criteria can also be applied as a post-processing step. This is a second level of filtering that determines which Groups are to be included in the report. Only when all of the records in the Group fail this set of selection criteria will the whole group and associated Origin record be excluded from the report.

CICS PA provides a default **Report Output DDname** in the format **TTLsnnnn** where nnnn is **0001-9999**.

Transaction Tracking Summary report

The Transaction Tracking Summary report provides an overview of the flow of related transactions through the various CICS systems. This report allows you to analyze transaction performance from the perspective of transaction flow. For each originating transaction there is a block showing a summary line for all transactions that were associated directly or indirectly with the originating transaction. Grouping of transactions is based on a tracking key, which includes fields that identify the originating transaction, fields that identify the 'previous hop' transaction, and 1-4 user-specified key fields, which are used to display the actual summary data.

To request the report, enter line action **S** against the **Transaction Tracking Summary** Performance Report on the Report Set panel. If reports of this type have been previously specified, the list of Transaction Tracking Summary reports is displayed. Otherwise, the Transaction Tracking Summary panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
                SAMPLE - Transaction Tracking Summary                Row 1 from 2
Command ==> _____ Scroll ==> _____

                                Criteria
                                Record Group
---- System Selection ----
/ Exc  APPLID + Image + Group +  Output  Form + -----
-      CICSP001 MVS1 _____ TTSU0001  TSFM2__ YES  YES
-      CICST001 _____ TTSU0002  TSFM5__ NO   NO
***** Bottom of data *****

```

Figure 107. Transaction Tracking Summary Reports

This panel displays the list of Transaction Tracking Summary reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The line actions are the same as those for the Performance List Reports panel. See "Performance List report" on page 169. The options are also similar except that there is no option to specify an Alert definition. The report must use a Report Form of a compatible type (that is, SUMMARY).

To display the Transaction Tracking Summary Report panel, enter line action **S** against the **Transaction Tracking Summary** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
SAMPLE - Transaction Tracking Summary Report
Command ==> _____

System Selection:                Report Output:
APPLID . . CICSP001 +          DDname . . . . . TTSU0001
Image . . MVS1____ +          Print Lines per Page . . ____ (1-255)
Group . . _____ +

Tracking Key:
PH Task 1  APPLID  + 2  TRAN  +
Task 1    _____ + 2  _____ + 3  _____ + 4  _____ +

Report Focus:                    Processing Options:
Form . . . . . _____ +      1 1. Origins with multiple records
                                   2. Origins with a single record
                                   3. All Origins

Report Format:
Title . . _____

Selection Criteria:
- Performance (Record pre-processing) *
- Performance (Groups post-processing) *
F1=Help   F3=Exit   F4=Prompt   F7=Backward   F8=Forward   F10=Actions
F12=Cancel

```

Figure 108. Transaction Tracking Summary Report

Use this panel to specify report options and record selection criteria for the Transaction Tracking Summary report. The mandatory options are the Report Output DDname and the Transaction Tracking Summary Processing Option. You can let the other options default.

The report options are similar to those for the Performance List Report (see "Performance List report" on page 169), except for the following additional options:

Tracking Key

Grouping of transactions in the report is based on a tracking key, which comprises three parts:

1. Fields that identify the originating transaction.
In the PH Task 1 and 2 fields, specify the originating transaction ID fields. You can select APPLID, which specifies the originating CICS APPLID (OAPPLID), or TRAN, which specifies the originating transaction (OTRAN), or both. The default key is APPLID + TRAN.
2. Fields that identify each 'previous hop' transaction related to the originating transaction.

The previous hop identification fields are automatically paired in the report with the corresponding originating transaction fields. That is, if TRAN is selected then PHTRAN will be included and if APPLID is selected then PHAPPLID will be included.

3. 1-4 user-specified key fields.

In the Task 1 to 4 fields, select up to four CMF fields, which are used to display the actual summary data for each originating transaction and each related (previous hop) transaction. Use Prompt (F4) to select from a list of available fields.

Processing Options

Select option **1 - Origins with multiple records** to report only on Origin transactions that have Group transactions. This is the default. This selection generates the PRINTMULTIPLE,NOPRINTSINGLE operand.

Select option **2 - Origins with a single record** to report only on Origin transactions that do not have a Group transaction. This selection generates the NOPRINTMULTIPLE,PRINTSINGLE operand.

Select option **3 - All Origins** to report all transactions. This generates the PRINTMULTIPLE,PRINTSINGLE operand.

Selection Criteria

Selection criteria can also be applied as a post-processing step. This is a second level of filtering that determines which Groups are to be included in the report. Only when all of the records in the Group fail this set of selection criteria will the whole group and associated Origin record be excluded from the report.

When a report form is specified for this report, the following rules apply.

1. The key fields in the form are replaced by the tracking key.

Note: This can result in the report page width different to that calculated for the Form.

2. An error will be generated if PHCOUNT is a field in the Form as it is part of the Tracking key.

3. Fields with function Severity (SEV) are ignored and are not included in the report.

CICS PA provides a default **Report Output DDname** in the format TTSUnnnn where nnnn is **0001-9999**.

Exception reports

The Exception Reports process CMF exception class data to produce tabular-style reports.

Exception List report

The Exception List report provides two types of information:

- The cause of the exception condition
- The information necessary to relate this record to the performance class record on the Performance List report.

To request the report, enter line action **S** against the **List** Exception Report on the Report Set panel. If reports of this type have been previously specified, the list of Exception List Reports is displayed. Otherwise, the Exception List Report panel is

displayed for you to define your first report of this type.

```

File  Filter  Edit  Systems  Options  Help
-----
                                SAMPLE - Exception List Reports          Row 1 from 4
Command ==> _____ Scroll ==> ____

      ---- System Selection ----
/  Exc  APPLID +  Image +  Group +  Output  Selection
-       CICSP001  _____  _____  XLST0001  YES
-       DEVT _____  MVS1 _____  XLST0002  NO
-       CICST001  _____  _____  XLST0003  YES
-       * _____  _____  RSYSGRP1  XLST0004  NO
***** End of list *****

```

Figure 109. Exception List Reports

This panel displays the list of Exception List Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

To display the Exception List Report panel, enter line action **S** against the **List** Exception Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File  Systems  Options  Help
-----
                                SAMPLE - Exception List Report
Command ==> _____

System Selection:                Report Output:
APPLID . . . CICSP001 +         DDname . . . . . XLST0001
Image . . . _____ +         Print Lines per Page . . ____ (1-255)
Group . . . _____ +

Report Format:
Title . . _____

Selection Criteria:
_ Exception *

F1=Help      F3=Exit      F4=Prompt    F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 110. Exception List Report

Use this panel to specify report options and record selection criteria for the Exception List report. The report format is fixed. The only mandatory option is the DDname for the report output. You can let the other options default.

The options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form.

CICS PA provides a default **Report Output DDname** in the format **XLSTnnnn** where nnnn is **0001-9999**.

Whereas the Selection Criteria for Performance Reports apply to CMF performance class records, those for Exception Reports apply to CMF exception class records.

Exception Selection Criteria

Selection Criteria allow you to filter the CMF exception records on time periods and field values to restrict reporting to the data that is of interest to you.

Line Actions:

- / Display the menu of line actions.
- S Display the subpanel where Selection Criteria can be specified for this report. For details, see “Specifying Selection Criteria” on page 158.
- A Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D Deactivate the Selection Criteria. Any you have specified here will not be used.

Exception Summary report

The Exception Summary report summarizes the exception records collected by the CICS Monitoring Facility (CMF). Records are summarized by transaction identifier code. The report provides the total number of exceptions for each transaction, according to the following:

- For auxiliary temporary storage VSAM buffer and string wait conditions
- For coupling facility data table pool wait conditions
- For VSAM LSRPOOL buffer and string wait conditions
- For VSAM file string wait conditions
- For temporary storage wait conditions
- For main storage wait conditions

To request the report, enter line action **S** against the **Summary** Exception Report on the Report Set panel. If reports of this type have been previously specified, the list of Exception Summary Reports is displayed. Otherwise, the Exception Summary Report panel is displayed for you to define your first report of this type.

```
File Filter Edit Systems Options Help
-----
SAMPLE - Exception Summary Reports          Row 1 from 4
Command ==> _____ Scroll ==> _____

---- System Selection ----
/ Exc  APPLID + Image + Group + Output  Selection
-      CICSP001  _____  _____  XSUM0001  YES
-      DEVT_____  MVS1_____  _____  XSUM0002  NO
-      CICST001  _____  _____  XSUM0003  YES
-      * _____  _____  RSYSGRP1  XSUM0004  NO
***** End of list *****
```

Figure 111. Exception Summary Reports

This panel displays the list of Exception Summary Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel. See “Performance List report” on page 169.

To display the Exception Summary Report panel, enter line action **S** against the **Summary** Exception Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                        SAMPLE - Exception Summary Report
Command ==> _____

System Selection:                Report Output:
APPLID . . CICS001  +           DDname . . . . . XSUM0001
Image . . _____ +           Print Lines per Page . . ___ (1-255)
Group . . _____ +

Report Format:
Title . . _____
_____

Selection Criteria:
_ Exception *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 112. Exception Summary Report

Use this panel to specify report options and record selection criteria for the Exception Summary report. The report format is fixed. The only mandatory option is the DDname for the report output. You can let the other options default.

The options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form.

Whereas the Selection Criteria for Performance Reports apply to CMF performance class records, those for Exception Reports apply to CMF exception class records.

CICS PA provides a default **Report Output DDname** in the format **XSUMnnnn** where nnnn is **0001-9999**.

Transaction Resource Usage reports

The Transaction Resource Usage reports are produced from CMF performance class and transaction resource class data. The reports in this category are:

- “File Usage Summary report”
- “Temporary Storage Usage Summary report” on page 213
- “Distributed Program Link Usage Summary report” on page 216
- “Transaction Resource Usage List report” on page 218

File Usage Summary report

The File Usage Summary report provides a detailed analysis of CMF transaction resource class data for Files.

Two reports can be requested:

1. **Transaction File Usage Summary.** This report summarizes File usage by Transaction ID. For each Transaction ID, it gives Transaction Identification and File Control statistics followed by a breakdown of File usage for each File used by the Transaction.

2. **File Usage Summary.** This report summarizes File activity. For each File, it gives a breakdown of File usage by Transaction ID.

To request the report, enter line action **S** against the **File Usage Summary** Transaction Resource Usage Report on the Report Set panel. If reports of this type have been previously specified, the list of File Usage Summary Reports is displayed. Otherwise, the File Usage Summary Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
                        SAMPLE - File Usage Summary Reports                Row 1 from 2
Command ==> _____ Scroll ==> ____

      ---- System Selection ----                Selection
/  Exc  APPLID + Image + Group + Output        Criteria
S      CICSP001 _____ FILE0001           NO
      DEVT _____ MVS1 _____ FILE0002   NO
***** End of list *****

```

Figure 113. File Usage Summary Reports

This panel displays the list of File Usage Summary Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

Enter line action **S** to select a report from the list.

```

File Systems Options Help
-----
                        SAMPLE - File Usage Summary Report
Command ==> _____

System Selection:                Report Output:
APPLID . . CICSP001 +           DDname . . . . . FILE0001
Image . . _____ +         Print Lines per Page . . ____ (1-255)
Group . . _____ +

Summary Reports Required:
/ Transaction File Usage
/ File Usage
  / Break down by Transaction ID
  / Include Transaction Totals

Report Format:
Title . . _____

Selection Criteria:
_ Performance

F1=Help      F3=Exit      F4=Prompt    F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 114. File Usage Summary Report

Use this panel to specify report options and record selection criteria for the File Usage Summary report. The report format is fixed. The only mandatory option is the Report Output DDname. You can let the other options default.

The report options are the same as those for the Performance List Report (see "Performance List report" on page 169), except there is no Report Form, and you can select the reports you require.

The default **Report Output DDname** has the format **FILEnnnn** where nnnn is **0001-9999**.

Summary Reports Required

Enter / to select the required reports.

Transaction File Usage

This requests the Transaction File Usage Summary report, a summary of File activity by Transaction ID. For each Transaction ID, Transaction and File Control statistics are followed by File usage statistics for each File used by the Transaction.

This option generates the **TRANSUMMARY(FILE)** operand.

File Usage

This requests the File Usage Summary report, a summary of File activity by File.

- Select **Break down by Transaction ID** to show File usage statistics by Transaction ID for each File.
- Select **Include Transaction Totals** to show totals for each File.

This option generates the **FILESUMMARY(BYTRAN,TOTAL)** operand.

Performance Selection Criteria

Performance Selection Criteria apply to both transaction resource class data and performance class data. You can request a report from all available records, or you can provide Selection Criteria to request a report from only the records that meet your specific requirements.

Transaction resource class records contain Task Identification and File Entry information. For more information on the format of transaction resource class records, see the *CICS Performance Analyzer for z/OS Report Reference*.

For the selection of transaction resource class records, only some fields in the Selection Criteria are applicable. All other fields are ignored.

The Selection Criteria fields applicable to Task Identification are:

ACTIVE
FCTY
LUNAME
NETUOWSX
PROGRAM
RSYSID
START
STOP
TASKNO
TERM
TRAN
USERID
OAPPLID
OTRAN
OUSERID
OTCPSRVC
OFCTY

The Selection Criteria fields applicable to File Entries (see note 1) are:

FILENAME (see note 2)
FCAMCT (Count)
FCADD (Count only, see note 3)
FCBROWSE (Count only, see note 3)
FCDELETE (Count only, see note 3)
FCGET (Count only, see note 3)
FCPUT (Count only, see note 3)
FCTOTAL (Count only, see note 3)
CFDTPWAIT (Time and Count)
RLSWAIT (Time and Count)

Note:

1. Selection Criteria for File Entries can affect Task Identification selection. If all File entries for a task are excluded, then the task is also excluded.
2. FILENAME is a special field that applies only to transaction resource class data. It is ignored when processing performance class data.
3. Selection Criteria only supports the checking of the Count component of File request fields. The Time component cannot be checked. These fields are common to both performance class (Count) and transaction resource class (Clock - COUNT and TIME), but have differing data types. Since the performance fields are Count (not Clock) fields, only the Count component is supported by Selection Criteria.

Temporary Storage Usage Summary report

The Temporary Storage Usage Summary report provides a detailed analysis of CMF transaction resource class data for temporary storage queues.

Two reports can be requested:

1. **Transaction Temporary Storage Usage Summary.** This report summarizes Temporary Storage usage by Transaction ID. For each Transaction ID, it gives Transaction Identification and Temporary Storage Control statistics followed by a breakdown of Temporary Storage usage for each Temporary Storage Queue used by the Transaction.
2. **Temporary Storage Usage Summary.** This report summarizes Temporary Storage activity. For each Temporary Storage Queue, it gives a breakdown of Temporary Storage usage by Transaction ID.

To request the report, enter line action **S** against the **Temporary Storage Usage Summary** Transaction Resource Usage Report on the Report Set panel. If reports of this type have been previously specified, the list of Temporary Storage Usage Summary Reports is displayed. Otherwise, the Temporary Storage Usage Summary Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
SAMPLE - Temporary Storage Summary Reports          Row 1 from 2
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/ Exc APPLID + Image + Group + Output Selection
S     CICSP001 _____ TEMP0001 NO
_     DEVT _____ MVS1 _____ TEMP0002 NO
***** End of list *****

```

Figure 115. Temporary Storage Usage Summary Reports

This panel displays the list of Temporary Storage Usage Summary Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

Enter line action **S** to select a report from the list.

```

File Systems Options Help
-----
SAMPLE - Temporary Storage Summary Report
Command ==> _____

System Selection:          Report Output:
APPLID . . CICSP001 +      DDname . . . . . TEMP0001
Image . . _____ +      Print Lines per Page . . ____ (1-255)
Group . . _____ +

Summary Reports Required:
/ Transaction Temporary Storage Usage
/ Temporary Storage Usage
/ Break down by Transaction ID
/ Include Transaction Totals

Report Format:
Title . . _____

Selection Criteria:
_ Performance

F1=Help      F3=Exit      F4=Prompt      F7=Backward      F8=Forward      F10=Actions
F12=Cancel

```

Figure 116. Temporary Storage Usage Summary Report

Use this panel to specify report options and record selection criteria for the Temporary Storage Usage report. The report format is fixed. The only mandatory option is the Report Output DDname. You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form, and you can select the reports you require.

The default **Report Output DDname** has the format **TEMPnnnn** where nnnn is **0001-9999**.

Summary Reports Required

Enter / to select the required reports.

Transaction Temporary Storage Usage

This requests the Transaction Temporary Storage Usage Summary report. This report summarizes Temporary Storage usage by Transaction ID. For each Transaction ID, it gives Transaction Identification and Temporary Storage Control statistics followed by a breakdown of Temporary Storage usage for each Temporary Storage Queue used by the Transaction.

This option generates the TRANSUMMARY(TEMPSTOR) operand.

Temporary Storage Usage

This requests the Temporary Storage Usage Summary report. This report summarizes Temporary Storage activity, breaking down individual TSQueue usage by Transaction ID.

- Select **Break down by Transaction ID** to include individual Transaction statistics.
- Select **Include Transaction Totals** to include total Transaction statistics.

This option generates the TEMPSTORSUMMARY(BYTRAN,TOTAL) operand.

Performance Selection Criteria

Performance Selection Criteria applies to both transaction resource class data and performance class data. You can request a report from all available records, or you can provide Selection Criteria to request a report from only the records that meet your specific requirements.

Transaction resource class records contain Task Identification and Temporary Storage Entry information. For more information on the format of transaction resource class records, see the *CICS Performance Analyzer for z/OS Report Reference*.

For the selection of transaction resource class records, only some fields in the Selection Criteria are applicable. All other fields are ignored.

The Selection Criteria fields applicable to Task Identification are:

ACTIVE
FCTY
LUNAME
NETUOWSX
PROGRAM
RSYSID
START
STOP
TASKNO
TERM
TRAN
USERID
OAPPLID
OTRAN
OUSERID
OTCPSRVC
OFCTY

The Selection Criteria fields applicable to Temporary Storage Entries (see note 1) are:

TSQNAME (see note 2)
TSGET (Count only, see note 3)

TSPUTAUX (Count only, see note 3)
 TSPUTMCT (Count only, see note 3)
 TSTOTAL (Count only, see note 3)
 TSSHWAIT (Time and Count)
 TSWAIT (Time and Count)

Note:

1. Selection Criteria for Temporary Storage Entries can affect Task Identification selection. If all Temporary Storage entries for a task are excluded, then the task is also excluded.
2. TSQNAME is a special field that applies only to transaction resource class data. It is ignored when processing performance class data.
3. Selection Criteria only supports the checking of the Count component of Temporary Storage request fields. The Time component cannot be checked. These fields are common to both performance class (Count) and transaction resource class (Clock - COUNT and TIME), but have differing data types. Since the performance fields are Count (not Clock) fields, only the Count component is supported by Selection Criteria.

Distributed Program Link Usage Summary report

The Distributed Program Link (DPL) Usage Summary report provides a detailed analysis of CMF transaction resource class data for DPLs.

Two reports can be requested:

1. **Transaction DPL Usage Summary.** This report summarizes DPL usage by Transaction ID. For each Transaction ID, it gives Transaction Identification and DPL statistics followed by a breakdown of each DPL used by the Transaction.
2. **DPL Usage Summary.** This report summarizes DPL activity. For each DPL, it gives a breakdown of DPL usage by Transaction ID.

To request the report, enter line action **S** against the **DPL Usage Summary** Transaction Resource Usage Report on the Report Set panel. If reports of this type have been previously specified, the list of DPL Usage Summary Reports is displayed. Otherwise, the DPL Usage Summary Report panel is displayed for you to define your first report of this type.

```

File  Filter  Edit  Systems  Options  Help
-----
                SAMPLE - DPL Usage Summary Reports                Row 1 from 2
Command ===> _____ Scroll ===> _____

      ---- System Selection ----                Selection
/  Exc  APPLID + Image + Group + Output  Criteria
S      CICSPO01 _____ DPLS0001      NO
_      DEVT _____ MVS1 _____ DPLS0002      NO
***** Bottom of data *****

```

Figure 117. DPL Usage Summary Reports

This panel displays the list of DPL Usage Summary Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See "Performance List report" on page 169.

Enter line action **S** to select a report from the list.

```
File Systems Options Help
-----
                        SAMPLE - DPL Usage Summary Report
Command ==> _____

Select to edit report options.

System Selection:                Report Output:
APPLID . . CICSP001 +          DDname . . . . . DPLS0001
Image . . _____ +          Print Lines per Page . . ___ (1-255)
Group . . _____ +

Summary Reports Required:
/ Transaction DPL Usage
/ DPL Usage
/ Break down by Transaction ID
/ Include Transaction Totals

Report Format:
Title . . _____

Selection Criteria:
_ Performance

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel
```

Figure 118. DPL Usage Summary Report

Use this panel to specify report options and record selection criteria for the DPL Usage Summary report. The report format is fixed. The only mandatory option is the Report Output DDname. You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form, and you can select the reports you require.

The default **Report Output DDname** has the format **DPLSnnnn** where nnnn is **0001-9999**.

Summary Reports Required

Enter / to select the required reports.

Transaction DPL Usage

This requests the Transaction DPL Usage Summary report. This report summarizes DPL usage by Transaction ID. For each Transaction ID, it gives Transaction Identification and DPL statistics followed by a breakdown of DPL usage for each DPL used by the Transaction.

This option generates the TRANSUMM(DPL) operand.

DPL Usage

This requests the DPL Usage Summary report. This report summarizes DPL activity, breaking down individual DPL usage by Transaction ID.

- Select **Break down by Transaction ID** to include individual Transaction statistics.
- Select **Include Transaction Totals** to include total Transaction statistics.

This option generates the DPLSUMM(BYTRAN,TOTAL) operand.

Performance Selection Criteria

Performance Selection Criteria applies to both transaction resource class data and performance class data. You can request a report from all available records, or you can provide Selection Criteria to request a report from only the records that meet your specific requirements.

Transaction resource class records contain Task Identification and distributed program link (DPL) information. For more information on the format of transaction resource class records, see the *CICS Performance Analyzer for z/OS Report Reference*.

For the selection of transaction resource class records, only some fields in the Selection Criteria are applicable. All other fields are ignored.

The Selection Criteria fields applicable to Task Identification are:

ACTIVE
FCTY
LUNAME
NETUOWSX
PROGRAM
RSYSID
START
STOP
TASKNO
TERM
TRAN
USERID
OAPPLID
OTRAN
OUSERID
OTCPSRVC
OFCTY

The Selection Criteria fields applicable to DPL Entries (see note 1) are:

DPLNAME (see note 2)
PCDPL (number of DPL requests)

Note:

1. Selection Criteria for DPL entries can affect Task Identification selection. If all DPL entries for a task are excluded, then the task is also excluded.
2. DPLNAME is a special field that applies only to transaction resource class data. It is ignored when processing performance class data.

Transaction Resource Usage List report

The Transaction Resource Usage List report provides a detailed list of CMF transaction resource class data. The records are reported in the sequence that they appear in the SMF file.

The report gives Transaction information together with statistics by transaction of File and Temporary Storage usage.

To request the report, enter line action **S** against the **Transaction Resource Usage List** report on the Report Set panel. If reports of this type have been previously specified, the list of Transaction Resource Usage List Reports is displayed.

Otherwise, the Transaction Resource Usage List Report panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
SAMPLE - Transaction Resource Usage Reports      Row 1 from 2
Command ==> _____ Scroll ==> ____

      ---- System Selection ----          Selection
/  Exc  APPLID + Image + Group + Output  Criteria
S      CICSP001 _____ RESU0001      NO
_      DEVT  _____ MVS1 _____ RESU0002      NO
***** End of list *****

```

Figure 119. Transaction Resource Usage Reports

This panel displays the list of Transaction Resource Usage List Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

Enter line action **S** to select a report from the list.

```

File Systems Options Help
-----
SAMPLE - Transaction Resource Usage Report
Command ==> _____

System Selection:          Report Output:
APPLID . . CICSP001 +      DDname . . . . . RESU0001
Image . . _____ +      Print Lines per Page . . ____ (1-255)
Group . . _____ +

Detailed List Reports Required:
/ File Usage
/ Temporary Storage
/ DPL

Report Format:
Title . . _____

Selection Criteria:
_ Performance

F1=Help      F3=Exit      F4=Prompt      F7=Backward      F8=Forward      F10=Actions
F12=Cancel

```

Figure 120. Transaction Resource Usage List Report

Use this panel to specify report options and record selection criteria for the Transaction Resource Usage List report. The report format is fixed. The only mandatory option is the Report Output DDname. You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form, and you can select the reports you require.

The default **Report Output DDname** has the format **RESUnnnn** where nnnn is 0001-9999.

Detailed List Reports Required

Enter / to select the report.

File Usage

The File Usage List report provides a trace of Transaction resource class records that include File information. The report consists of Transaction information from the Task Identification section, followed by one sub-section for each File used.

This option generates the TRANLIST(FILE) operand.

Temporary Storage Usage

The Temporary Storage Usage List report provides a trace of Transaction resource class records that include TSQueue information. The report consists of Transaction information from the Task Identification section, followed by one sub-section for each TSQueue used.

This option generates the TRANLIST(TEMPSTOR) operand.

DPL The DPL Usage List report provides a trace of Transaction resource class records that include distributed program link (DPL) information. The report consists of Transaction information from the Task Identification section, followed by one sub-section for each DPL used.

This option generates the TRANLIST(DPL) operand.

Performance Selection Criteria

Performance Selection Criteria applies to both transaction resource class data and performance class data. The Transaction Resource Usage List report processes only transaction resource class data and includes File Usage, Temporary Storage Usage, and Distributed Program Link (DPL) Usage statistics.

- For the Selection Criteria applicable to File Usage processing, see “Performance Selection Criteria” on page 212.
- For the Selection Criteria applicable to Temporary Storage Usage processing, see “Performance Selection Criteria” on page 215.
- For the Selection Criteria applicable to DPL Usage processing, see “Performance Selection Criteria” on page 218.

Statistics reports

The Statistics reports are produced from CICS statistics stored in SMF files.

To extract CICS statistics to delimited text files for further processing by other applications, see “Statistics extract” on page 272.

You can also produce Statistics Alert reports outside of a Report Set, from CICS statistics stored in HDBs. For details, see *HDB Reporting*.

Statistics Alert reports

The Statistics Alert reports process CICS Transaction Server and CICS Transaction Gateway statistics records.

To request a report, enter line action **S** against the **Alert** Statistics Report on the Report Set panel. If reports of this type have been previously specified, the list of Statistics Alert Reports is displayed. Otherwise, the Statistics Alert Reports panel is

displayed for you to define your first report of this type.

```

File  Filter  Edit  Systems  Options  Help
-----
                                SAMPLE - Statistics Alert Reports                                Row 1 from 1
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/  Exc  APPLID + Image + Group +      Output      Alert +
_      CICSPO01 MVS1 _____      STAL0001      IDDS_____
***** End of list *****

```

Figure 121. Statistics Alert Reports

This panel displays the list of Statistics Alert Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options are:

Exc An asterisk * in this field indicates that the report is excluded from report processing.

Use line action **X** to reverse the Exclude indicator.

System Selection

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the **Prompt** key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select **Systems** in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICSPO1 can be specified if CICSPO* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(applid1,applid2,applid3,...) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Output

CICS PA provides a default **Report Output DDname** in the format **STALnnnn** where nnnn is **0001-9999**.

Alert The Alert Definition containing the Conditions that you want to report. You must have already created this Alert Definition in the currently active Repository. To select from a list of Alert Definitions in the Repository, press **Prompt (F4)**. To create a new Alert Definition, return to the primary option menu, and then select option 6.5. For details, see Chapter 14, “Statistics alert reporting,” on page 353.

To use a different Repository, return to the primary option menu, and then select option 0.3. If you define more than one Statistics Alert report in a Report Set, the reports must all refer to Alert Definitions stored in the same Repository; the JCL for a Report Set can refer to only one Repository.

CICS PA JCL generation translates this option to the STALTDEF operand.

The line actions available on this panel are the same as on similar Reports list panels. See “Performance List report” on page 169.

To display the Statistics Alert Report panel, enter line action **S** against the **Alert Statistics Report** on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                        SAMPLE - Statistics Alert Report
Command ==> _____

System Selection:                Report Output:
APPLID . . . CICSP001 +          DDname . . . . . STAL0001
Image . . . MVS1_____ +       Print Lines per Page . . ____ (1-255)
Group . . . _____ +

Alert . . . IDDS_____ +

Report Sorted By:                Report Type (APPLID and Alert only):
1 1. APPLID                       / List  _ Summary
2. Alert
3. Collection Time
4. Statistics Interval
5. Resource

Report Format:
Title . . . _____

Filter Criteria:
Type . . . . . / EOD / INT / USS / REQ / RRT

Repository . . . : CICSPA.XYX.REPOSTRY

```

Figure 122. Statistics Alert Report

Use this panel to specify report options for the Statistics Alert report. The report format is fixed. The only mandatory options are the DDname for the report output and the Alert. You can let the other options default.

The options are:

Report Output DDname

The DDname for the report output which CICS PA uses when generating the JCL to run the Report Set. The DDname is mandatory and should be unique to separate the output of multiple reports.

CICS PA assigns a default DDname **STALnnnn** where nnnn is a sequential number **0001-9999** to ensure each report has a unique DDname.

This option generates the `OUTPUT(ddname)` operand.

Print Lines per Page

The maximum number of lines, including headings, to print on each page of the report. Valid values are from 1 to 255. The default is **60**.

The global value applies to all reports. If a value is specified on this report panel, the report value takes precedence over the global for this report only.

CICS PA JCL generation translates this field to the `LINECount(nnn)` operand.

Report Sorted By and Report Type

The sort order of the report. For reports sorted by `APPLID` or `Alert`, you can specify a report type: `List` (the default), `Summary`, or `both`. Other sorting options are available only as `List` reports. `List` reports show each instance of an `Alert` on a separate row, with details such as the threshold value and the `Formula` value that triggered the `Alert`. `Summary` reports show the number of `Alerts` for the report period, rather than the details of each instance.

This option generates the `BY` operand.

Filter Criteria

To limit the types of CICS statistics intervals that CICS PA includes in the report, enter / next to the types you are interested in:

EOD End-of-day
REQ Requested
USS Unsolicited
INT Interval
RRT Requested reset

Selecting none of the types is the same as selecting all types.

This option generates the `TYPE` operand.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

This option generates the `TITLE1('left-half')` and `TITLE2('right-half')` operands.

CICS Transaction Gateway reports

The CICS Transaction Gateway reports provide comprehensive reporting of CICS TG Statistics (SMF 111) records.

- The Activity Summary report provides a high-level overview of Gateway daemon address spaces and their workloads. This report also indicates whether connected users or systems might have experienced problems due to communications failure or request time out.

- The Usage and Capacity report summarizes Gateway daemon resource usage over time, including 31-bit region and Java heap storage utilization, communication sessions, and connection manager and worker thread pools.
- The Configuration Summary report provides a snapshot of key configuration values for each active Gateway daemon in your system. You can view and compare configurations of multiple Gateway daemons within one report. The reports also provide a useful historical reference for identifying changes in configuration over time.
- The Client Workload report provides a high-level overview of the application workload in terms of response time, network latency, request volumes, data transfer, and transaction type, broken down by Gateway daemon instance. This report can give insight into application usage patterns throughout a daily, weekly, or monthly cycle, and in time can reveal longer term trends. It can also be used to see the impact on end users of incidents in the overall system. Cross referencing a particular interval with the CICS Workload report can then lead you to identify which CICS region might be associated with a particular incident.
- The CICS Workload report provides an overview of workload between Gateway daemons and their connected CICS regions, broken down by Gateway daemon instance and CICS connection. This report allows you to identify which CICS regions are most heavily loaded, and to identify when a CICS region experienced abnormal response times during a particular interval or when some requests to a CICS region were affected by communications problems.

To request the reports, enter line action **S** against the **CICS Transaction Gateway Statistics Report** on the Report Set panel. If reports of this type have been previously specified, the list of CICS Transaction Gateway Reports is displayed. Otherwise, the CICS Transaction Gateway Report panel is displayed for you to define your first report of this type.

```

File  Filter  Edit  Systems  Options  Help
-----
                SAMPLE - CICS Transaction Gateway Reports          Row 1 from 1
Command ==> _____ Scroll ==> ____

      ---- System Selection ----
/  Exc  APPLID + Image + Group +  Output
-      CICSP001 _____ STTG0001
-      CICST001 _____ STTG0002
***** Bottom of data *****

```

Figure 123. CICS Transaction Gateway Reports

This panel displays the list of CICS TG reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The line actions are the same as those for the Performance List Reports panel. See “Performance List report” on page 169.

If the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
SAMPLE - CICS Transaction Gateway Report
Command ==> _____

System Selection:
APPLID . . CICS001 +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . STTG0001
Print Lines per Page . . ____ (1-255)

Reports Required:
/ Activity Summary
7 Usage and Capacity
7 Configuration Summary
7 Client Workload
7 CICS Workload

Report Format:
Title . . _____

F1=Help F3=Exit F4=Prompt F7=Backward F8=Forward F10=Actions
F12=Cancel

```

Figure 124. CICS Transaction Gateway Report

Use this panel to select the reports and specify report options:

Reports Required

Enter / to select the reports you want produced:

Activity Summary

Requests the Activity Summary report. This option generates the ACTIVITY operand.

Usage and Capacity

Requests the Usage and Capacity report. This option generates the USAGE operand.

Configuration Summary

Requests the Configuration Summary report. This option generates the CONFIGURATION operand.

Client Workload

Requests the Client Workload report. This option generates the CLIENTWORKLOAD operand.

CICS Workload

Requests the CICS Workload report. This option generates the CICSWORKLOAD operand.

Ratio This option applies only to the Usage and Capacity report. A warning indicator is displayed against the EXCI pipes or IPIC sessions fields in the report when the Num/Max ratio or Num/Avail ratio exceeds the specified value. The default is 90.

This value generates the RATIO(*value*) suboperand.

The report options and Title are the same as those for the Performance List report (see “Performance List report” on page 169).

CICS PA provides a default **Report Output DDname** in the format **STTGnnnn** where nnnn is **0001-9999**. All selected reports will be written consecutively to this ddname. To separate the reports, create individual CICS TG reports and change the Report Output DDname for each one.

Subsystem reports

The Subsystem reports are produced from database subsystem accounting data stored in SMF files. The reports in this category are:

- “DB2 report”
- “WebSphere MQ report” on page 231
- “OMEGAMON reports” on page 235

DB2 report

The DB2 report processes CICS CMF performance class (SMF 110) records and DB2 accounting (SMF 101) records to produce a consolidated and detailed view of DB2 usage by your CICS systems. The DB2 report enables you to view CICS and DB2 resource usage statistics together in a single report.

The DB2 report matches CMF Performance records with DB2 accounting records by network unit-of-work id. Your CICS-DB2 resources must be defined with **ACCOUNTREC(TASK)** or **ACCOUNTREC(UOW)** for matching to occur.

The DB2 List report shows detailed information of DB2 activity for each transaction. The DB2 Summary reports summarize DB2 activity by transaction:

- For CMF records: by APPLID/transaction/program
- For DB2 records: by APPLID/transaction/program/SSID/plan

The reports include the following DB2 information:

- DB2 Thread Identification, for easy cross-reference to DB2 PM
- Class 1 Thread elapsed and CPU times
- Class 2 In-DB2 elapsed and CPU times
- Class 3 Suspend times
- Buffer Manager statistics
- Locking statistics
- SQL DML statistics

A Recap report showing processing statistics is always printed at the end.

To request the DB2 report, enter line action **S** against the **DB2** Subsystem Report on the Report Set panel. If reports of this type have been previously specified, the list of DB2 Reports is displayed. Otherwise, the DB2 Report panel is displayed for you to define your first report of this type.

```
File Filter Edit Systems Options Help
-----
Command ==> SAMPLE - DB2 Reports Row 1 from 4
                                          Scroll ==> ____

  ---- System Selection ----
/ Exc APPLID + Image + Group + Output Selection Criteria
-     CICSP001          _____ DB2R0001      YES
-     DEVT_____MVS1_____ DB2R0002      NO
-     CICST001          _____ DB2R0003      YES
-     * _____RSYSGRP1 DB2R0004      NO
***** End of list *****
```

Figure 125. DB2 Reports

This panel displays the list of DB2 Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options are the same as those for the Performance List Reports panel, except there is no Report Form. See "Performance List report" on page 169.

The line actions are the same as on similar Reports list panels. See page "Performance List report" on page 169.

Enter line action **S** to select a report in the list.

```

File Systems Options Help
-----
                        SAMPLE - DB2 Report
Command ==> _____

CICS System Selection:          Report Output:
APPLID . . . C1CSP001 +        DDname . . . . . DB2R0001
Image . . . _____ +        Print Lines per Page . . ___ (1-255)
Group . . . _____ +

DB2 System Selection:          Report Options:
SSID . . . DB2P +              / Process DB2 Accounting records
Image . . . _____ +        / List records with no DB2 activity
Group . . . _____ +        / Long Summary with DB2 maximums

Reports          ----- DB2 Accounting data to include in report -----
Required:        Class1 Class2 Class3 Buffer Locking DML 1 DML 2
- List           /      /      -      /      /      -      -
- Long Summary   /      /      -      /      /      -      -
/ Short Summary /      /      -      /      /      -      -

Report Format:
Title . . . _____

Selection Criteria:
- Performance *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 126. DB2 Report

Use this panel to specify report options and record selection criteria for the DB2 report. The only mandatory option is the Report Output DDname. You can let the other options default.

The options are:

CICS System Selection

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, C1CSP1 can be specified if C1CSP* is a defined system.

- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(applid1,applid2,applid3,...) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

DB2 System Selection

DB2 System Selection identifies the DB2 subsystems that you want to report against. The DB2 subsystems must be those used by the specified CICS systems, otherwise they are ignored by DB2 report processing.

You do not need to specify a DB2 System Selection. If you don't, then the following will occur:

- When the CICS System Definition specifies a Group that contains DB2 SSIDs, then CICS PA uses the DB2 SSIDs defined to the Group.
- Otherwise CICS PA assumes that the DB2 Accounting records are contained in the same file as the CICS system's CMF records, and will automatically determine the correct DB2 subsystems for the CICS systems to be reported.

Any combination of SSID, Image, or Group can be specified but must be defined in your System Definitions. Use **Prompt** (F4) to select from a list of defined Systems, Images or Groups. To modify your System Definitions, select **Systems** in the action bar.

CICS PA uses the DB2 System Selection in JCL generation to build the SSID(ssid1,ssid2,ssid3,...) operand.

Report Output DDname

The DDname for the report output which CICS PA uses when generating the JCL to run the Report Set. The DDname is mandatory and should be unique to separate the output of multiple reports.

CICS PA assigns a default DDname **DB2Rnnnn** where nnnn is a sequential number **0001-9999** to ensure each report has a unique DDname.

This option generates the OUTPUT(ddname) operand.

Print Lines per Page

The maximum number of lines, including headings, to print on each page of the report. Valid values are from 1 to 255. The default is **60**.

The global value applies to all reports. If a value is specified on this report panel, the report value takes precedence over the global for this report only.

CICS PA JCL generation translates this field to the LINECount(nnn) operand.

Reports Required

Enter / to select the reports you want produced. The Recap report is always produced at the end to provide processing statistics.

- Select **List** to request the DB2 List report, a detailed list of all network units-of-work with DB2 activity, consolidating CMF performance class records and DB2 accounting data. This selection generates the LIST operand.
- Select **Long Summary** to request the DB2 Long Summary report which summarizes these details by transaction and program within APPLID, giving average and maximum values for each. This selection generates the LONGSUM operand.
- Select **Short Summary** to request the DB2 Short Summary report which is an abridged version of the Long Summary report with significantly less detail and averages only (no maximums). This selection generates the SHORTSUM operand and is the default.

DB2 Accounting data to include in reports

This option applies to the DB2 List and Long Summary reports, and then only if **Process DB2 Accounting records** is selected.

Enter / to select the DB2 detail lines to include in each report:

Class1 Thread Time (default)

Class2 In-DB2 Time (default)

Class3 Suspend Time

Buffer Buffer Manager Summary (default)

Locking

Locking Summary (default)

DML 1

SQL DML Query/Update

DML 2

SQL DML 'Other'

The default is to include **Class1**, **Class2**, **Buffer**, and **Locking**.

Note: Thread Identification is always reported.

If the List report is selected, JCL generation translates this option to LIST(CLASS1,CLASS2,CLASS3,BUFFER,LOCKING,DML1,DML2).

If the LongSummary report is selected, JCL generation translates this option to LONGSUM(CLASS1,CLASS2,CLASS3,BUFFER,LOCKING,DML1,DML2).

Report Options

The DB2 Report processes all CMF performance data records that are within a network unit-of-work that involves some DB2 activity. You can control the amount of processing and volume of output by restricting the data that is reported.

Enter / to select the type of data to include in the report:

Process DB2 Accounting records

Select this option for CICS PA to process DB2 Accounting (SMF 101) records. Selected is the default.

If not selected, then the CMFONLY operand is generated, and CICS PA just reports the DB2 statistics contained in the CMF performance records.

List records with no DB2 activity

This option only applies to the DB2 List report. Select this option to report CMF performance records with DB2REQCT=0 provided they are part of a network unit-of-work that has some DB2 activity. If selected, the LISTZERO operand is generated.

Not selected is the default.

Long Summary with DB2 maximums

Select this option to include maximum values in the DB2 Accounting detail lines of the Long Summary report. If selected, the MAXLONGSUM operand is generated and both average and maximum values are reported. Selected is the default.

If not selected, the NOMAXLONGSUM operand is generated and only the averages are reported.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

Performance Selection Criteria

For information on how the Selection Criteria applies to the DB2 Accounting records, see "Selecting DB2 accounting records" on page 167.

Line Actions:

- /** Display the menu of line actions.
- S** Display the subpanel where Selection Criteria can be specified for this report. For details, see "Specifying Selection Criteria" on page 158.
- A** Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you have specified here will not be used.

Select a System (DB2 SSID)

To report on a particular system, select it from a list of available systems by pressing **Prompt** (F4) from the DB2 SSID field in System Selection. Only systems of that type are displayed. See Figure 127 on page 231 for an example showing a list of DB2 SSIDs.

Enter a **/** or **S** line action (or point-and-shoot) to select a system from the list to insert in your System Selection.

```

                                Systems                               Row 1 to 4 of 4
Command ==> _____ Scroll ==> PAGE

Select a System then press Enter.

  System  Image  Files  Description
  . DB2P   MVS1   Yes   DB2 Subsystem DB2P/MVS1_____
  . DB2D   MVS1   Yes   DB2 Subsystem DB2D/MVS1_____
  . DB2E                   Yes   DB2 Subsystem DB2E_____
  . DB2F                   No    DB2 Subsystem DB2F_____
***** End of list *****

```

Figure 127. Select a System (DB2 SSID)

WebSphere MQ report

The WebSphere MQ report processes WebSphere MQ SMF accounting (SMF 116) records to produce a detailed view of WebSphere MQ usage by your CICS systems.

The WebSphere MQ List reports provide, depending on the WebSphere MQ accounting traces that are active, details about:

- Transactions
- WebSphere MQ Queues that were referenced
- WebSphere MQ global (not Transaction-specific or Queue-specific) statistics
- WebSphere Queue-specific commands issued by Transaction

These can be sorted and aggregated by Transaction ID or Queue name or both.

To request the report, enter line action **S** against the **WebSphere MQ** Subsystem Report on the Report Set panel. If reports of this type have been previously specified, the list of WebSphere MQ Reports is displayed. Otherwise, the WebSphere MQ panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
                                SAMPLE - WebSphere MQ Reports          Row 1 from 2
Command ==> _____ Scroll ==> ____

      ---- System Selection ----          Selection
/  Exc  MQ SSID + Image + Group +  Output  Criteria
-  ____  _____  _____  MQ000001  NO
-  ____  _____  _____  MQ000002  NO
***** End of list *****

```

Figure 128. WebSphere MQ Reports

This panel displays the list of WebSphere MQ reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options are:

System Selection

System Selection identifies the MQ Subsystems and associated SMF files that you want to report against. MQ System Selection can be specified here or on the WebSphere MQ Report panel. For details, see the description of this option following the next figure.

Output

CICS PA provides a default **Report Output DDname** in the format **MQ00nnnn** where nnnn is **0001-9999**.

The line actions are the same as on similar Reports list panels. See “Performance List report” on page 169.

Enter line action **S** to select a report in the list.

```
File Systems Options Help
-----
                          SAMPLE - WebSphere MQ Report
Command ==> _____

MQ System Selection:          Report Output:
SSID . . . _____ +      DDname . . . . . MQ000001
Image . . _____ +      Print Lines per Page . . ____ (1-255)
Group . . _____ +

Reports Required:            Process Accounting Class Records:
  List report                1 1. Class 1
  Summary report             2 2. Class 3

Sort Summary by:
  1 1. Transaction 2. Queue 3. Transaction/Queue 4. Queue/Transaction

Report Filter:
Queue Name _____

Report Format:
Title . . _____

Selection Criteria:
  Performance

F1=Help    F3=Exit    F4=Prompt    F7=Backward  F8=Forward  F10=Actions
F12=Cancel
```

Figure 129. WebSphere MQ Report

Use this panel to specify report options and record selection criteria for the WebSphere MQ report. The only mandatory option is the Report Output DDname. You can let the other options default.

The options are:

MQ System Selection

System Selection identifies the MQ Subsystems and associated SMF files that you want to report against. Any combination of MQ SSID, Image, or Group can be specified but must be defined in System Definitions. You can use **Prompt** (F4) to select from a list. To link directly to System Definitions, select **Systems** in the action bar.

Specify either:

- An MQ SSID.
- An MQ SSID for a particular Image. This identifies a particular MQ Subsystem when there is more than one with the same ID.
- An Image. CICS PA will report on all MQ systems running on this Image using the SMF files defined for the Image.
- An MQ SSID and Image combination plus a Group. This is useful to uniquely identify a system when there is more than one of the same name defined in System Definitions.

- A Group alone. CICS PA will report on all MQ systems in the Group to produce a single consolidated report.

CICS PA uses the System Selection in JCL generation to build the SSID(ssid1,ssid2,ssid3,...) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

Report Output DDname

The ddname for the report output which CICS PA uses when generating the JCL to run the Report Set. The ddname is mandatory and should be unique to separate the output of multiple reports.

CICS PA assigns a default ddname **MQ00nnnn** where nnnn is a sequential number **0001-9999** to ensure each report has a unique ddname.

This option generates the OUTPUT(ddname) operand.

Print Lines per Page

The maximum number of lines, including headings, to print on each page of the report. Valid values are from 1 to 255. The default is **60**.

The global value applies to all reports. If a value is specified on this report panel, the report value takes precedence over the global for this report only.

CICS PA JCL generation translates this field to the LINECount(nnn) operand.

Reports Required

Enter / to select the reports you want produced.

- Select **List** to request the WebSphere MQ List report. This selection generates the LIST operand.
- Select **Summary** to request the WebSphere MQ Summary report. This selection generates the SUMMARY operand and is the default.

Process Accounting Class Records

Select the type of MQ accounting data to process. Select either:

1. **Class 1** to request that the reports process MQ Class 1 records only. This is the default. This selection generates the CLASS1 operand.
2. **Class 3** to request that the reports process MQ Class 3 records only. This selection generates the CLASS3 operand.

If you need to report both Class 1 and Class 3 data, define another MQ report. CICS PA will produce both reports in a single pass of the data.

Sort Summary by

Specify the required sorting sequence of the Summary report. You can order the Summary report by one of the following:

1. Transaction ID. This generates the SORT(TRAN) operand and is the default.
2. WebSphere Queue name. This generates the SORT(Queue) operand.
3. Transaction ID, then Queue name. This generates the SORT(TRAN,Queue) operand.
4. Queue name, then Transaction ID. This generates the SORT(Queue,TRAN) operand.

Report Filter

Specify a Queue name to select records for a particular WebSphere MQ queue name. You can specify a pattern such as CICS MQ* to include more than one queue name. The queue name is case-sensitive.

This option generates the QNAME(name) operand.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

Performance Selection Criteria

The fields that can be specified in Selection Criteria for filtering MQ accounting (SMF 116) records are:

APPLID

CICS APPLID

TRAN CICS Transaction ID

TASKNO

CICS Task ID

START

MQ Thread Begin Time

STOP MQ Thread End Time

ACTIVE

MQ Thread Begin-End Time

Line Actions:

/ Display the menu of line actions.

S Display the subpanel where Selection Criteria can be specified for this report. For details, see "Specifying Selection Criteria" on page 158.

A Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.

D Deactivate the Selection Criteria. Any you have specified here will not be used.

Select a System (MQ SSID)

To report on a particular system, you can select one from a list of available systems by pressing **Prompt** (F4) from the **MQ SSID** field in System Selection. Only the systems of that type are displayed. See Figure 130 for an example showing a list of MQ SSIDs.

Enter a **/** or **S** line action (or point-and-shoot) to select a system from the list to insert in your System Selection.

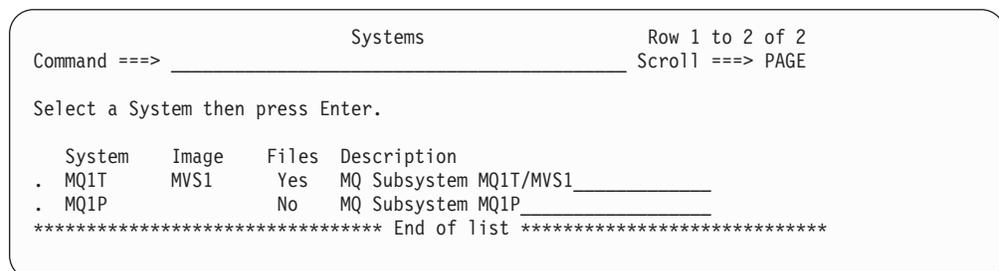


Figure 130. Select a System (MQ SSID)

WebSphere MQ accounting traces

WebSphere MQ accounting records are produced as a result of activating the Accounting Trace component of WebSphere MQ. That activation is a consequence of either coding a suitable parameter in a WebSphere MQ control block or by the issuing of a WebSphere MQ subsystem command from the MVS Operator Console. If the WebSphere MQ accounting trace is active, WebSphere MQ SMF accounting records (type 116) are produced with a subtype (0, 1 or 2) depending on what level of trace has been activated. If the MQ accounting trace is active, subtype 0 records are always produced but subtypes 1 and 2 are only produced if CLASS(3) is specified when the trace is activated; this can only be performed via an MVS Operator Command.

OMEGAMON reports

The OMEGAMON reports process OMEGAMON XE for CICS (SMF 112) records to produce a detailed view of how CICS transactions use the following types of database management system (DBMS):

- Adabas
- CA-Datcom
- CA-IDMS
- Supra

For each type of DBMS, you can request up to three reports:

- A List report, showing database usage for each transaction.
- A Transaction Summary report, showing database usage summarized by transaction ID.
- A Database Summary report, showing database usage summarized by database.

The information in each report varies depending on the type of DBMS, but typically includes elapsed times and counts for each of the methods that transactions use to access a database, such as read, write, add, update, and delete.

Requesting one or more OMEGAMON reports

Enter line action **S** against the OMEGAMON Subsystem Report on the Report Set panel. If reports of this type have been previously specified, the list of OMEGAMON reports is displayed. Otherwise, the OMEGAMON panel is displayed for you to define your first report of this type.

```
File Filter Edit Systems Options Help
-----
SAMPLE - OMEGAMON Reports                               Row 1 from 1
Command ==> _____ Scroll ==> _____

  --- System Selection ---                               Selection
/ Exc APPLID + Image + Group + Output Criteria
_      _____          _____          OMEG0001      NO
***** End of list *****
```

Figure 131. OMEGAMON Reports

This panel displays the list of OMEGAMON reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

The line actions are the same as on similar Reports list panels. See “Performance List report” on page 169.

Enter line action **S** to select a report in the list.

```

File Systems Options Help
-----
                        SAMPLE - OMEGAMON Report
Command ==> _____

CICS System Selection:                Report Output:
APPLID . . _____ +                DDname . . . . . OMEG0001
Image  . . _____ +                Print Lines per Page . . ____ (1-255)
Group  . . _____ +

Reports Required:                      Summary Options:
 / List                                / Average          Total
 / Summary                            / Minimum          / Maximum
 / By Transaction                      / Deviation
 / By Database                          / Peak . . 90     (50-100%)

Statistics to include:                  DBMS Selection:
 / Total DBMS activity                 / Adabas          / Supra
 / Individual Database                 / CA-Datcom       / CA-IDMS

Report Format:
Title . . _____

Selection Criteria:
_ Performance

F1=Help    F3=Exit    F4=Prompt    F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 132. OMEGAMON Report

Use this panel to specify report options and record selection criteria for the OMEGAMON reports. The only mandatory option is the Report Output DDname. You can let the other options default.

The options are:

CICS System Selection

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICSP1 can be specified if CICSP* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.

- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(applid1,applid2,applid3,...) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Report Output DDname

The DDname for the report output which CICS PA uses when generating the JCL to run the Report Set. The DDname is mandatory and should be unique to separate the output of multiple reports.

CICS PA assigns a default DDname **OMEGnnnn** where nnnn is a sequential number **0001-9999** to ensure each report has a unique DDname.

This option generates the OUTPUT(ddname) operand.

Print Lines per Page

The maximum number of lines, including headings, to print on each page of the report. Valid values are from 1 to 255. The default is 60.

The global value applies to all reports. If a value is specified on this report panel, the report value takes precedence over the global for this report only.

CICS PA JCL generation translates this field to the LINECount(nnn) operand.

Reports Required

Enter / to select the reports you want produced:

List Requests the OMEGAMON List report. This option generates the LIST operand.

Summary

Requests the OMEGAMON Summary report. This option generates the SUMMARY operand.

There are two types of Summary report:

By Transaction

Requests the Transaction Summary report, which groups transaction data into sections for each transaction ID. Within each section, the report shows the transaction data for each database accessed by that transaction ID, followed by total figures for that transaction ID across all databases.

This option generates the SUMMARY(TRAN) operand.

By Database

Requests the Database Summary report, which groups transaction data into sections for each database. Within each section, the report shows the transaction data for each

transaction ID that has accessed that database, followed by total figures for that database for all transaction IDs.

This option generates the SUMMARY(DATABASE) operand.

If you select neither List nor Summary, then the generated command will contain neither the LIST operand nor the SUMMARY operand, and so the command will follow its default behavior, which is to produce both types of Summary report.

Summary Options

The statistical functions that the Database Summary and Transaction Summary reports use to summarize transaction data. The options are: average, total, minimum, maximum, standard deviation, and peak percentile. Each option that you select produces additional rows in the reports, with the function name as the row heading.

Statistics to include

Each OMEGAMON (SMF 112) record contains database usage details for a single transaction. A transaction might use one database, or it might use multiple databases from different types of DBMS. For each type of DBMS used by the transaction, the record contains a “totals” segment. For each database used by the transaction, the record contains a “detail” segment. This option specifies whether you want the report to include information from totals segments, details segments, or both:

Total DBMS activity

Includes information from totals segments. This option generates the PRINT(TOTALS) operand.

Individual Database

Includes information from detail segments. This option generates the PRINT(DB) operand.

DBMS Selection

The types of DBMS for which you want to produce reports.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

Performance Selection Criteria

You can specify Selection Criteria to filter the OMEGAMON (SMF 112) records on time period and field values to restrict reporting to the data that is of interest to you.

CICS PA checks only the following Performance Selection Criteria fields when filtering OMEGAMON records:

APPLID

CICS APPLID

FILENAME

Database (or file) name

NETUOWPX

Originating System VTAM network name

START

Task start time.

Note: Report Interval-based selection for OMEGAMON XE for CICS records is limited to the Attach (START) time; the STOP and ACTIVE options are ignored.

TASKNO

Transaction identification number

TRAN CICS transaction ID

UOWID

Unit of work ID

All other fields are ignored.

Line Actions:

- /** Display the menu of line actions.
- S** Display the subpanel where Selection Criteria can be specified for this report. For details, see “Specifying Selection Criteria” on page 158.
- A** Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you have specified here will not be used.

System reports

The System reports are produced from MVS system data stored in SMF files. Only the System Logger report is in this category.

System Logger report

The System Logger report processes System Logger (SMF 88) records to provide information on the System Logger logstreams and coupling facility structures that are used by CICS Transaction Server for logging, recovery and backout operations. The report can assist with measuring the effects of tuning changes and identifying Logstream or Structure performance problems.

You can request two reports:

1. **System Logger List.** This report shows information on Logstream writes, deletes, and events, as well as Structure Alter events for each SMF recording interval.
2. **System Logger Summary.** This report summarizes Logstream and Structure statistics so you can measure Logger performance over a longer period of time.

These reports, when used in conjunction with the CICS Logger reports produced from the standard CICS statistics reporting utilities, provide a comprehensive analysis of the logstream activity for all your CICS systems.

To request a report, enter line action **S** against the **System Logger** System Report on the Report Set panel. If reports of this type have been previously specified, the list of System Logger Reports is displayed. Otherwise, the System Logger Report

panel is displayed for you to define your first report of this type.

```

File  Filter  Edit  Systems  Options  Help
-----
                        SAMPLE - System Logger Reports                Row 1 from 1
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/  Exc  Logger + Image + Group + Output  Selection
_      CICSPO01 MVS1_____ LOGR0001    NO
***** End of list *****

```

Figure 133. System Logger Reports

This panel displays the list of System Logger Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options are:

System Selection

System Selection identifies the System Logger(s) and associated SMF files you want to report against. Any combination of Logger, Image, or Group can be specified but must be defined in System Definitions. You can use **Prompt** (F4) to select from a list. To link directly to System Definitions, select **Systems** in the action bar.

Specify either:

- A Logger.
- A Logger for a particular Image. This identifies a particular System Logger when there is more than one with the same ID.
- An Image. CICS PA will report on all systems running on this Image using the SMF files defined for the Image.
- A Logger and Image combination plus a Group. This is useful to uniquely identify a system when there is more than one of the same name defined in System Definitions.
- A Group alone. CICS PA will report on all System and Image combinations in the Group to produce a single consolidated report.

CICS PA uses the System Selection in JCL generation to build the INput (SMFIN001, SMFIN002, SMFIN003, ...) operand and corresponding //SMFINnnn DD statements.

Output

CICS PA provides a default **Report Output DDname** in the format **LOGRnnnn** where nnnn is **0001-9999**.

The line actions are the same as on similar Reports list panels. See "Performance List report" on page 169.

To display the System Logger Report panel, enter line action **S** against the **System Logger** Performance Report on the Report Set panel, then if the list of previously specified reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
                        SAMPLE - System Logger Report
Command ==> _____

System Selection:                Report Output:
Logger . . CICSPO01  +          DDname . . . . . LOGR0001
Image . . MVS1_____ +
Group . . _____ +

Reports Required:                Ordering Options:
- List                            1 1. Sort by Logstream Name
  - Include ALTER records        - 2. Sort by Structure Name
  - Sort by Time
/ Summary                          SMF Options:
- Interval . . . _____ (hh:mm) Recording Interval . . _ (mins)

Report Format:
Title . . _____

Selection Criteria:
- Logger
- Logstream Name . . . _____
- Structure Name . . . _____

```

Figure 134. System Logger Report

Use this panel to specify report options for the System Logger report. The report format is fixed. The only mandatory options are the DDname for the report output and the Sort order. You can let the other options default. Note that you cannot control the number of print lines per page for the System Logger Report. In addition to filtering by Logstream or Structure name or both, you can also filter records from processing by specifying selection criteria.

The options are:

System Selection

System Selection identifies the System Logger(s) and associated SMF files you want to report against. Any combination of Logger, Image, or Group can be specified but must be defined in System Definitions. You can use **Prompt (F4)** to select from a list. To link directly to System Definitions, select **Systems** in the action bar.

Specify either:

- A Logger.
- A Logger for a particular Image. This identifies a particular System Logger when there is more than one with the same ID.
- An Image. CICS PA will report on all systems running on this Image using the SMF files defined for the Image.
- A Logger and Image combination plus a Group. This is useful to uniquely identify a system when there is more than one of the same name defined in System Definitions.
- A Group alone. CICS PA will report on all System and Image combinations in the Group to produce a single consolidated report.

CICS PA uses the System Selection in JCL generation to build the INput (SMFIN001, SMFIN002, SMFIN003, ...) operand and corresponding //SMFINnnn DD statements.

Report Output DDname

The DDname for the report output which CICS PA uses when generating

the JCL to run the Report Set. The DDname is mandatory and should be unique to separate the output of multiple reports.

CICS PA assigns a default DDname **LOGRnnnn** where nnnn is a sequential number **0001-9999** to ensure each report has a unique DDname.

This option generates the OUTPUT(ddname) operand.

Reports Required

Enter / to select the reports you want produced.

- Select **List** to request the System Logger List report, a list of all Logger interval records in the SMF File. This selection generates the LIST operand.

You can also select **Include ALTER records** to include Structure Alter events in the report. These apply to Structures, not individual Logstreams, and are reported with a Logstream name of *ALTER*. This selection generates the LIST(ALTER) operand.

By default, the List report entries are printed in Logstream or Structure name sequence, depending on the Report Option selected. However, by selecting the **Sort by Time** option, the entries are printed in Logstream or Structure name sequence within each Interval expiry period. This selection generates the LIST(TIMESEQ) operand.

- Select **Summary** to request the System Logger Logstream Summary and Structure Summary reports. (A summary of ALTER activity is not included.) This selection generates the SUMMARY operand.

The default report is the Summary.

Summary Interval

To present a single summary of records for the entire reporting period, leave this field blank (this is the default). To summarize records at intervals within the reporting period, enter a multiple of the SMF reporting interval, from 00:01 to 23:59. For example, if the SMF reporting interval was 5 minutes at the time that the logger records were written, then you can generate a System Logger Summary report that summarizes the logger records at any multiple of 5 minutes: 05:00, 10:00, 15:00 etc.

If you specify a Summary Interval, then ensure that the value you specify is an exact multiple of the SMF reporting interval. Otherwise, each of the summaries in the report might not be calculated from the same number of records.

This option appends a SUMMARYINTERVAL(hh:mm) suboperand to the SUMMARY operand.

Ordering Options

The sort sequence for the System Logger List and Summary reports.

Select option **1** to sort by Logstream name, MVS ID, Structure name, then time stamp. This is the default. This selection generates a SORT(LOGSTREAMNAME) operand.

Select option **2** to sort by Structure name, Logstream name, MVS ID, then time stamp. This selection generates a SORT(STRUCTURENAME) operand.

SMF Options: Recording Interval

The SMF global recording interval as specified in the INTVAL parameter of the SMFPRMnn PARMLIB member.

Specify an interval from 1 to 60 minutes. If not specified, CICS PA uses the recording interval in effect on the reporting system. The interval value is used by CICS PA for rate per second calculations in the System Logger Summary reports. If the interval used by CICS PA does not match the data, the total interval and rate calculations will be incorrect.

This option generates the INTERVAL(minutes) operand.

Selection Criteria

To specify Selection Criteria to filter the System Logger records on time period and other field values, enter S next to **Logger**.

Line Actions: Valid line actions are:

- / Display the menu of line actions.
- S Select to display the subpanel where Selection Criteria for this extract can be specified. See "Specifying Selection Criteria" on page 158 for a discussion on how to do this.
- A Activate the Selection Criteria so they are generated for this extract when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D Deactivate the Selection Criteria. Any you have specified here will not be used.

CICS PA JCL generation translates Selection Criteria to the SELECT(LOGGER operand).

Optionally, specify the **Logstream Name** and **Structure Name** patterns to be reported. Masking characters % and * are allowed. Examples of possible patterns are:

TEST.DFHLOG

which must match exactly

PROD.*

which can match PROD.DFHLOG

PROD.MVSA%

which can match PROD.MVSA1, but not PROD.MVSA1LOG

These options generate the LOGSTREAM('name.or.pattern') and STRUCTURE('name.or.pattern') operands.

- Title** Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

Select a System (Logger)

To report on a particular system, you can select one from a list of available systems by pressing **Prompt** (F4) from the **Logger** field in System Selection. Only the systems of that type are displayed. See Figure 135 on page 244 for an example showing a list of System Loggers.

Enter a / or S line action (or point-and-shoot) to select a system from the list to insert in your System Selection.

```

                                Systems                               Row 1 to 1 of 1
Command ==> _____ Scroll ==> PAGE

Select a System then press Enter.

  System  Image  Files  Description
.  CICSP001  MVS1   Yes   System Log for CICSPLOG/MVS1_____
***** End of list *****

```

Figure 135. Select a System (Logger)

Performance Graph reports

The Performance Graph reports process CMF performance class data to produce graph-style reports showing response times (average, maximum) and transaction counts by time interval.

Transaction Rate Graph report

The Transaction Rate Graph report helps you understand other graphs and reports by showing the number of transactions on which the reported data is based. It is also useful in understanding the rate at which the CICS system is running or is able to run. It is useful as a daily indicator of system activity, and helps you understand other graphs and reports by showing the number of transactions on which the reported data is based.

To request the report, enter line action **S** against the **Transaction Rate** Performance Graph on the Report Set panel. If reports of this type have been previously specified, the list of Transaction Rate Graphs is displayed. Otherwise, the Transaction Rate Graph panel is displayed for you to define your first report of this type.

```

File  Filter  Edit  Systems  Options  Help
-----
                                SAMPLE - Transaction Rate Graphs           Row 1 from 4
Command ==> _____ Scroll ==> ____

  --- System Selection ---
/  Exc  APPLID + Image + Group + Output  Criteria
-      CICSP001 _____ GRTE0001  YES
-      DEVT_____ MVS1_____ GRTE0002  NO
-      CICST001 _____ GRTE0003  YES
-      * _____ RSYSGRP1 GRTE0004  NO
***** End of list *****

```

Figure 136. Transaction Rate Graphs

This panel displays the list of Transaction Rate Graph reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

To display the Transaction Rate Graph panel, enter line action **S** against the **Transaction Rate** Performance Graph Report on the Report Set panel, then if the list of previously specified graph reports is displayed, enter line action **S** against a

particular report in the list.

```
File Systems Options Help
-----
                        SAMPLE - Transaction Rate Graph
Command ==> _____

System Selection:                Report Output:
APPLID . . CICSP001 +           DDname . . . . . GRTE0001
Image . . _____ +         Print Lines per Page . . ___ (1-255)
Group . . _____ +

Graph Options:
Time Interval . . . . . 00:05:00 (hh:mm:ss)
Average Response Time . . . . . _____ (seconds)
Number of Transactions Completed . . _____

Report Format:
Title . . _____

Selection Criteria:
_ Performance *

F1=Help    F3=Exit    F4=Prompt    F7=Backward  F8=Forward  F10=Actions
F12=Cancel
```

Figure 137. Transaction Rate Graph

Use this panel to specify report options and record selection criteria for the Transaction Rate Graph report. The report format is fixed. The only mandatory option is the DDname for the report output (the CICS PA default is **GRTEnnnn**). You can let the other options default.

The report options are the same as those for the Performance List Report (see “Performance List report” on page 169), except there is no Report Form and there are additional options for the attributes of the graphs:

Time Interval

The Transaction Rate Graph Report produces two graphs: average response time and number of transactions completed in each interval. Specify the time interval (in minutes) for the scale of the vertical axis of both graphs.

Specify a value in the range **00:00:01** (1 second) to **24:00:00** (24 hours). The default is **00:05:00** (5 minutes).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to **00:01:30** minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to **08:00:00** hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

- 1** becomes 00:01:00
- 1.1** becomes 00:01:00 (rounded down from 00:01:01)
- 1.1.1** becomes 01:00:00 (rounded down from 01:01:01)

This option generates the **INTERVAL(hh:mm:ss)** operand.

Average Response Time (seconds)

This applies to the graph of average response time (horizontal axis) in each

time interval (vertical axis). Specify the high end (in seconds) of the range of values for the horizontal axis. This option generates the RANGE1(seconds) operand.

Number of Transactions Completed

This applies to the graph of the number of transactions completed (horizontal axis) in each time interval (vertical axis). Specify the high end of the range of values for the horizontal axis. This option generates the RANGE2(number) operand.

Transaction Response Time Graph report

The Transaction Response Time Graph Report shows the service level (response time) for completed transactions. It can be requested daily to determine, over a period of time, the level of service (response time).

To request the report, enter line action **S** against the **Transaction Response Time Performance Graph** on the Report Set panel. If graph reports of this type have been previously specified, the list of Transaction Response Time Graphs is displayed. Otherwise, the Transaction Response Time Graph panel is displayed for you to define your first report of this type.

```

File Filter Edit Systems Options Help
-----
Command ==> SAMPLE - Transaction Response Time Graphs Row 1 from 4
Scroll ==> _____

---- System Selection -----
/ Exc APPLID + Image + Group + Output Selection
-     CICSP001          _____ GRSP0001  YES
-     DEVT_____ MVS1_____ GRSP0002  NO
-     CICST001          _____ GRSP0003  YES
-     * _____ RSYSGRP1 GRSP0004  NO
***** End of list *****

```

Figure 138. Transaction Response Time Graphs

This panel displays the list of Transaction Response Time Graph Reports in this Report Set. You can select (edit), delete, or include/exclude any report, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as those for the Performance List Reports panel, except there is no Report Form. See “Performance List report” on page 169.

To display the Transaction Response Time Graph panel, enter line action **S** against the **Transaction Response Time Performance Graph Report** on the Report Set panel, then if the list of previously specified graph reports is displayed, enter line action **S** against a particular report in the list.

```

File Systems Options Help
-----
SAMPLE - Transaction Response Time Graph
Command ==> _____

System Selection:
APPLID . . CICS001 +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . GRSP0001
Print Lines per Page . . ____ (1-255)

Graph Options:
Time Interval . . . . . 00:05:00 (hh:mm:ss)
Average Response Time . . _____ (seconds)
Maximum Response Time . . _____ (seconds)

Report Format:
Title . . _____

Selection Criteria:
_ Performance *

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 139. Transaction Response Time Graph

Use this panel to specify report options and record selection criteria for the Transaction Response Time Graph. The report format is fixed. The only mandatory option is the DDname for the report output (the CICS PA default is **GRSPnnnn**). You can let the other options default.

The report options are the same as those for the “Performance List report” on page 169, except there is no Report Form and there are additional options for the attributes of the graphs:

Time Interval

The Transaction Response Time Graph report produces two graphs: average response time and maximum response time in each interval. Specify the time interval (in minutes) for the scale of the vertical axis of both graphs.

Specify a value in the range **00:00:01** (1 second) to **24:00:00** (24 hours). The default is **00:05:00** (5 minutes).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to **00:01:30** minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to **08:00:00** hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

- 1** becomes 00:01:00
- 1.1** becomes 00:01:00 (rounded down from 00:01:01)
- 1.1.1** becomes 01:00:00 (rounded down from 01:01:01)

This option generates the **INTERVAL(hh:mm:ss)** operand.

Average Response Time (Seconds)

This applies to the graph of average response time (horizontal axis) in each

time interval (vertical axis). Specify the high end (in seconds) of the range of values for the horizontal axis. This option generates the RANGE1(seconds) operand.

Maximum Response Time (Seconds)

This applies to the graph of maximum response time (horizontal axis) in each time interval (vertical axis). Specify the high end (in seconds) of the range of values for the horizontal axis. This option generates the RANGE2(seconds) operand.

Extracts

The extracts process SMF data to produce extract data sets suitable for further manipulation and analysis. For example:

- Analyze the Cross-System Work extract data using CICS PA Performance Reports such as the List, Summary, and Totals reports.
- Analyze the Performance Extract, Statistics Extract, or System Logger Extract data using external programs such as DB2, or PC tools such as Lotus Symphony Spreadsheets.
- Specify the Record Selection extract data sets as your SMF Files in System Definitions to reduce the volume of data processed by CICS PA.

Cross-System Work extract

The Cross-System Work Extract is created for the purpose of correlating performance class data from one or more regions. The extract records are based on a single network unit-of-work, as opposed to a single transaction. All performance class records contained in a single network unit-of-work are added, or combined. These records are then written to the extract data set as one record which represents all the work done on behalf of the network unit-of-work. A Recap report containing processing statistics is always printed at the end of extract processing.

The extract records have the same format as CMF performance class records written by the latest CICS release supported by CICS PA (VRM 680), regardless of the CICS releases of the input records.

You can use the extract data set as input to CICS PA for further processing, just like an SMF data set that contains CMF performance class records; for example, to run the Performance List, Performance List Extended, Performance Summary, and Performance Totals reports.

To request the extract, enter line action **S** against the **Cross-System Work** Extract on the Report Set panel. If extracts of this type have been previously specified, the list of Cross-System Work Extracts is displayed. Otherwise, the Cross-System Work Extract panel is displayed for you to define your first extract of this type.

```

File  Filter  Edit  Systems  Options  Help
-----
                SAMPLE - Cross-System Work Extracts                Row 1 from 2
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/  Exc  APPLID + Image + Group +      Recap      Selection
      MROPROD_      CROX0001      NO
-      Output Data Set . . 'MROPROD.CROSSWK'

-----
      AORPROD_      CROX0002      NO
-      Output Data Set . . 'AORPROD.CROSSWK'

-----
***** End of list *****

```

Figure 140. Cross-System Work Extracts

This panel displays the list of Cross-System Work Extracts in this Report Set. You can edit, select (edit), delete, or include/exclude any extract, insert new ones, or rearrange them (move/copy).

The options are:

Exc The report or extract is marked by an asterisk * if it is to be **Excluded** from reporting. Enter the line action **X** to reverse the Exclude status.

System Selection

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICS P1 can be specified if CICS P* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(applid1,applid2,applid3,...) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Recap The DDname for the Recap report which prints at the end of extract processing to provide processing statistics. The DDname is mandatory.

CICS PA assigns a default DDname **CROXnnnn** where nnnn is a sequential number **0001-9999** to ensure each Recap report has a unique DDname.

This option generates the OUTPUT(ddname) operand.

Selection Criteria Indicator

This indicator is generated by CICS PA.

YES indicates that Selection Criteria are activated for this extract.

NO indicates that Selection Criteria are not activated for this extract. This is because no Selection Criteria have been specified, all Select Statements are Excluded, or the Selection Criteria have been deactivated.

Output Data Set

The name of the data set where the extract records are written. If CICS PA is to create the data set at run time, the default allocation attributes specified on the Reporting Allocation Settings panel are used in generating the JCL. If the data set is already cataloged, then CICS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set.

When generating the JCL, CICS PA assigns a default DDname **CPAOXsnn** where nn is a sequential number **01-99** to ensure uniqueness.

When specifying the data set name, standard TSO conventions apply.

Line Actions: The line actions that can be performed against the list of extracts are:

| | |
|---|--------------------------------------|
| / | Display the menu of line actions. |
| S | Select this row to review or modify. |
| I | Insert a row. |
| R | Repeat this row. |
| C | Copy this row. |
| M | Move this row. |
| A | Move/Copy after this row. |
| B | Move/Copy before this row. |
| D | Delete this row. |
| X | Reverse the Exclude status. |

To display the Cross-System Work Extract panel, enter line action **S** against the **Cross-System Work** Extract on the Report Set panel, then if the list of previously specified extracts is displayed, enter line action **S** against a particular extract in the list.

```

File Systems Options Help
-----
                        SAMPLE - Cross-System Work Extract
Command ==> _____

System Selection:                Extract Recap:
APPLID . . _____ +          DDname . . . CROX0001
Image . . _____ +
Group . . MROPROD_ +

Output Data Set
Data Set Name . . 'MROPROD.CROSSWK'
Disposition . . . 1 1. OLD          Record Compression . . 1 1. No
                                   2. MOD                               2. Yes

Processing Options:              Record Formatting Options:
1 1. UOWs with more than one record  APPLID . . MULTIPLE
   2. UOWs with a single record      Image . . CICS
   3. All UOWs

Selection Criteria:             Additional User Fields:
_ Performance                    _ User Fields *

F1=Help    F3=Exit    F4=Prompt    F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 141. Cross-System Work Extract

Use this panel to specify extract options and record selection criteria for the Cross-System Work Extract. The mandatory options are the name and disposition of the Extract Data Set, the DDname for the Recap report, and the network unit-of-work (UOW) Processing Option. You can let the other options default.

System Selection

The APPLIDs and SMF data files that apply to this extract.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the **Prompt** key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select **Systems** in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICS₁ can be specified if CICS₁* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(*applid1,applid2,applid3,...*) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Optionally, user fields can be appended to the Cross-System Work Extract. The APPLID is used by CICS PA to initially populate the list of user fields which you can then modify using the **User Fields** option.

Output Data Set

The name of the data set where the extract records are written. If CICS PA is to create the data set at run time, the default allocation attributes specified in Reporting Allocation Settings are used when generating the JCL. If the data set is already cataloged, then CICS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set. Alternatively, you can use a GDG to create a new data set each time the extract is run.

When generating the JCL, CICS PA assigns a default DDname **CPAOXSnn** where nn is a sequential number **01-99** to ensure uniqueness.

When specifying the data set name, standard TSO conventions apply. For example, if the TSO option **PROFILE PREFIX** is in effect, the prefix is appended as the high-level qualifier unless the data set name is enclosed in quotes.

Disposition

The DISP value that you want the generated JCL to use for the output data set if it is already cataloged:

OLD Overwrites the data set contents with the new extract data.

MOD Appends the new extract data.

You must specify one of these dispositions regardless of whether the output data set is cataloged. If the output data set is not cataloged when CICS PA generates the JCL, then CICS PA generates the JCL using DISP=(NEW,CATLG) to catalog it.

Record Compression

Select whether you want the SMF records in the extract file to be in compressed or uncompressed format. This option applies whether the records in the input SMF file are compressed or not.

If you select Yes, CICS PA writes CICS monitoring (SMF type 110, subtype 1) and OMEGAMON XE for CICS (SMF type 112) records in compressed format, regardless of the CICS release level of the input records. Other records are not compressed. Although CICS only introduced support for writing compressed SMF records in CICS Transaction Server Version 3.2, you can use CICS PA to create an extract file of compressed SMF records for any CICS release supported by CICS PA. You can use extract files containing compressed SMF records as input to CICS PA, just like any other SMF file, even though the CICS product level that originally created those SMF records cannot write them in compressed format.

Selecting this option generates the COMPRESS operand.

Processing Options:

Select option **1 - UOWs with more than one record** to report only the transaction performance records whose network unit-of-work spans multiple CMF records. This is the default. This selection generates the `WRITEMultiple` operand.

Select option **2 - UOWs with a single record** to report only the transaction performance records consisting of network units-of-work that include only a single CMF record. This selection generates the `WRITESingle,NOWRITEMultiple` operand.

Select option **3 - All UOWs** to report all the transaction performance records. This selection generates the `WRITESingle,WRITEMultiple` operand.

Record Formatting Options:

The `APPLID` and `MVS Image` that CICS PA is to write in all extract records.

CICS PA JCL generation translates the settings to the `SYSID(applid,mvsimage)` operand.

The extract records contain composite data from multiple CICS systems. For CICS PA to later process the extract file as input, you must define the file and this `APPLID/MVS Image` combination in System Definitions.

APPLID

The `APPLID` that CICS PA is to write in all extract records. Specify up to eight alphanumeric (A-Z,0-9) or special (@,#,\$) characters. The default is **MULTIPLE**.

Image The `MVS Image` that CICS PA is to write in all extract records. Specify up to four alphanumeric (A-Z,0-9) or special (@,#,\$) characters, with the first alphabetic or special. The default is **CICS**.

Performance Selection Criteria

You can specify Selection Criteria to filter the CMF records on time period and field values to restrict reporting to the data that is of interest to you.

Line Actions:

- /** Display the menu of line actions.
- S** Display the subpanel where Selection Criteria can be specified for this report. For details, see "Specifying Selection Criteria" on page 158.
- A** Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you have specified here will not be used.

Additional User Fields

User fields can be specified for inclusion in the Cross-System Work Extract records. CICS PA uses the specified `APPLID` to locate the MCT and initially populate the list of user fields. See Figure 142 on page 254.

Line Actions: The valid line actions are:

- /** Display the menu of line actions.
- S** Select to display the subpanel where user fields are specified.

When selected for the first time, an APPLID must be specified so the appropriate user fields can be found from the MCT.

- A** Activate the User Fields so they are included for this extract when the Report Set is submitted. User Fields can only be activated if at least one has been specified and not all are excluded. An asterisk * indicates they are active.
- D** Deactivate the User Fields. Although you might have specified user fields for this extract, they will not be included when the Report Set is submitted.

User fields for the Cross-System Work extract

To display the User Fields subpanel, enter line action **S** against User Fields on the Cross-System Work Extract panel.

```

File Filter Edit Options Help
-----
User Fields                               Row 1 from 7
Command ==> _____ Scroll ==> PAGE

/  Exc Dictionary Definition      Char  Maximum
-   *  CLOCK1  CPAUSR1 S001      ___   8
-   *  CLOCK2  CPAUSR1 S002      ___   8
-   *  CLOCK3  CPAUSR1 S003      ___   8
-   *  COUNT5  CPAUSR2 A005      ___   4
-   *  RMIDATA DBCTL  C001      256  256
-   *  FIELD1  CPAUSR1 C001      12   12
-   *  FIELD1  CPAUSR2 C001      12   12
***** End of list *****

```

Figure 142. Cross-System Work Extract: User Fields

This panel displays the user fields to be included in the Cross-System Work Extract record. The list of fields is initially populated by CICS PA using the specified APPLID to locate the MCT. You can change the Include/Exclude status of the fields, or delete unwanted fields, but when deleted they cannot be reinstated. You can also modify the length of character fields.

The options are:

Exclude Indicator

An asterisk * in this field indicates that the row is excluded and will not be included in extract processing.

Use line action **X** to reverse the Exclude indicator.

Dictionary Definition

The description of the user field in the format *informalname owner xnnn* where:

- *informalname* is the CMF informal name for the field. This is placed in the dictionary record of the Cross-System Work Extract and can be used in subsequent reporting, for example, as the column heading.
- *owner* is the CICS component that 'owns' the field.
- *x* indicates the data type:
 - A - 32- or 64-bit count
 - C - character string
 - S - clock (both Time and Count parts are extracted)

- *nnn* is the field identifier. For Clock or Count fields, this identifies which of the 256 clocks and 256 counts are extracted. For character fields, it will always be 001.

Character Field Length

The length of the field in the extract record, for character user fields only. If this length is shorter than the maximum length of the field, the value is truncated in the extract. Values longer than the field length are not allowed.

Maximum Length

The original length of the user field. For clock or count fields, this is the length of the field in the extract record. For character fields, this length can be overridden by changing the **Char Length** value.

Line Actions: The valid line actions on this panel are:

- / Display the menu of line actions
- D Delete this field (Deleted fields cannot be reinstated)
- X Reverse this row's Exclude status (Exclude/Include)

Performance Data extract

A Performance Data Extract is created as a delimited text file for the purpose of importing the CMF performance class data into PC spreadsheet or database tools for further detailed analysis and reporting.

A Recap report containing processing statistics is always printed at the end of extract processing.

To request the extract, enter line action **S** against the **Performance** Extract on the Report Set panel. If extracts have been previously specified, the list of Performance Extracts is displayed. Otherwise, the Performance Extract panel is displayed for you to define your first one.

```

File Filter Edit Systems Options Help
-----
                SAMPLE - Performance Extracts                Row 1 from 2
Command ==> _____ Scroll ==> _____

    ---- System Selection ----
 / Exc  APPLID + Image + Group +      Recap      Form +      Alert +      Selection
-----
-      CICSP001 _____ EXPT0001 _____ YES
      Output Data Set . . 'CICSP001.EXTRACT'

-----
-      DEVT_____ MVS1_____ EXPT0002 _____ NO
      Output Data Set . . 'DEVTMVS1.EXTRACT'

-----
***** End of list *****

```

Figure 143. Performance Extracts

This panel displays the list of Performance Data Extracts in this Report Set. You can select (edit), delete, or include/exclude any extract, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as on the Cross-System Work Extracts panel (see "Cross-System Work extract" on page 248), except for the addition of the Form and Alert columns.

When generating the JCL, CICS PA assigns a default DDname **CPAOEXnn** where nn is a sequential number **01-99** to ensure uniqueness.

To display the Performance Extract panel, enter line action **S** against the **Performance** Extract on the Report Set panel, then if the list of previously specified extracts is displayed, enter line action **S** against a particular extract in the list.

```

File Systems Options Help
-----
                                SAMPLE - Performance Extract
Command ==> _____

System Selection:                    Extract Recap:
APPLID . . . C1CSP001 +              DDname . . . EXPT0001
Image . . . _____ +
Group . . . _____ +

Output Data Set:
Data Set Name . . 'C1CSP001.EXTRACT' _____
Disposition . . . 1 1. OLD 2. MOD (If cataloged)

Extract Focus:                        Summary Processing Options:
Form . . . . _____ +           Interval . . . 00:01:00 (hh:mm:ss)
Alert . . . . _____ +         Override Form _____ +
Severity . . _____ +          Timestamp . . . _____ +

Extract Format:
/ Include Field Labels
_ Numeric Fields in Float format
Delimiter . . ;

Selection Criteria:                   Execution Options:
_ Performance *                       / Use External Sort

Repository . . : CPA.XYX.REPOSTRY

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 144. Performance Extract

Use this panel to specify extract options and record selection criteria for the Performance Data extract. The mandatory options are the name and disposition of the Extract data set and the DDname for the Recap report. You can let the other options default.

The Extract record has a default format which includes all the Clock fields. Report Forms (LIST, LISTX, or SUMMARY) can be used to tailor the format and content of the records.

The options are:

System Selection

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICS₁ can be specified if CICS_{P*} is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(*applid1,applid2,applid3,...*) and INput(SMF_{IN001},SMF_{IN002},SMF_{IN003},...) operands, and corresponding //SMF_{INnnn} DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Output Data Set Name

The name of the data set where the extract records are written. If CICS PA is to create the data set at run time, the default allocation attributes specified on the Reporting Allocation Settings panel are used in generating the JCL. If the data set is already cataloged, then CICS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set.

When generating the JCL, CICS PA assigns a default DDname **CPAOEXnn** where nn is a sequential number **01-99** to ensure uniqueness.

When specifying the data set name, standard TSO conventions apply.

Disposition

The DISP value that you want the generated JCL to use for the output data set if it is already cataloged:

- OLD** Overwrites the data set contents with the new extract data.
- MOD** Appends the new extract data.

You must specify one of these dispositions regardless of whether the output data set is cataloged. If the output data set is not cataloged when CICS PA generates the JCL, then CICS PA generates the JCL using DISP=(NEW,CATLG) to catalog it.

Form The name of a Report Form to be used to tailor the type of extract and the format of the extract records. The Report Form can be a LIST, LISTX, or SUMMARY Form:

- LIST and LISTX Forms produce an extracted data file like the Performance List Report. There is no restriction on the number of fields. Note that in contrast to the report, LISTX does not produce a sorted extract. Specifying a Form of this type generates the LIST report operand.

- SUMMARY produces an extracted data file equivalent to the Performance Summary report, sorting and summarizing on specified fields, but with no restriction on the number of fields. Specifying a Form of this type generates the SUMMARY report operand.
- If a Report Form is not specified, the default extract is produced using the EXTRACTPERFORMANCE report operand.

To select the name from a list of compatible Report Forms, position the cursor on the **Form** field and press **Prompt** (F4).

CICS PA JCL generation translates the Report Form specification into the LIST(FIELDS or SUMMARY(FIELDS operand.

Alert The name of a Performance Alert Definition. To select from a list of predefined names, position the cursor on the Alert field and press **Prompt** (F4). CICS PA JCL generation translates the Alert specification into the ALERTDEF operand.

This option only applies when a Form is specified, otherwise, it is ignored.

Severity

When an Alert name is specified, this sub-option allows you to specify the minimum severity level to be reported and type of transactions reported.

For the List extract, the minimum severity level selected for reporting is used to report transactions that have at least that level of reporting in any of the severity fields. This could result in transactions being reported with severity lower than the specified severity when the transaction also has one or more severity fields that meets the specified severity criteria. For example, if you specify SEVERITY(CRITICAL), only transactions with Critical severity are reported, however, if a transaction also exceeds Warning or Info thresholds, the lower severity will be also reported.

Press **Prompt** (F4) to select from the list of available options which are:

For a List extract (ignored for Summary):

The following options only apply to a List report or extract. If specified for a Summary extract, SEVERITY(ALL) is assumed.

CRITICAL

Only Critical transactions are reported.

WARNING

Only Critical and Warning transactions are reported.

INFO All alerts are reported: Critical, Warning and Informational transactions.

For a List or Summary extract:

The following options apply to both List and Summary.

ELIGIBLE

Only eligible transactions are processed and reported. Eligible transactions are those that have resource values that match resource values specified in the alert definition. The resulting report will include eligible only transactions with and without alerts.

This option provides the means to filter out transactions that would never generate an alert because their resource values do not match resource values specified in the alert definition.

ALL or blank

All transactions are reported, whether or not they generate an alert and whether or not they are eligible. This is the default.

CICS PA JCL generation translates the Severity specification into the following operands:

List extract

SEVERITY(CRITICAL|WARNING|INFO|ELIGIBLE|ALL)

Summary extract

SEVERITY(ELIGIBLE|ALL)

Interval

The time interval applies when you want to summarize transaction activity over time. It is used when you specify a SUMMARY Report Form which has any of the key fields **OSTART**, **START**, or **STOP** included. When reporting, CICS PA accumulates the data for each interval in the report period and writes a report line for each.

Specify a value in the range **00:00:01** (1 second) to **24:00:00** (24 hours). The default is **00:01:00** (1 minute).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

1 becomes 00:01:00

1.1 becomes 00:01:00 (rounded down from 00:01:01)

1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL(hh:mm:ss) operand.

Override Form

For the Summary extract, this option specifies whether to **PREFIX**, **APPEND** or **REPLACE** the key fields specified in the Form. Based on the action in this option, JCL generation will generate the required Form key using the override option and field specified in Timestamp. Ensure that the resulting key will conform to the Summary key rules. No action will be taken if this field is blank. The Form itself is not affected, only the generated FIELDS key fields.

Timestamp

Specifies the field name to override the Form key fields. Valid timestamp fields are **START**, **STOP**, and **OSTART**.

Include Field Labels

Select (/) to include field labels as the first record written to the extract data set. This is the default. CICS PA JCL generation translates this to the LABELS operand.

Blank out the field if you do not want field labels written. CICS PA JCL generation translates this to the NOLABELS operand.

Numeric Fields in Float format

Select (/) to write numeric fields in the extract in S390 FLOAT format. This only applies when you specify a Form (FIELDS operand). CICS PA JCL generation translates this to the FLOAT operand.

Specify FLOAT format if you plan to import the extract into a DB2 table. When the DB2 Load Utility is used, it will interpret all numerical fields reliably and consistently in FLOAT format.

If FLOAT is not specified, the numeric fields are written in a mixture of integer, real and exponential using character digits. This is the default and is suitable when importing the extract data into a PC spreadsheet tool.

Delimiter

The field delimiter used to separate each data field in the extract records. The default is a semicolon (;).

CICS PA JCL generation translates this to DELIMIT('delimiter'). Note that the value is enclosed in quotes in this operand.

Performance Selection Criteria

You can specify Selection Criteria to filter the CMF records on time period and field values to restrict the extract to the data that is of interest to you. CICS PA JCL generation translates Selection Criteria to the SELECT(PERFORMANCE operand.

If you specify a Report Form that also has Selection Criteria specified, CICS PA JCL generation translates the Form's Selection Criteria to the SELECT2(PERFORMANCE operand. If both the report and the Form specify Selection Criteria, then a record must pass selection by both specifications to be included in the extract.

Line Actions:

- / Display the menu of line actions.
- S Display the subpanel where Selection Criteria can be specified for this report. For details, see "Specifying Selection Criteria" on page 158.
- A Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D Deactivate the Selection Criteria. Any you have specified here will not be used.

Use External Sort

Select / to use an external sort utility to process Summary records. This is the default. It generates the **EXTERNAL(ddname)** operand. This provides the DDname of the work data set used by the external sort utility. CICS PA assigns an External Work File from a pool of External Work Files with default DDnames in the format **CPAXWnnn** where nnn is a sequential number **001-999** to uniquely identify the work file.

An external sort should be used when processing large volumes of data.

If not selected, an internal sort is used.

Repository

The data set name of the Repository that contains the Performance Alert Definitions.

Record Selection extract

The Record Selection Extract is a facility that allows you to create a small extract file containing only the records of interest to you. The extract file can then be used as input to CICS PA, allowing more efficient reporting.

The Record Selection Extract filters large SMF Files, writing only SMF records that match the following criteria:

- CICS, DB2, MQ, and Logger System Selection
- Selected record types, being any of:
 - Performance
 - Exception
 - Resource
 - Statistics (includes CICS Transaction Gateway statistics from SMF type 111 records)
 - OMEGAMON
 - DB2
 - WebSphere MQ
 - System Logger
 - Identity
- Performance Selection Criteria
- Exception Selection Criteria
- Logger Selection Criteria
- Run-time SMF reporting interval

A Recap report containing processing statistics is always printed at the end of extract processing.

To request the extract, enter line action **S** against the **Record Selection** Extract on the Report Set panel. If extracts of this type have been previously specified, the list of Record Selection Extracts is displayed. Otherwise, the Record Selection Extract panel is displayed for you to define your first one.

```

File Filter Edit Systems Options Help
-----
SAMPLE - Record Selection Extracts                               Row 1 from 2
Command ==> _____ Scroll ==> _____

---- System Selection ----          ----- Selection Criteria -----
/ Exc APPLID + Image + Group +      Recap Performance Exception Logger
-    CICSP001 _____ RSEL0001    NO          NO          NO
  Output Data Set . . 'CICSP001.DB2P.RECSEL'

-----
-    DEVT _____ MVS1 _____ RSEL0002    YES          NO          NO
  Output Data Set . . 'DEVTMVS1.RECSEL'

-----
***** End of list *****

```

Figure 145. Record Selection Extracts

This panel displays the list of Record Selection Extracts in this Report Set. You can select (edit), delete, or include/exclude any extract, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as on the Cross-System Work Extracts panel. See “Cross-System Work extract” on page 248.

To display the Record Selection Extract panel, enter line action **S** against the **Record Selection** Extract in the Report Set panel, then if the list of previously

specified extracts is displayed, enter line action **S** against a particular one in the list.

```

File Systems Options Help
-----
SAMPLE - Record Selection Extract
Command ==> _____

System Selection:
CICS APPLID . . CICS001 + Image . . _____ + Group . . _____ +
DB2 SSID . . . _____ + Image . . _____ + Group . . _____ +
MQ SSID . . . _____ + Image . . _____ + Group . . _____ +
Logger . . . . _____ + Image . . _____ + Group . . _____ +

Required CICS Record Types:          Extract Recap:
/ Performance          - Exception      DDname . . . RSEL0001
- Resource             - Statistics
- OMEGAMON             - DB2
- WebSphere MQ        - System Logger
- Identity

Output Data Set:
Data Set Name . . 'CICS001.DB2P.RECSEL'
Disposition . . . 1 1. OLD      Record Compression . . 1 1. No
                  2. MOD                      2. Yes

Selection Criteria:
- Performance
- Exception

Logger Selection Criteria:
- Logger
- Logstream Name . . . _____
- Structure Name . . . _____
F1=Help   F3=Exit   F4=Prompt   F7=Backward   F8=Forward   F10=Actions
F12=Cancel

```

Figure 146. Record Selection Extract

Use this panel to specify extract options and record selection criteria for the Record Selection extract. The mandatory options are the name and disposition of the Extract Data Set and the DDname for the Recap report. You can let the other options default, although it is recommended that you specify Selection Criteria to reduce the volume of data.

The options are:

System Selection

CICS APPLID

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICSP1 can be specified if CICSP* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(*applid1,applid2,applid3,...*) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

DB2 SSID

The DB2 Subsystems and SMF data files you want processed. The Record Selection extract processes DB2 101 accounting records only if they are part of a CICS thread, and will only process these if you specify the DB2 SSID(s). Any combination of SSID, Image, or Group can be specified but must be defined in System Definitions. You can type them in directly or select from a list of available SSIDs by using **Prompt** (F4). To link directly to System Definitions, select **Systems** in the action bar.

Specify either:

- A DB2 SSID.
- An SSID for a particular Image. This identifies the MVS Image where your DB2 Subsystem runs.
- An Image. CICS PA will report on all DB2 SSIDs running on this Image using the SMF files defined for the Image.
- An SSID and Image combination plus a Group. This is useful for uniquely identifying DB2 Subsystems when there is more than one of the same name defined in System Definitions.
- A Group alone. CICS PA will report on all SSID and Image combinations in the Group to produce a single consolidated report.

CICS PA uses the DB2 System Selection in JCL generation to build the SSID(*ssid1,ssid2,ssid3,...*) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

DB2 System Selection can also be specified as a global option. The report-level specification takes precedence over the global. When

you submit your Report Set, you can also specify DB2 System Selection at that time and it takes precedence over the global for that run only.

MQ SSID

The WebSphere MQ Subsystems and SMF data files you want processed. The Record Selection extract processes MQ 116 accounting records only if they are part of a CICS thread, and will only process these if you specify the MQ SSID(s). Any combination of SSID, Image, or Group can be specified but must be defined in System Definitions. You can type them in directly or select from a list of available SSIDs by using **Prompt** (F4). To link directly to System Definitions, select **Systems** in the action bar.

Specify either:

- An MQ SSID.
- An SSID for a particular Image. This identifies the MVS Image where your MQ Subsystem runs.
- An Image. CICS PA will report on all MQ SSIDs running on this Image using the SMF files defined for the Image.
- An SSID and Image combination plus a Group. This is useful for uniquely identifying MQ Subsystems when there is more than one of the same name defined in System Definitions.
- A Group alone. CICS PA will report on all SSID and Image combinations in the Group to produce a single consolidated report.

CICS PA uses the MQ System Selection in JCL generation to build the SSID(ssid1,ssid2,ssid3,...) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

MQ System Selection can also be specified as a global option. The report-level specification takes precedence over the global. When you submit your Report Set, you can also specify MQ System Selection at that time and it takes precedence over the global for that run only.

Logger

The MVS System Loggers and associated SMF data files that you want to report against. Any combination of Logger, Image, or Group can be specified but must be defined in System Definitions. You can type them in directly or use **Prompt** (F4) to select from a list. To link directly to System Definitions, select **Systems** in the action bar.

Specify either:

- A Logger.
- A Logger for a particular Image. This identifies a particular System Logger when there is more than one with the same ID.
- An Image. CICS PA will report on all systems running on this Image using the SMF files defined for the Image.
- A Logger and Image combination plus a Group. This is useful for uniquely identify a system when there is more than one of the same name defined in System Definitions.

- A Group alone. CICS PA will report on all system and Image combinations in the Group to produce a single consolidated report.

CICS PA uses the Logger System Selection in JCL generation to build the INput (SMFIN001, SMFIN002, SMFIN003, ...) operand and corresponding //SMFINnnn DD statements. It also generates the LOGGER operand to request Logger records for the extract.

Logger System Selection can also be specified as a global option. The report-level specification takes precedence over the global. When you run your Report Set, you can also specify Logger System Selection at run time to override the global and optionally the report-level specification.

Required CICS Record Types

Enter / to select the combination of record types that you want included in the extract.

Note that APPLIDs, DB2 SSIDs, MQ SSIDs, and Logger data are included in the extract according to your specified System Selection.

Extract Recap DDname

The DDname for the Recap report which prints at the end of extract processing to provide processing statistics. The DDname is mandatory.

CICS PA assigns a default DDname **RSELnnnn** where nnnn is a sequential number **0001-9999** to ensure each Recap report has a unique DDname.

This option generates the OUTPUT(ddname) operand.

Output Data Set

The name of the data set where the extract records are written. When specifying the data set name, standard TSO conventions apply.

If CICS PA is to create the data set at run time, the default allocation attributes specified on the Reporting Allocation Settings panel are used in generating the JCL. If the data set is already cataloged, then CICS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set.

CICS PA generates the DDNAME(ddname) operand and assigns a default DDname **CPAORSnn** where nn is a sequential number **01-99** to ensure uniqueness.

Disposition

The DISP value that you want the generated JCL to use for the output data set if it is already cataloged:

OLD Overwrites the data set contents with the new extract data.

MOD Appends the new extract data.

You must specify one of these dispositions regardless of whether the output data set is cataloged. If the output data set is not cataloged when CICS PA generates the JCL, then CICS PA generates the JCL using DISP=(NEW,CATLG) to catalog it.

Record Compression

Select whether you want the SMF records in the extract file to be in compressed or uncompressed format. This option applies whether the records in the input SMF file are compressed or not.

If you select Yes, CICS PA writes CICS monitoring (SMF type 110, subtype 1) and OMEGAMON XE for CICS (SMF type 112) records in compressed

format, regardless of the CICS release level of the input records. Other records are not compressed. Although CICS only introduced support for writing compressed SMF records in CICS Transaction Server Version 3.2, you can use CICS PA to create an extract file of compressed SMF records for any CICS release supported by CICS PA. You can use extract files containing compressed SMF records as input to CICS PA, just like any other SMF file, even though the CICS product level that originally created those SMF records cannot write them in compressed format.

Selecting this option generates the COMPRESS operand.

Selection Criteria

To filter data for Performance, Resource Class, Statistics, DB2, MQ, Identity and Omegamon record selection, specify **Performance** Selection Criteria.

To filter data for Exception Class record selection, specify **Exception** Selection Criteria.

To filter data for System Logger record selection, specify any combination of **Logger** Selection Criteria, **Logstream Name**, and **Structure Name**.

Selection Criteria are not applicable to Statistics records.

Line Actions:

- /* Display the menu of line actions.
- S** Display the subpanel where Selection Criteria can be specified for this report. For details, see “Specifying Selection Criteria” on page 158.
- A** Activate the Selection Criteria so they are generated for this report when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you have specified here will not be used.

HDB Load

The HDB Load is a facility that loads SMF data into a Historical Database (HDB). This same facility is available from Primary Menu option 5 Historical Database. However, from Report Sets you have the advantages of:

- Reports and HDB Load in the one job
- Multiple load requests supported in the one job
- One pass of the data

A Recap report containing processing statistics is always printed at the end of load processing.

To request HDB Load, enter line action **S** against **HDB Load** in the **Extracts** category on the Report Set panel. If HDB Loads have been previously specified in this Report Set, the list of them is displayed. Otherwise, the HDB Load panel is displayed for you to request your first one.

```

File  Filter  Edit  Systems  Options  Help
-----
                                SAMPLE - HDB Loads                                Row 1 from 1
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/  Exc  APPLID + Image + Group +      Recap      HDB +
_      C1CSP001 _____          HDBL0001  LISTHDB_
***** Bottom of data *****

```

Figure 147. HDB Loads

This panel displays the list of HDB Load requests in this Report Set. You can select (edit), delete, or include/exclude any in the list, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as on the Cross-System Work Extracts panel, except Selection Criteria and Output Data Set are not applicable here. See “Cross-System Work extract” on page 248.

The default DDname for the Recap report output is **HDBLnnnn** where nnnn is a sequential number **0001-9999** to ensure uniqueness.

The default DDname for the Repository is **CPAHDBRG**. Specify the name of the HDB to be loaded. Press **Prompt** (F4) to select from a list of HDBs in the current Repository.

To display the HDB Load panel, enter line action **S** to select from the list.

```

File  Systems  Options  Help
-----
                                SAMPLE - HDB Load
Command ==> _____

System Selection:                    Extract Recap:
APPLID . . _____ +              DDname . . . HDBL0001
Image . . _____ +
Group . . _____ +

Historical Database:
HDB . . . . . #LIST01_ +
Repository . . : C1CSPA.XYX.REPOSTRY

DB2 Export Options:                  Table Load Options
_ Load DB2 Table                     1 1. Resume  2. Replace

Include Clock Field Components       Summary Options
1 1. Time and Count                  _ Include Sums of Squares
 2. Time only
 3. Count only

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 148. HDB Load

Use this panel to specify the load options, including system selection, the name of the HDB in the current repository, and the DDname for the Recap report.

Specify the systems that you want to analyze. The systems and files must be defined in System Definitions. You can link directly there by selecting Systems in

the action bar. It is recommended that you specify your System Selection at run time, not within the Report Set. This will allow you to load data from any of your defined systems.

To run the load, enter the RUN command.

The options are:

System Selection

CICS APPLID

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICS_{PA} can be specified if CICS_{PA}* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(*applid1,applid2,applid3,...*) and INput(SMF_{IN001},SMF_{IN002},SMF_{IN003},...) operands, and corresponding //SMF_{INnnn} DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Extract Recap DDname

The DDname for the Recap report which prints at the end of load processing to provide processing statistics. The DDname is mandatory.

CICS PA assigns a default DDname **HDBLnnnn** where nnnn is a sequential number **0001-9999** to ensure each Recap report has a unique DDname.

This option generates the OUTPUT(*ddname*) operand.

Historical Database

Specify the name of the HDB you want to load with SMF data. Press **Prompt** (F4) to select an HDB from the current repository.

The current repository is specified in option 5 **Historical Database** from the Primary Option Menu.

DB2 Export Options

To export the data to DB2 directly after loading it into the HDB, select the Load DB2 Table option. For details of the JCL that this option generates, see Load JCL. (The remaining DB2 export options are only relevant if you select the Load DB2 Table option.)

The DB2 table to which you are exporting must already be defined.

To define a DB2 table, see Creating DDL to define a DB2 table.

If you select **2. Replace** for Table Load Options and the HDB load fails, then the result is an empty DB2 table.

System Logger extract

A System Logger Extract is created as a delimited text file for the purpose of importing System Logger data into PC spreadsheet tools or database tools (such as DB2) for further detailed analysis and reporting.

A Recap report containing processing statistics is always printed at the end of extract processing.

To request the extract, enter line action **S** against the **System Logger** Extract on the Report Set panel. If extracts of this type have been previously specified, the list of System Logger Extracts is displayed. Otherwise, the System Logger Extract panel is displayed for you to define your first extract of this type.

```
File Filter Edit Systems Options Help
-----
SAMPLE - System Logger Extracts          Row 1 from 1
Command ==> _____ Scroll ==> ____

  ---- System Selection ----           Selection
/ Exc  Logger + Image + Group + Output Criteria
_      CICSP001 MVS1_____ LOEX0001    NO

      Output Data Set . . 'CICSP001.EXTRACT'
-----
***** End of list *****
```

Figure 149. System Logger Extracts

This panel displays the list of System Logger Extracts in this Report Set. You can select (edit), delete, or include/exclude any extract, insert new ones, or rearrange them (move/copy).

The options are:

System Selection

System Selection identifies the System Logger(s) and associated SMF files you want to report against. Any combination of Logger, Image, or Group can be specified but must be defined in System Definitions. You can use **Prompt** (F4) to select from a list. To link directly to System Definitions, select **Systems** in the action bar.

Specify either:

- A Logger.
- A Logger for a particular Image. This identifies a particular System Logger when there is more than one with the same ID.
- An Image. CICS PA will report on all systems running on this Image using the SMF files defined for the Image.
- A Logger and Image combination plus a Group. This is useful to uniquely identify a system when there is more than one of the same name defined in System Definitions.
- A Group alone. CICS PA will report on all System and Image combinations in the Group to produce a single consolidated report.

CICS PA uses the System Selection in JCL generation to build the INput (SMFIN001,SMFIN002,SMFIN003,...) operand and corresponding //SMFINnnn DD statements.

Output

CICS PA provides a default **Recap Report Output DDname** in the format **LOEXnnnn** where nnnn is **0001-9999**.

The line actions are the same as on similar Reports list panels. See “Performance List report” on page 169.

To display the System Logger Extract panel, enter line action **S** against the **System Logger Extract** on the Report Set panel, then if the list of previously specified extracts is displayed, enter line action **S** against a particular extract in the list.

```
File Systems Options Help
-----
                        SAMPLE - System Logger Extract
Command ==> _____

System Selection:                Report Output:
Logger . . CICSPO01 +             DDname . . . . . LOEX0001
Image . . MVS1____ +
Group . . _____ +

Output Data Set:
Data Set Name . . 'CICSPO01.EXTRACT'
Disposition . . . 1 1. OLD 2. MOD (If cataloged)

Extract Format:                   Enter "/" to select option
Delimiter . . ;                  / Include Field Labels
                                   _ Numeric Fields in Float format

Selection Criteria:
- Logger
  Logstream Name . . . _____
  Structure Name . . . _____
```

Figure 150. System Logger Extract

Use this panel to specify extract options and record selection criteria for the System Logger extract. The mandatory options are the name and disposition of the Extract data set and the DDname for the Recap report. You can let the other options default. The extract format is fixed.

The options are:

System Selection

System Selection identifies the System Logger(s) and associated SMF files

you want to report against. Any combination of Logger, Image, or Group can be specified but must be defined in System Definitions. You can use **Prompt** (F4) to select from a list. To link directly to System Definitions, select **Systems** in the action bar.

Specify either:

- A Logger.
- A Logger for a particular Image. This identifies a particular System Logger when there is more than one with the same ID.
- An Image. CICS PA will report on all systems running on this Image using the SMF files defined for the Image.
- A Logger and Image combination plus a Group. This is useful to uniquely identify a system when there is more than one of the same name defined in System Definitions.
- A Group alone. CICS PA will report on all System and Image combinations in the Group to produce a single consolidated report.

CICS PA uses the System Selection in JCL generation to build the INput (SMFIN001,SMFIN002,SMFIN003,...) operand and corresponding //SMFINnnn DD statements.

Data Set Name

The name of the data set where the extract records are written. If CICS PA is to create the data set at run time, the default allocation attributes specified on the Reporting Allocation Settings panel are used in generating the JCL. If the data set is already cataloged, then CICS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set.

When generating the JCL, CICS PA assigns a default DDname **CPAOLEnn** where nn is a sequential number **01-99** to ensure uniqueness.

When specifying the data set name, standard TSO conventions apply.

Disposition

The DISP value that you want the generated JCL to use for the output data set if it is already cataloged:

- OLD** Overwrites the data set contents with the new extract data.
- MOD** Appends the new extract data.

You must specify one of these dispositions regardless of whether the output data set is cataloged. If the output data set is not cataloged when CICS PA generates the JCL, then CICS PA generates the JCL using DISP=(NEW,CATLG) to catalog it.

Delimiter

The field delimiter used to separate each data field in the extract records. The default is a semicolon (;).

CICS PA JCL generation translates this to DELIMIT('delimiter'). Note that the value is enclosed in quotes in this operand.

Include Field Labels

Select (/) to include field labels as the first record written to the extract data set. This is the default. CICS PA JCL generation translates this to the LABELS operand.

Blank out the field if you do not want field labels written. CICS PA JCL generation translates this to the NOLABELS operand.

Numeric Fields in Float format

Select (/) to write numeric fields in the extract in S390 FLOAT format. CICS PA JCL generation translates this to the FLOAT operand.

Specify FLOAT format if you plan to import the extract into a DB2 table. When the DB2 Load Utility is used, it will interpret all numerical fields reliably and consistently in FLOAT format.

If FLOAT is not specified, the numeric fields are written in a mixture of integer, real and exponential using character digits. This is the default and is suitable when importing the extract data into a PC spreadsheet tool.

Selection Criteria

To specify Selection Criteria to filter the System Logger records on time period and other field values, enter S next to **Logger**.

Line Actions: Valid line actions are:

- / Display the menu of line actions.
- S Select to display the subpanel where Selection Criteria for this extract can be specified. See "Specifying Selection Criteria" on page 158 for a discussion on how to do this.
- A Activate the Selection Criteria so they are generated for this extract when the Report Set is submitted. Selection Criteria can only be activated if one or more Select Statements are specified and not all are excluded. An asterisk * indicates they are active.
- D Deactivate the Selection Criteria. Any you have specified here will not be used.

CICS PA JCL generation translates Selection Criteria to the SELECT(LOGGER operand).

Optionally, specify the **Logstream Name** and **Structure Name** patterns to be reported. Masking characters % and * are allowed. Examples of possible patterns are:

TEST.DFHLOG

which must match exactly

PROD.*

which can match PROD.DFHLOG

PROD.MVSA%

which can match PROD.MVSA1, but not PROD.MVSA1LOG

These options generate the LOGSTREAM('name.or.pattern') and STRUCTURE('name.or.pattern') operands.

Statistics extract

A Statistics Extract is created as a delimited text file for the purpose of importing CICS statistics into PC spreadsheet or database tools for further detailed analysis and reporting.

A Recap report containing processing statistics is always printed at the end of extract processing.

To request the extract, enter line action **S** against the **Statistics** Extract on the Report Set panel. If extracts have been previously specified, the list of Statistics Extracts is displayed. Otherwise, the Statistics Extract panel is displayed for you to

define your first one.

```

File Filter Edit Systems Options Help
-----
                                SAMPLE - Statistics Extracts                                Row 1 from 2
Command ==> _____ Scroll ==> _____

      ---- System Selection ----
/ Exc APPLID + Image + Group + Recap
-     CICSP001 _____ STEX0001
      Output Data Set Prefix . . 'CICSP001.EXTRACT' _____
-----
      DEVT _____ MVS1 _____ STEX0002
-     Output Data Set Prefix . . 'DEVTMVS1.EXTRACT' _____
-----
***** Bottom of data *****

```

Figure 151. Statistics Extracts

This panel displays the list of Statistics Extracts in this Report Set. You can select (edit), delete, or include/exclude any extract, insert new ones, or rearrange them (move/copy).

The options and line actions are the same as on the Cross-System Work Extracts panel (see “Cross-System Work extract” on page 248), except that there are no selection criteria, and that, here, you specify a prefix for the output data set name, rather than the complete name.

To display the Statistics Extract panel, enter line action **S** against the **Statistics** Extract on the Report Set panel, then if the list of previously specified extracts is displayed, enter line action **S** against a particular extract in the list.

```

File Systems Options Help
-----
                                SAMPLE - Statistics Extract
Command ==> _____

System Selection:                                Extract Recap:
APPLID . . CICSP001 +                            DDname . . . STEX0001
Image . . _____ +
Group . . _____ +

Statistics Reports:
_ Select to specify Statistics Reports

Output Data Set:
Data Set Name Prefix . . 'CICSP001.EXTRACT' _____
Disposition . . . . . 1 1. OLD 2. MOD (If cataloged)

Extract Format:                                Enter "/" to select option
Delimiter . . ;                                / Include Field Labels

Filter Criteria:
Type . . . . . / EOD / INT / USS / REQ / RRT

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 152. Statistics Extract

Use this panel to specify extract options and interval types for the Statistics extract. The mandatory options are the prefix and disposition of the Extract data set, the

DDname for the Recap report, and the selection of statistics reports that you want to extract. You can let the other options default.

The format of each extract depends on the statistics reports that you select.

The options are:

System Selection

Identifies the CICS APPLIDs whose data you want to select for processing.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the Prompt key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select Systems in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICSP1 can be specified if CICSP* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.
- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(*applid1,applid2,applid3,...*) and INput(*SMFIN001,SMFIN002,SMFIN003,...*) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

Statistics Reports

To specify the statistics reports that you want to extract, enter a non-blank character next to **Select to specify Statistics Reports**. A list panel of CICS statistics report titles appears. Enter line action **A** next to the reports that you want to extract, and then press **Exit** (F3). An asterisk appears next to **Select to specify Statistics Reports**, indicating that you have selected reports.

Output Data Set Name Prefix

The prefix for the data set names where the extract records are written. If CICS PA is to create the data set at run time, the default allocation attributes specified on the Reporting Allocation Settings panel are used in

generating the JCL. If the data set is already cataloged, then CICS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set. When generating the JCL:

- CICS PA fully qualifies the extract data set name by appending to this prefix STTSxxxx for CICS Transaction Server (TS) statistics or STTGxxxx for CICS Transaction Gateway (TG) statistics, where xxxx is the statistics ID.
- CICS PA assigns the corresponding default DDname TSxxxxnm or TGxxxxnm, where nm is a 2-digit sequence number that ensures each DDname is unique.

When specifying the data set name prefix, standard TSO conventions apply.

Disposition

The DISP value that you want the generated JCL to use for the output data set if it is already cataloged:

OLD Overwrites the data set contents with the new extract data.

MOD Appends the new extract data.

You must specify one of these dispositions regardless of whether the output data set is cataloged. If the output data set is not cataloged when CICS PA generates the JCL, then CICS PA generates the JCL using DISP=(NEW,CATLG) to catalog it.

Delimiter

The field delimiter used to separate each data field in the extract records. The default is a semicolon (;).

CICS PA JCL generation translates this to DELIMIT('delimiter'). Note that the value is enclosed in quotes in this operand.

Include Field Labels

Select (/) to include field labels as the first record written to the extract data set. This is the default. CICS PA JCL generation translates this to the LABELS operand.

Blank out the field if you do not want field labels written. CICS PA JCL generation translates this to the NOLABELS operand.

Filter Criteria

To limit the types of CICS statistics intervals that CICS PA extracts, enter / next to the types you are interested in:

EOD End-of-day

REQ Requested

USS Unsolicited

INT Interval

RRT Requested reset

Running Report Sets

To produce reports and extracts, submit them for batch processing by entering the RUN command (or SUBmit or JCL) in any of the following ways:

1. As a line action against a Report Set on the Report Sets list panel. See the example in Figure 153 on page 276. This runs the (saved) Report Set.
2. As a command or selecting **File->Run** in the action bar on the Edit/View Report Set panel. See the example in Figure 155 on page 278. This runs the displayed (not saved) Report Set. That is, runs all the active reports in the active report categories, including any with the RUN line action.

3. As a line action against report categories or reports on the Edit/View Report Set panel. This runs the requested (not saved) report categories and reports.
 - The RUN line action against a report runs the report regardless of its Active status.
 - The RUN line action against a report category runs all active reports in the category regardless of the Active status of the category.
4. As a command or by selecting **File->Run** in the action bar on the individual Report panel. This runs the displayed (not saved) Report.

The **RUN** command (or **SUBmit** or **JCL**) triggers the display of the Run Report Set panel where you can specify run-time options. You can then elect to submit the job immediately (**SUBmit**) or edit the JCL before submit (**JCL**). See Figure 159 on page 288 for an example of the JCL Edit panel.

In the following example, the RUN line action is a request to run the DAILY Report Set. This will run the active reports in active categories with Global Options and any active Selection Criteria.

```

File Systems Confirm Options Help
-----
Report Sets                               Row 1 to 4 of 4
Command ==> _____ Scroll ==> PAGE

Report Sets Data Set . . : xxxx.CICSPA.RSET

/   Name           Description           Changed           ID
--- BTS1           BTS Report           2005/01/01 00:00 CICSPA
RUN DAILY           Daily CMF Reports     2005/01/01 00:00 CICSPA
--- EXCEPT1       Exception Reports     2005/01/01 00:00 CICSPA
--- WEEKLY          Weekly CMF Reports    2005/01/01 00:00 CICSPA
***** End of list *****

```

Figure 153. RUN Report Set from the Report Sets list

In the following example, the RUN line actions will run the Performance List and Wait Analysis reports with Global Options. Note that Global Options are always submitted with the reports regardless of the Active setting.

```

File Systems Confirm Options Help
-----
EDIT                               Report Set - REPORT2
Command ==> _____ Scroll ==> PAGE

Description . . . Demonstration Report Set_____

Enter "/" to select action.

___  ** Reports **                               Active
- ___ Options                                    No
   ___ Global                                    No
- ___ Selection Criteria                          No
   ___ Performance                              No
   ___ Exception                                No
- ___ Performance Reports                         No
   RUN List                                     No
   ___ List Extended                             No
   ___ Summary                                   No
   ___ Totals                                    No
   RUN Wait Analysis                            No
   ___ Transaction Profiling                     No
   ___ Cross-System Work                         No
   ___ Transaction Group                         No
   ___ BTS                                       No
   ___ Workload Activity                         No
   ___ Transaction Tracking List                 No
   ___ Transaction Tracking Summary              No
+ ___ Transaction Resource Usage Reports          No
+ ___ Statistics Reports                          No
+ ___ Subsystem Reports                           No
+ ___ System Reports                              No
+ ___ Performance Graphs                          No
+ ___ Extracts                                    No
   ___ ** End of Reports **

```

Figure 154. RUN reports from Edit Report Set

In the following example, the RUN command will run the Exception List and Exception Summary reports with Global Options and Global Exception Selection Criteria.

```

File Systems Confirm Options Help
-----
EDIT                               Report Set - EXCEPT1           Row 1 of 14
Command ==> RUN _____ Scroll ==> PAGE

Description . . . Exception Reports _____

Enter "/" to select action.

___      ** Reports **                                     Active
- ___    Options                                           Yes
  ___    Global                                           Yes
- ___    Selection Criteria                                 Yes
  ___    Performance                                       No
  ___    Exception                                         Yes
+ ___    Performance Reports                               No
- ___    Exception Reports                                 Yes
  ___    List                                             Yes
  ___    Summary                                          Yes
+ ___    Transaction Resource Usage Reports               No
+ ___    Statistics Reports                               No
+ ___    Subsystem Reports                               No
+ ___    System Reports                                   No
+ ___    Performance Graphs                             No
+ ___    Extracts                                         No
___      ** End of Reports **

```

Figure 155. RUN Report Set from Edit Report Set

In the following example, the RUN command will run the Performance List report with Global Options.

```

File Systems Options Help
-----
SAMPLE - Performance List Report
Command ==> RUN _____

System Selection:                                     Report Output:
APPLID . . CICSP001 +                               DDname . . . . . LIST0001
Image . . _____ +                               Print Lines per Page . . ___ (1-255)
Group . . _____ +

Report Focus:
Form . . . TRANLIST +
Alert . . _____ +
Severity _____ +

Report Options:
Title . . _____
_____

Selection Criteria:
_ Performance *

Repository . . : CPA.XYX.REPOSTRY

```

Figure 156. RUN report from Edit Report

Set run-time options

The Run Report Set panel is always displayed after **RUN**, **SUB** or **JCL** is requested but before JCL generation commences. This prompts you for Report Set submission options which allow you to:

- Specify System Selection
- Filter input records based on their SMF time stamp
- Nominate the remedial action you want CICS PA to take if there are missing files for JCL generation

```

File Systems Options Help
-----
Run Report Set REPORT1
Command ==> _____

Specify run Report Set submission options then press Enter to continue submit.

System Selection:
CICS APPLID . . _____ + Image . . _____ + Group . . _____ +
DB2 SSID . . . _____ + Image . . _____ + Group . . _____ +
MQ SSID . . . _____ + Image . . _____ + Group . . _____ +
Logger . . . . _____ + Image . . _____ + Group . . _____ +

_ Override System Selections specified in Report Set
_ Read SMF File to EOF

Missing SMF Files Option:
2 1. Issue error message
_ 2. Leave DSN unresolved in JCL
  3. Disregard offending reports

----- Report Interval -----
          YYYY/MM/DD HH:MM:SS.TH
From _____
To   _____

Enter "/" to select option
/ Edit JCL before submit

F1=Help      F3=Exit      F4=Prompt      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 157. Run Report Set: setting run-time options

Before CICS PA generates the JCL, you are prompted to supply the following run-time options:

1. The systems to be reported. CICS PA allows you to specify System Selection twice; in the Report Set and here at run time. The Override System Selection option is provided to determine which specification will take precedence in the event of both being specified.
2. Whether to stop reading the SMF file as soon as the first record is encountered that is later than the **To** date and time, or to process all records through to EOF.
3. The date and time range of the SMF data that you want to process. If not specified, CICS PA processes the entire SMF Files. Note that CICS PA always honors any time ranges specified in your Report Selection Criteria, regardless of this setting.
4. Missing SMF Files Option that specifies the remedial action to be taken if you have not defined SMF Files for the systems to be reported.
5. Select to edit the JCL before submission.

You can choose to use either Personal or Shared System Definitions to select the SMF input data sets. Use **Systems** in the action bar to switch between Personal and Shared System Definitions.

The fields on the Run Report Set panel are:

System Selection

System Selection on this panel overrides the global System Selection and optionally the report-level specification. By specifying your systems here, CICS PA can proceed with JCL generation without you having to re-edit the Report Set.

Use System Selection to identify the systems you want this Report Set to analyze. They must be defined in System Definitions with the SMF files you want CICS PA to use for reporting. You can type in the system IDs, or

select them from a list by placing the cursor on the field and pressing **Prompt** (F4). To edit your System Definitions, link directly there by selecting **Systems** in the action bar, then on exit you are returned here.

You can specify four types of systems:

1. **CICS APPLID:** The CICS Generic APPLIDs you want reported. Specify either:
 - A unique APPLID.
 - An APPLID for a particular MVS Image. This identifies a particular CICS system when there are multiple CICS systems with the same APPLID.
 - An MVS Image. CICS PA will report on all APPLIDs running on this Image using the SMF files defined for the Image.
 - An APPLID and Image combination plus a Group. This is useful for uniquely identifying CICS systems when there are multiple systems of the same name defined.
 - A Group alone. CICS PA will report on all APPLID and Image combinations in the Group to produce a single consolidated report. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA generates the APPLID(applid1,applid2,applid3,...) and Input(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

2. **DB2 SSID:** The DB2 Subsystem IDs. This is only used by the DB2 Report and Record Selection Extract. If the CICS APPLID Group contains the DB2 SSIDs, then it can be omitted.
CICS PA generates the SSID(ssid1,ssid2,ssid3,...) operands for the DB2 or RECSEL commands and the DD statements for the associated files.
3. **MQ SSID:** The MQ Subsystem IDs. This is only used by the WebSphere MQ Report and Record Selection Extract.
CICS PA generates the SSID(ssid1,ssid2,ssid3,...) operands for the MQ or RECSEL commands and the DD statements for the associated files.
4. **Logger:** The MVS System Logger. This is only used by the System Logger Report, System Logger Extract, and Record Selection Extract. If the CICS APPLID Group contains the System Loggers, then it can be omitted.
CICS PA generates the DD statements for the associated files.

For more information, see “System selection” on page 282.

Override System Selections specified in Report Set

This specifies which System Selection specification will take precedence in the event that you have specified System Selection twice; both here at run time and in the Report Set.

- When the override option *is not* selected, the run-time System Selection overrides the Report Set Global options only. It does not override any System Selections specified in the individual reports within the Report Set.
- When the override option *is* selected, the run-time System Selection overrides all System Selections in the Report Set (Global Options and individual reports).

Read SMF File to EOF

Select this option to force CICS PA to process all records in the SMF file through to EOF. Normally CICS PA stops reading the SMF file as soon as the first record is encountered that is later than the **To** time (SMFSTOP). However, if the file is not in ascending time sequence, reading might end before all records earlier than SMFSTOP have been found.

This option is only effective when the **To** time is specified. Select it when the SMF file has been presorted and you want to ensure that all records within the **From** and **To** time range are processed.

The Read SMF File to EOF setting in the profile options is added as a READ2EOF operand to JCL built when the input is an SMF file and Report Interval is specified in the RUN panel.

Start Date/Time, Stop Date/Time

Specify a date/time range or a *time slot* (times only) to filter the SMF input data based on the SMF record time stamp. SMF records with a time stamp within the specified Start/Stop interval are processed by CICS PA, otherwise they are ignored.

Note:

1. Do not confuse this with the Selection Criteria From/To report intervals which apply to transaction start and stop times.
2. For the DB2 Report, specify a Stop Time that is at least 5 minutes outside the required time (From/To report interval) if protected threads are in use.

The Start/Stop date and time fields are all optional. They are blank initially (for no filtering), but thereafter display the reporting period that was previously saved.

Date is either a calendar date in your preferred format or a relative date. **Time** is a time-of-day. (The same edit rules apply as for the Selection Criteria Report Interval.)

Relative dates are specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both Start and Stop dates are specified, they must be in the same format.

For a date/time range:

- Either From or To can be omitted to indicate that the range is open-ended.
 - If From is omitted, it defaults to the first input record
 - If To is omitted, it defaults to the end of file.
- If From date is specified with no time, the start of day is assumed. If To date is specified with no time, the end of day is assumed.

For a time slot, both times must be present with no dates to signify the same time slot every day. The times can span midnight.

The specified date/time range is included in the generated JCL under the //SYSIN DD statement:

```
CICSPA SMFSTART(-nn|yyy/mm/dd, hh:mm:ss.th),  
        SMFSTOP(-nn|yyy/mm/dd, hh:mm:ss.th)
```

Missing SMF Files Option

Use this option to control what CICS PA does when there is a problem with JCL generation due to Systems defined without SMF Files.

1. **Issue error message.** CICS PA will cancel JCL generation and report errors in a window titled Report Set JCL Generation Failure. This window allows you to link to System Definitions and correct the file specifications. See Figure 158 on page 287 for an example.
2. **Leave DSN unresolved in JCL.** CICS PA will proceed with JCL generation creating DD statements with **DSN=<unresolved>** where the files are not known. Regardless of your JCL or SUB request, the JCL is edited to allow you to specify the DSNs before submission.
3. **Disregard offending reports.** CICS PA will proceed with JCL generation. Only reports whose Systems have files specified are included. All other reports are ignored. If there are no error-free reports, then a Report Set JCL Generation Failure message is issued.

Edit JCL before submit

Enter / to edit the JCL with command input before submitting the report request. This is the default if you used the **JCL** command to run the Report Set.

Editing JCL before submit will enable you to save the JCL in an external data set for automated job scheduling or ad hoc report requests.

If not selected, the JCL is generated and the job is submitted immediately. This is the default if you used the **SUBmit** command to run the Report Set.

If you used the **RUN** command to run the Report Set, the default setting is what you previously specified.

When the specification is complete, press Enter to proceed.

Report Set JCL generation

At Report Set run time, CICS PA generates the required batch JCL, bringing together information from the following sources within the CICS PA dialog:

1. **Report Set.** The Report Set specifies the reports you want to run and their options.
2. **Report Forms.** When a report requests a Report Form, CICS PA looks for them in the Report Forms data set and constructs the applicable **FIELDS**, **BY**, and **LIMIT** report operands.
3. **Object Lists.** When a report specifies Selection Criteria, Object Lists can be used to identify a predefined list of object names. For example, Transaction IDs that belong to a particular application. CICS PA looks for them in the Object Lists data set and constructs the applicable **SELECT** report operands.
4. **System Definitions.** The System Definitions define the systems that can be reported and their associated SMF files. At run time or inside your Report Set, you must specify System Selection, that is, the systems to be reported. CICS PA matches the System Selection to your System Definitions. The following section describes how CICS PA interprets your System Selection and uses the System Definitions to satisfy your report request.

System selection

System Selection specifies the systems (CICS APPLIDs, DB2 SSIDs, MQ SSIDs and System Logger systems) to be reported by the Report Set. CICS PA matches these specifications with your System Definitions and constructs the DD statements for the required SMF Files.

The System Selection can be specified:

1. In each report within the Report Set. This specification applies to this report only.
2. In the Global Options of the Report Set. This specification applies to all reports in the Report Set that do not have their own System Selection.
3. At run time. This overrides the Global Option and optionally the report-level specification.

The System Selection specification consists of three parts:

System name

The name of the system to be reported. When System name is specified, Image and Group are only use to further qualify the system. For example, report CICS system CICSP1 that runs on Image MVS1, not the one that runs on Image MVS2.

Image The MVS Image where the system(s) to be reported run. When specified on its own (without a System name), then all Systems running on the Image are reported. For example, report all CICS systems that run on Image MVS1.

Group The group of systems to be reported. When specified without System name, then all Systems defined to the Group are reported as a consolidated group. For example, report all Production MRO CICS systems.

The following sections explain how CICS PA interprets the various System Selections and which SMF files (defined in your System Definitions) are used to process the report requests.

CICS system selection

Specifies the CICS system(s) to be reported.

CICS APPLID

Specifies the CICS system(s) to be reported.

If specified:

1. CICS PA looks for the first exact System Definition match. If found, the files for this CICS System Definition are used.
2. Otherwise, CICS PA looks for the first pattern System Definition match. If found, the files for this System Definition are used. For example, specifying CICSD1 will match CICS System Definition CICSD*.
3. Otherwise, if the Image is specified, CICS PA looks for an Image System Definition match. If found, the files for the Image System Definition are used.
4. Otherwise, the CICS system is deemed to be undefined and you are prompted to correct your specification.

The APPLID operand identifies the specified CICS system. For example: APPLID(CICSD1).

If CICS APPLID is not specified, then Image or Group must be specified.

Image Specifies the MVS Image of the CICS systems to be reported.

1. If specified in conjunction with a CICS APPLID, then Image is only used to further qualify the CICS system to be reported.
2. If specified without a CICS APPLID, then CICS PA looks for an exact Image System Definition match. If found, the files for the Image System Definition are used and CICS PA will report against all APPLIDs with data in these files (by specifying the NOAPPLID operand).

3. Otherwise, the Image is deemed to be undefined and you are prompted to correct your specification.

Group Specifies the Group of the CICS system(s) to be reported.

1. If specified in conjunction with a CICS APPLID, then Group is only used to further qualify the CICS system to be reported.
2. If specified without a CICS APPLID, then CICS PA looks for an exact Group System Definition match. If found, the files for all systems in the Group are used and CICS PA will report against all APPLIDs in the Group. The APPLID operand identifies the CICS systems in the specified Group. For example: APPLID(CICSPTOR,CICSPAOR,CICSPFOR).
3. Otherwise, the Group is deemed to be undefined and you are prompted to correct your specification.

When the CICS System Selection specifies a Group, and the DB2 and Logger System Selections are not specified, then CICS PA will report against all DB2 subsystems and Loggers in this Group.

DB2 system selection

Specifies the DB2 subsystem(s) to be reported by the DB2 report.

DB2 SSID

Specifies the DB2 subsystem(s) to be reported by the DB2 reports.

If specified:

1. CICS PA looks for the first exact System Definition match. If found, the files for this DB2 System Definition are used.
2. Otherwise, CICS PA looks for the first pattern System Definition match. If found, the files for this DB2 System Definition are used. For example, specifying DB2P will match DB2 System Definition DB2*.
3. Otherwise, if the Image is specified, CICS PA looks for an exact Image System Definition match. If found, the files for the Image System Definition are used.
4. Otherwise, the DB2 subsystem is deemed to be undefined and you are prompted to correct your specification.

The SSID operand of the DB2 report identifies the specified DB2 system. For example: DB2(SSID(DB2P),...).

Image Specifies the MVS Image of the DB2 subsystems to be reported.

1. If specified in conjunction with a DB2 subsystem ID, then Image is used to further qualify the DB2 subsystem to be reported.
2. If specified without a DB2 subsystem ID, then CICS PA looks for an exact Image System Definition match. If found, the files for the Image System Definition are used and CICS PA will report against all DB2 SSIDs used by the reported CICS systems.
3. Otherwise, the Image is deemed to be undefined and you are prompted to correct your specification.

Group Specifies the Group of the CICS system(s) to be reported.

1. If specified in conjunction with a DB2 SSID, then Group is only used to further qualify the DB2 subsystem to be reported.
2. If specified without a DB2 SSID, then CICS PA looks for an exact Group System Definition match. If found, all DB2 subsystems in the Group are reported.

3. Otherwise, the Group is deemed to be undefined and you are prompted to correct your specification.

The SSID operand of the DB2 report identifies the DB2 systems in the group. For example: DB2(SSID(DB2A,DB2B),...).

If you do not specify DB2 System Selection:

1. If your CICS System Selection specifies a Group that contains DB2 systems, then CICS PA will report against all DB2 systems in the Group.
2. Otherwise, the SSID operand is omitted and CICS PA assumes that the DB2 data is contained in the CICS system files and reports against all DB2 subsystems used by the CICS systems.

MQ system selection

Specifies the MQ subsystem(s) to be reported by the WebSphere MQ report.

MQ SSID

Specifies the MQ subsystem(s) to be reported by the WebSphere MQ reports.

If specified:

1. CICS PA looks for the first exact System Definition match. If found, the files for this MQ System Definition are used.
2. Otherwise, CICS PA looks for the first pattern System Definition match. If found, the files for this MQ System Definition are used. For example, specifying MQSX will match MQ System Definition MQ*.
3. Otherwise, if the Image is specified, CICS PA looks for an exact Image System Definition match. If found, the files for the Image System Definition are used.
4. Otherwise, the MQ subsystem is deemed to be undefined and you are prompted to correct your specification.

The SSID operand of the WebSphere MQ report identifies the specified MQ system. For example: MQ(SSID(MQSX),...).

Image Specifies the MVS Image of the MQ subsystems to be reported.

1. If specified in conjunction with a MQ subsystem ID, then Image is used to further qualify the MQ subsystem to be reported.
2. If specified without a MQ subsystem ID, then CICS PA looks for an exact Image System Definition match. If found, the files for the Image System Definition are used and CICS PA will report against all MQ SSIDs used by the reported CICS systems.
3. Otherwise, the Image is deemed to be undefined and you are prompted to correct your specification.

Group Specifies the Group of the CICS system(s) to be reported.

1. If specified in conjunction with a MQ SSID, then Group is only used to further qualify the MQ subsystem to be reported.
2. If specified without a MQ SSID, then CICS PA looks for an exact Group System Definition match. If found, all MQ subsystems in the Group are reported.
3. Otherwise, the Group is deemed to be undefined and you are prompted to correct your specification.

The SSID operand of the WebSphere MQ report identifies the MQ systems in the group. For example: MQ(SSID(MQSX,MQSZ),...).

If you do not specify MQ System Selection:

1. If your global CICS System Selection specifies a Group that contains MQ systems, then CICS PA will report against all MQ systems in the Group.
2. Otherwise, you are prompted to specify your MQ System Selection.

Logger system selection

Specifies the Logger system(s) to be reported by the System Logger report.

Logger

Specifies the Logger system(s) to be reported.

If specified:

1. CICS PA looks for the first exact Logger System Definition match. If found, the files for this Logger System Definition are used.
2. Otherwise, CICS PA looks for the first pattern Logger System Definition match. If found, the files for this Logger System Definition are used.
3. Otherwise, if the Image is specified, CICS PA looks for an exact Image System Definition match. If found, the files for the Image System Definition are used.
4. Otherwise, the Logger system is deemed to be undefined and you are prompted to correct your specification.

If Logger is not specified, then Image or Group must be specified.

Image Specifies the MVS Image of the Logger systems to be reported.

1. If specified in conjunction with a Logger system name, then Image is only used to further qualify the Logger system to be reported.
2. If specified without a Logger system name, then CICS PA looks for an exact Image System Definition match. If found, the files for the Image System Definition are used and CICS PA will report against all Logger systems with data in the SMF files.
3. Otherwise, the Image is deemed to be undefined and you are prompted to correct your specification.

Group Specifies the Group of the Logger system(s) to be reported.

1. If specified in conjunction with a Logger system name, then Group is only used to further qualify the Logger system to be reported.
2. If specified without a Logger system name, then CICS PA looks for an exact Group System Definition match. If found, all Logger systems in the Group are reported.
3. Otherwise, the Group is deemed to be undefined and you are prompted to correct your specification.

If you do not specify Logger System Selection:

1. If your CICS System Selection specifies a Group that contains Logger systems, then CICS PA will report against all Logger systems in the Group.
2. Otherwise, you are prompted to specify your Logger System Selection.

Report Set JCL generation failure

This panel is displayed when CICS PA is unable to proceed with JCL generation because systems to be reported are either not defined or have no SMF Files. The error messages detail the reasons and the report or extract which has the problem.

```
----- Report Set JCL Generation Failure -----  
  
Command ==> _____  
  
Report Set JCL generation failed with the following error:  
  
CPA1029E Report Set JCL generation failed. System or Group  
has no SMF files  
CPA1030E System=CICSR2, Report=Record Selection Extract,  
Output=CICSR2.RECSEL.EXTRACT  
  
Press Enter to edit System Definitions where you can correct  
the error that caused Report Set JCL generation to fail.  
  
Use Exit or Cancel to return.  
  
F1=Help    F3=Exit    F12=Cancel
```

Figure 158. Report Set JCL generation failure

To correct the System Definitions details, press Enter to link directly there. Alternatively, to correct the Report Set details, use Exit or Cancel.

This error panel can be avoided by selecting another **Missing SMF Files Option** on the Run Report Set panel.

Report Set JCL

If you requested to edit the JCL, it is displayed in an ISPF edit session when Report Set JCL generation is complete.

You can modify the JCL and command input as required. You also have the option here to use the Edit **CREATE** command to store the JCL and command deck in your jobs library for later modification and submission independently of the Report Set.

To submit the job from the JCL Edit panel, enter **SUBmit** on the command line.

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT          PROFILE.USERID.SPFTEMP2.CNTL          Columns 00001 00072
Command ==>  SUB                                     Scroll ==> PAGE
***** ***** Top of Data *****
000001 //USERID JOB (ACCOUNT),'NAME',REGION=4M
000002 //* CICS PA V5R1 Report JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DSN=CICSPA.V5R1M0.SCPALINK,DISP=SHR
000005 //SYSPRINT DD SYSOUT=*
000006 //* SMF Input Files
000007 //SMFIN001 DD DSN=CICSP1.CMF.FILE1,
000008 //          DISP=SHR
000009 //* Command Input
000010 //SYSIN DD *
000011 * Report Set =REPORTP1
000012 * Description=Sample CICS PA Report Set
000013 * Reports for System=CICSP1
000014 *          Image =SYS1
000015 *          Description=CICS PA Demonstration System
000016 * Reports for APPLID=CICSP1 Image=SYS1
000017          CICSPA IN(SMFIN001),
000018          APPLID(CICSP1),
000019          LINECNT(60),
000020          FORMAT(':','/'),
000021          LIST(OUTPUT(LIST0001))
000022 /*
***** ***** Bottom of Data *****

```

Figure 159. Submitting from JCL Edit

Processing the output

View or print the generated reports using your normal facilities such as **SDSF** or **ISPF** option 3.8 **Outlist Utility**.

Process the extract data sets using a method appropriate to each. For example:

- Analyze the Cross-System Work extract data using CICS PA Performance Reports such as the List, Summary, and Totals reports.
- Analyze the Performance Extract, Statistics Extract, or System Logger Extract data using external programs such as DB2, or PC tools such as Lotus Symphony Spreadsheets.
- Specify the Record Selection extract data sets as your SMF Files in System Definitions to reduce the volume of data processed by CICS PA.

Chapter 9. Report Forms

Report Forms can be used to tailor the format and content of CICS PA reports and extracts. Specifying a Report Form extract is optional. If a Form is not specified, the report or extract is produced using the default format.

There are three report types. Each has different default settings, allowed values, and special requirements. The form types, applicable reports and extracts, and characteristics of each form type are:

- LIST** Can be used for:
- Performance List report
 - Transaction Tracking List report
 - Cross-System Work Extended report
 - Performance Data extract
 - List HDB reports
 - Performance Alert list reporting

The Form defines:

- Report titles
- Column headings and content
- Selection Criteria
- Performance Alert fields and severity levels

The default format of the LIST Report Form is shown in Figure 164 on page 303.

- LISTX** Can be used for:
- Performance List Extended report
 - Cross-System Work Extended report (sort sequence and limit ignored)
 - Performance Data extract (sort sequence and limit ignored)

The Form defines:

- Report titles
- Column headings and content
- Sort sequence (defined by up to three fields)
- Key limit count
- Selection Criteria

The default format of the LISTX Report Form is shown in Figure 166 on page 311.

SUMMARY

- Can be used for:
- Performance Summary report
 - Performance Data extract
 - Transaction Profiling report
 - Transaction Tracking Summary report
 - Summary HDB reports
 - Performance Alert summary reporting

The Form defines:

- Report titles
- Column headings and content
- Up to 8 key fields to summarize by
- Sort sequence
- Alternate sequencing on a numeric field (optional)

- Selection Criteria
- Performance Alert fields and severity levels

The default format of the SUMMARY Report Form is shown in Figure 168 on page 316.

Maintaining Report Forms

To display the list of Report Forms in the current Report Forms data set, select option 3 **Report Forms** from the CICS PA Primary Option Menu.

Tip: To set or change the current Report Forms data set, use the **Options** menu on the action bar or enter **CDS** from the command line.

```

File Confirm Samples Options Help
-----
Report Forms                               Row 1 to 3 of 3
Command ==>                               Scroll ==> PAGE

Report Forms Data Set . . : xxxx.CICSPA.FORM

/ Name      Type      Description      Changed      ID
- LISTX1    LISTX     List Extended Report Form  2005/01/13 09:00 MKR08
- LIST1     LIST      List Report Form          2005/01/01 12:27 JCH02
- PSUMMY01 SUMMARY Summary Report Form      2005/01/12 08:57 DAM13
***** End of list *****

```

Figure 160. Report Forms

From the list of Report Forms, you can select one at a time to view or modify, or you can create new Report Forms.

You can also add a selection of sample Report Forms by selecting **Samples** in the action bar or entering the **SAMPLES** command. See “Sample Report Forms” on page 292.

The Report Forms are listed with the following user-defined attributes:

Name 1-8 character name in ISPF member name format, used to uniquely identify the Report Form within the Report Forms data set. By default, the panel is sorted on the Name field.

Type The type of Report Form, either LIST, LISTX or SUMMARY.

Description
Free format text up to 32 characters that describes the contents and purpose of the Report Form.

Line Actions

- /** Display the menu of line actions.
- E** Edit the Report Form.
- S** Select the Report Form (same as Edit).
- V** View the Report Form. This looks like the Edit panel but has no 'hold' on the data and has no Save capability. SAVEAS is available.
- D** Delete the Report Form.
- R** Rename the Report Form.
- J** Run the report from the Report Form.

Primary Commands

The following primary commands are valid for this panel:

NEW name type

This command creates a new Report Form with the specified name. The type is either:

LIST List Report Form

LISTX or LX

List Extended Report Form

SUMMARY

Summary Report Form

MODEL

Model on an existing Report Form

MODELT

Model on an existing HDB Template

It displays the New Report Form window populated with values from your entered command or from the last Report Form you created, and prompts you for further details to define the new Report Form.

Also available from **File** in the action bar or **F6**.

See “Creating new Report Forms” on page 299 for information on how to proceed.

SELECT name

This command (or **S**) selects the specified Report Form for editing. If the Report Form does not exist, it is created as if the **NEW** command was used.

Also available from **File** in the action bar.

SORT Name | Type | Description | Changed | Id

This command sorts the list of Report Forms on one or two columns. The default sort field is **Name**. The sort disregards upper and lower case, and is ascending for all but the Changed column which is descending. The sort order is retained only until Exit or another **SORT** command is issued.

LOCATE string

This command (or **L** or **LOC**) is used to locate an entry in the list based on the primary sort field. By default, **LOCATE** operates on the **Name** field.

The string should be no longer than the primary sort field and not enclosed in quotes. The display will scroll to the entry which matches the string, or the entry preceding it if an exact match is not found.

CONFIRM ON | OFF

CONFIRM ON (or **CONFIRM**) instructs CICS PA to prompt for confirmation when you request to Delete a Report Form.

With **CONFIRM OFF**, Delete requests are actioned immediately. Deleted Report Forms cannot be reinstated.

This command changes the setting only for the current invocation of the Report Forms panel. On exit, it reverts to the default set by **Delete Confirmation** in CICS PA Settings.

Also available from **Confirm** in the action bar.

SAMPLES

This command displays the list of Sample Report Forms. You can select one or more Forms from the list to populate your Report Forms data set.

Also available from **Samples** in the action bar.

FIND string

This command (or F) looks for the specified character string within all columns in the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use F5 or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is displayed. Use F5 or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Sample Report Forms

A set of sample Report Forms is provided with CICS PA (see Table 6 on page 293). They demonstrate how CICS PA reports can be tailored to reflect the many ways you use and configure your CICS systems. The CICS PA reports and extracts produced using these sample Report Forms will provide a detailed picture of the many aspects affecting CICS system performance.

To add the samples to your Report Forms data set, select **Samples** in the action bar of the Report Forms panel. This lists the sample Report Forms that are available for selection.

```
Sample Report Forms
Command ==> _____ Scroll ==> PAGE
Select one or more sample Report Forms then press EXIT.

  Name  Type  Description
-  ABNDLST  LIST  Transaction Abend List
-  ABNSUM  SUMMARY  Transaction Abend Summary
-  ACCT5SUM  SUMMARY  Accounting Summary HDB Extract
-  ACCTSUM  SUMMARY  Accounting Summary HDB Extract
-  APPLGRP1  SUMMARY  Application Grouping Example 1
-  APPLGRP2  SUMMARY  Application Grouping Example 2
-  ASSCLST  LIST  Association Data Analysis (V4)
-  BADCHMDS  LISTX  Top 20 Worst Change TCB Modes
-  BADCPU  LISTX  Top 20 Worst CPU Times
-  BADDDB2R  LISTX  Top 20 Worst DB2 Requests (V5)
-  BADDDB2RQ  LISTX  Top 20 Worst DB2 Requests
-  BADFCRQ  LISTX  Top 20 Worst File Requests
-  BADRESP  LISTX  Top 20 Worst Response Times
-  BADRMI  LISTX  Top 20 Worst CICS RMI Times
-  BADRMIRQ  LISTX  Top 20 Worst CICS RMI Requests
-  BADSUSP  LISTX  Top 20 Worst Suspend Times
-  BADTDRQ  LISTX  Top 20 Worst Tdqueue Requests
-  BADTSRQ  LISTX  Top 20 Worst Tsqueue Requests
-  BADWBRQ  LISTX  Top 20 Worst CICS Web Requests
-  BTSACLST  LIST  CICS BTS Activity - Overview
F1=Help  F3=Exit  F5=Rfind  F6=Resize  F12=Cancel
```

Figure 161. Select Sample Report Forms

The sample Report Forms can be added to your Report Forms data set at any time regardless of its current contents. A sample Report Form will not be available for selection if a Report Form of the same name already exists. When you add a sample Report Form to your Report Forms data set, its **Changed** value is set to

yyyy/mm/dd 00:00 (identifying the date when the current set of sample Report Forms was packaged) and its ID value is set to **CICSPA**.

- Enter line action **S** (or any non-blank character) to select one or more samples.
- Enter **S *** on the command line to select all the samples.
- Enter the **RESet** command to clear all line actions.
- Press **Exit** (F3) to complete your selection.
- Use **FIND** and **RFIND** (F5) to search for a character string in any column.

Available Sample Report Forms

The full selection list of sample Report Forms is shown in the following table.

Table 6. Sample Report Forms

| Name | Type | Description |
|----------|---------|----------------------------------|
| ABNDLST | List | Transaction Abend List |
| ABNDSUM | Summary | Transaction Abend Summary |
| ACCT5SUM | Summary | Accounting Summary HDB Extract |
| ACCTSUM | Summary | Accounting Summary HDB Extract |
| APPLGRP1 | Summary | Application Grouping Example 1 |
| APPLGRP2 | Summary | Application Grouping Example 2 |
| ASSCLST | List | Association Data Analysis (V4) |
| BADCHMDS | ListX | Top 20 Worst Change TCB Modes |
| BADCPU | ListX | Top 20 Worst CPU Times |
| BADDB2R | ListX | Top 20 Worst DB2 Requests (V5) |
| BADDB2RQ | ListX | Top 20 Worst DB2 Requests |
| BADFCRQ | ListX | Top 20 Worst File Requests |
| BADRESP | ListX | Top 20 Worst Response Times |
| BADRFMI | ListX | Top 20 Worst CICS RMI Times |
| BADRMIRQ | ListX | Top 20 Worst CICS RMI Requests |
| BADSUSP | ListX | Top 20 Worst Suspend Times |
| BADTDRQ | ListX | Top 20 Worst Tdqueue Requests |
| BADTSRQ | ListX | Top 20 Worst Tsqueue Requests |
| BADWBRQ | ListX | Top 20 Worst CICS Web Requests |
| BADWMQRQ | ListX | Top 20 Worst WebSphere MQ Reqsts |
| BTSACLST | List | CICS BTS Activity - Overview |
| BTSRQLST | List | CICS BTS Request Activity |
| BTSRQSUM | Summary | CICS BTS Request Activity |
| CC3LST | List | Channel Container Activity (V3) |
| CC3SUM | Summary | Channel Container Activity (V3) |
| CCLST | List | Channel Container Activity |
| CCSUM | Summary | Channel Container Activity |
| CEC5LST | List | Transaction CEC Analysis (V5) |
| CHMDSRNG | Summary | Change TCB Mode Distribution |
| COMMWLST | List | Transaction Comms Wait Analysis |
| COMMWSUM | Summary | Transaction Comms Wait Analysis |

Table 6. Sample Report Forms (continued)

| Name | Type | Description |
|----------|---------|----------------------------------|
| CPU3LEXT | List | CPU Analysis and Extract (V3) |
| CPU3SEXT | Summary | CPU Analysis and Extract (V3) |
| CPU4LEXT | List | CPU Analysis and Extract (V4) |
| CPU4SEXT | Summary | CPU Analysis and Extract (V4) |
| CPU5LEXT | List | CPU Analysis and Extract (V5) |
| CPU5LST | List | Transaction CPU Analysis (V5) |
| CPU5SEXT | Summary | CPU Analysis and Extract (V5) |
| CPU5SUM | Summary | Transaction CPU Analysis (V5) |
| CPU85LST | List | Transaction CPU Analysis (Key 8) |
| CPU85SUM | Summary | Transaction CPU Analysis (Key 8) |
| CPU8LST | List | Transaction CPU Analysis (Key 8) |
| CPU8SUM | Summary | Transaction CPU Analysis (Key 8) |
| CPU95LST | List | Transaction CPU Analysis (Key 9) |
| CPU95SUM | Summary | Transaction CPU Analysis (Key 9) |
| CPU9LST | List | Transaction CPU Analysis (Key 9) |
| CPU9SUM | Summary | Transaction CPU Analysis (Key 9) |
| CPULEXTR | List | CPU Analysis and Extract |
| CPULST | List | Transaction CPU Analysis |
| CPULST1 | List | Transaction CPU Analysis (1) |
| CPUSESUM | Summary | Transaction CPU Analysis (V5) |
| CPUSEXTR | Summary | CPU Analysis and Extract |
| CPUSPLST | List | Transaction CPU Analysis (V5) |
| CPUSPSM1 | Summary | Transaction CPU Analysis (V5) |
| CPUSPSUM | Summary | Transaction CPU Analysis (V5) |
| CPUSUM | Summary | Transaction CPU Analysis |
| CPUSUM1 | Summary | Transaction CPU Analysis (1) |
| CSLSALST | List | IP CICS Sockets - Listener Actvt |
| CSLSASUM | Summary | IP CICS Sockets - Listener Actvt |
| CSTRCLST | List | IP CICS Sockets - TRUE Calls |
| CSTRCSUM | Summary | IP CICS Sockets - TRUE Calls |
| CSTSKLST | List | IP CICS Sockets - Task Usage |
| CSTSKSUM | Summary | IP CICS Sockets - Task Usage |
| CSWANLST | List | Cross-System Analysis List |
| CSWEXLST | List | Cross-System Extract List Report |
| DHLST | List | CICS Document Handler Analysis |
| DHSUM | Summary | CICS Document Handler Analysis |
| DISPSUM | Summary | Transaction Dispatch/CPU Usage |
| EJBLST | List | Enterprise Java Bean Analysis |
| EJBSUM1 | Summary | Enterprise Java Bean Analysis(1) |
| EJBSUM2 | Summary | Enterprise Java Bean Analysis(2) |

Table 6. Sample Report Forms (continued)

| Name | Type | Description |
|----------|---------|----------------------------------|
| ENQLST | List | CICS ENQueue/Lock Delay Analysis |
| ENQSUM | Summary | CICS ENQueue/Lock Delay Analysis |
| EPEC4LS1 | ListX | CICS Synch Event Capture Top 20 |
| EPEC4LST | List | CICS Event Capture Activity (V4) |
| EPEC4LSX | ListX | CICS Event Capture Top 20 (V4) |
| EPEC4SU1 | Summary | Event Capture by Time-of-Day(V4) |
| EPEC4SUM | Summary | CICS Event Capture Activity (V4) |
| EXPLORE3 | Summary | Explorer CSV for CICS TS V3 |
| EXPLORE4 | Summary | Explorer CSV for CICS TS V4 |
| EXPLORE5 | Summary | Explorer CSV for CICS TS V5 |
| EXWTLST | List | Exception Wait Analysis |
| EXWTSUM | Summary | Exception Wait Analysis |
| FCLST | List | File Request Activity |
| FCRQRNGC | Summary | File Request Distribution |
| FCRQRNGP | Summary | File Request Distribution (%) |
| FCSUM | Summary | File Request Activity |
| FCTYLST | List | Transaction Facility Analysis |
| FCWTLST | List | File Wait Analysis |
| FCWTSUM | Summary | File Wait Analysis |
| FDSPLST | List | First Dispatch Delay Analysis |
| FDSPSUM | Summary | First Dispatch Delay Analysis |
| FEPIST | List | FEPI Request Activity |
| FEPISUM | Summary | FEPI Request Activity |
| IC3LST | List | Interval Control Activity (V3) |
| IC3SUM | Summary | Interval Control Activity (V3) |
| ICLST | List | Interval Control Activity |
| ICSUM | Summary | Interval Control Activity |
| IMSDBLST | List | Transaction DBCTL Usage Analysis |
| IMSDBSUM | Summary | Transaction DBCTL Usage Analysis |
| IMSRQLST | List | Transaction DBCTL Req Analysis |
| IMSRQSUM | Summary | Transaction DBCTL Req Analysis |
| IMSSUM | Summary | IMS DBCTL PSB Usage Analysis |
| JCLST | List | Journaling/Logging Activity |
| JCSUM | Summary | Journaling/Logging Activity |
| JVMLST | List | Java Virtual Machine Analysis |
| JVMSUM | Summary | Java Virtual Machine Analysis |
| LOCKLST | List | CICS Lock Delay Analysis (V5) |
| LOCKSUM | Summary | CICS Lock Delay Analysis (V5) |
| MPFCRQ | Summary | Platform - File Request Summary |
| MPMISC | Summary | Platform - CPU/LINKs/DB2 Summary |

Table 6. Sample Report Forms (continued)

| Name | Type | Description |
|----------|---------|----------------------------------|
| MPSHRSTG | Summary | Platform - Shared Stg Summary |
| MPT24STG | Summary | Platform - 24-bit Stg Summary |
| MPT31STG | Summary | Platform - 31-bit Stg Summary |
| MPT64STG | Summary | Platform - 64-bit Stg Summary |
| MPTABND | List | Platform - Transaction Abend |
| MPTXCLST | List | Platform - Threshold Exceeded |
| MXTBYTOD | Summary | MAXTASKS Analysis by Time-of-Day |
| MXTBYTSK | List | MAXTASKS Analysis by Task |
| OMDLMLST | List | OMEGAMON Database Limit Warnings |
| OMOEMLST | List | OMEGAMON Third Party Support |
| OMOEMSUM | Summary | OMEGAMON Third Party Support |
| OMRLMLST | List | OMEGAMON Resource Limit Warnings |
| PC3LST | List | Program Request Channel Activity |
| PC3SUM | Summary | Program Request Channel Activity |
| PCLST | List | Program Request Activity |
| PCSUM | Summary | Program Request Activity |
| PGAPLSUM | Summary | Transactions by Application Prog |
| PGDPLSUM | Summary | DPL Program Usage by Connection |
| PGUSESUM | Summary | Transactions by Initial Program |
| PHCSUM1 | Summary | Previous Hop by OAPPLID |
| PHCSUM2 | Summary | Previous Hop by OAPPLID/APPLID |
| PHCSUM3 | Summary | Previous Hop by OAPPLID/OTRAN |
| PHCSUM4 | Summary | Previous Hop by OTRAN |
| PHILIST1 | ListX | Previous Hop List by TRAN |
| PHILIST2 | ListX | Previous Hop List by PHTRAN |
| PHISUM1 | Summary | Previous Hop Interdependency |
| PHPSUM1 | Summary | Previous Hop by OAPPLID |
| PHPSUM2 | Summary | Previous Hop by OAPPLID/APPLID |
| PHPSUM3 | Summary | Previous Hop by OAPPLID/OTRAN |
| PHPSUM4 | Summary | Previous Hop by OTRAN |
| PSTORLST | List | Program Storage Analysis |
| PSTORSUM | Summary | Program Storage Analysis |
| RESPPEAK | Summary | Response Time Peak Percentiles |
| RESPRNGC | Summary | Response Time Distribution |
| RESPRNGM | Summary | Response Time Distribution (C+%) |
| RESPRNGP | Summary | Response Time Distribution (%) |
| RESPWLMP | Summary | Response Time Distribution (%) |
| RMIDB2LS | List | CICS RMI Analysis - DB2 Overview |
| RMIDB2SM | Summary | CICS RMI Analysis - DB2 Overview |
| RMIDBLST | List | CICS RMI Analysis - DB2 Overview |

Table 6. Sample Report Forms (continued)

| Name | Type | Description |
|----------|---------|-----------------------------------|
| RMIDBSUM | Summary | CICS RMI Analysis - DB2 Overview |
| RMILST1 | List | CICS RMI Analysis - Detail (1) |
| RMILST2 | List | CICS RMI Analysis - Detail (2) |
| RMIMQLST | List | CICS RMI Analysis - MQ Overview |
| RMIMQSUM | Summary | CICS RMI Analysis - MQ Overview |
| RMIMSLST | List | CICS RMI Analysis - IMS Overview |
| RMIMSSUM | Summary | CICS RMI Analysis - IMS Overview |
| RMIOVLST | List | CICS RMI Analysis - Overview |
| RMIOVSUM | Summary | CICS RMI Analysis - Overview |
| RMISUM1 | Summary | CICS RMI Analysis - Summary (1) |
| RMISUM2 | Summary | CICS RMI Analysis - Summary (2) |
| RTETRSUM | Summary | Transaction Routing Analysis (2) |
| SOAPLST | List | SOAP for CICS Usage - Detail |
| SOAPSUM | Summary | SOAP for CICS Usage - Summary |
| SSTG5LST | List | Shared Storage Analysis (V5) |
| SSTG5SUM | Summary | Shared Storage Analysis (V5) |
| SSTORLST | List | Shared Storage Analysis |
| SSTORSUM | Summary | Shared Storage Analysis |
| STG24LST | List | Storage Usage - Below 16MB |
| STG31LST | List | Storage Usage - Above 16MB |
| STG64LST | List | Storage Usage - Above the Bar |
| STG64SUM | Summary | Storage Usage - Above the Bar |
| SUMBYATD | Summary | Summary by Application Tran ID |
| TCB3LST | List | CICS TCB Usage and Delays (V3) |
| TCB3SUM | Summary | CICS TCB Usage and Delays (V3) |
| TCB4LST | List | CICS TCB Usage and Delays (V4) |
| TCB4SUM | Summary | CICS TCB Usage and Delays (V4) |
| TCB5LST | List | CICS TCB Usage and Delays (V5) |
| TCB5SUM | Summary | CICS TCB Usage and Delays (V5) |
| TCLDLSUM | Summary | Tclass Delays by Tranclass Name |
| TCLST1 | List | Terminal Control Activity (1) |
| TCLST2 | List | Terminal Control Activity (2) |
| TCPIPSUM | Summary | Transactions by TCP/IP Service |
| TCPLST | List | CICS Support for TCP/IP Analysis |
| TCPSUM | Summary | CICS Support for TCP/IP Analysis |
| TCSUM2 | Summary | Terminal Control Activity (2) |
| TDLST | List | Transient Data Activity |
| TDSUM | Summary | Transient Data Activity |
| TRAPLSUM | Summary | Transactions by Application Tran |
| TRAR5SUM | Summary | Transactions by CICS release (V5) |

Table 6. Sample Report Forms (continued)

| Name | Type | Description |
|----------|---------|-----------------------------------|
| TRARLSUM | Summary | Transactions by CICS release |
| TRARTSUM | Summary | Transaction Routing Analysis (3) |
| TRATDSUM | Summary | Transactions by Applid and TOD |
| TRORGSUM | Summary | Transactions by Origin Type |
| TRPGMSUM | Summary | Transactions by Program Name |
| TRRTESUM | Summary | Transaction Routing Analysis (1) |
| TRTCLSUM | Summary | Transactions by Tranclass Name |
| TRTD5SUM | Summary | Transactions by Time-of-Day (V5) |
| TRTE5SUM | Summary | Transaction Usage by Terminal ID |
| TRTESUM | Summary | Transaction Usage by Terminal ID |
| TRTODSUM | Summary | Transactions by Time-of-Day |
| TRTRASUM | Summary | Transaction Routing Analysis (4) |
| TRUSRSUM | Summary | Transactions by Userid |
| TSLST | List | Temporary Storage Activity |
| TSSUM | Summary | Temporary Storage Activity |
| TSWTLST | List | Temporary Storage Wait Analysis |
| TSWTSUM | Summary | Temporary Storage Wait Analysis |
| UOWLST | List | Transaction Network Unit-of-Work |
| USTG5LS1 | List | User (Task) Storage Analysis (1) |
| USTG5LS2 | List | User (Task) Storage Analysis (2) |
| USTG5SUM | Summary | User (Task) Storage Analysis (V5) |
| USTORLST | List | User (Task) Storage Analysis |
| USTORSUM | Summary | User (Task) Storage Analysis |
| WB3LST | List | CICS Web Support Analysis (V3) |
| WB3SUM | Summary | CICS Web Support Analysis (V3) |
| WBAT4SUM | Summary | URIMAP ATOMSERVICE Analysis (V4) |
| WBAT5SUM | Summary | URIMAP ATOMSERVICE Analysis (V5) |
| WBLST | List | CICS Web Support Analysis |
| WBP4SUM | Summary | URIMAP PROGRAM Analysis (V4) |
| WBP5SUM | Summary | URIMAP PROGRAM Analysis (V5) |
| WBPL4SUM | Summary | URIMAP PIPELINE Analysis (V4) |
| WBPL5SUM | Summary | URIMAP PIPELINE Analysis (V5) |
| WBR3LST | List | CICS Web Support Repository Use |
| WBR3SUM | Summary | CICS Web Support Repository Use |
| WBS3LST | List | CICS Web Support Analysis (V3) |
| WBS3SUM | Summary | CICS Web Support Analysis (V3) |
| WBSUM | Summary | CICS Web Support Analysis |
| WBSV3LST | List | CICS WEBSERVICE Usage (V3) |
| WBSV3SUM | Summary | CICS WEBSERVICE Usage (V3) |
| WBSV4LST | List | CICS INVOKE SERVICE Usage (V4) |

Table 6. Sample Report Forms (continued)

| Name | Type | Description |
|----------|---------|---------------------------------|
| WBSV4SUM | Summary | CICS INVOKE SERVICE Usage (V4) |
| WBSV5LST | List | CICS INVOKE SERVICE Usage (V5) |
| WBSV5SUM | Summary | CICS INVOKE SERVICE Usage (V5) |
| WBUR4LST | List | Web URIMAP Usage Analysis (V4) |
| WBUR4SUM | Summary | Web URIMAP Usage Analysis (V4) |
| WBUR5SUM | Summary | Web URIMAP Usage Analysis (V5) |
| WBWS4SUM | Summary | URIMAP WEBSERVICE Analysis (V4) |
| WBWS5SUM | Summary | URIMAP WEBSERVICE Analysis (V5) |

Creating new Report Forms

You can create a new Report Form in either of the following ways:

- In the command line, enter **NEW** followed by the name of the new Report Form and initialization details using the following syntax:

```

>>> NEW newname LIST
      LISTX|LX
      SUMMARY
      MODEL
      MODELT
  
```

- Select **File** from the action bar, then choose **New**.
- Press **New (F6)**.

A pop-up dialog window is displayed as shown in Figure 162. This is always displayed to allow you to initially populate your Report Form with fields for a particular CICS System (including any user fields), Version (VRM), or fields in selected categories. Alternatively, you can model the new Report Form on an existing Report Form or HDB Template.

File Systems Options Help

New Report Form

Command ==>

Specify new Report Form options.

Name . . . LIST2__ Version (VRM) . . . __ +

System Selection: Field Categories:
APPLID C1CST1__ + __ Select to specify Field Categories
MVS Image . . . _____

Form Type or Model:
- 1. List 4. Model (Report Form)
 2. List Extended (Sorted) 5. Model (HDB Template)
 3. Summary

Model LIST1__ +
Report Forms Data Set . . 'xxx.CICSPA.FORM' _____ +
Repository 'CICSPA.XYX.REPOSTRY' _____ +

Figure 162. Specifying a New Report Form

This panel prompts you for details of the new Report Form.

The options are:

Name The name of the new Report Form. A 1-8 character name in ISPF member name format. The name must be unique within the Report Forms data set.

APPLID, Image, Version (VRM)

Specify the CICS System or CICS Version (VRM) that this Report Form applies to.

- If you specify the CICS System (APPLID, or APPLID and MVS Image), CICS PA can extract the associated (active) Dictionary entries for that CICS system, including any user fields. If not specified, CICS PA will assume the default Form, and user fields will not be available.

The CICS system must be defined in System Definitions, either Personal or Shared depending on your current setting. To select one from a list, use **Prompt** (F4). To link directly to System Definitions or switch between Personal and Shared Systems, use **Systems** in the action bar.

- Alternatively, if you specify the VRM, CICS PA uses it to populate the Form with fields applicable to that release of CICS. The supported releases are:

| | |
|------------|--|
| 640 | CICS Transaction Server for z/OS Version 3 Release 1 |
| 650 | CICS Transaction Server for z/OS Version 3 Release 2 |
| 660 | CICS Transaction Server for z/OS Version 4 Release 1 |
| 670 | CICS Transaction Server for z/OS Version 4 Release 2 |
| 680 | CICS Transaction Server for z/OS Version 5 Release 1 |

If a CICS system (APPLID/Image) is specified and a VRM can be derived from the MCT load library or SDFHLOAD library, then that VRM is used. If a VRM cannot be derived from the system definition then the VRM value specified in this panel is used.

If you do not specify either a CICS System or a VRM, then CICS PA populates the Form with fields applicable to the latest supported release of CICS.

Field Categories

Enter / (or press **F11**) to display the selection list of field categories that you can use to initially populate your new Report Form. For example, you can initialize your Form with Task and Terminal Control fields by selecting DFHTASK and DFHTERM from the list. The default is all categories except CROSSYS, DBCTL, and OMCICS.

Within the selected categories, the fields added to your Report Form depend on the specified CICS APPLID or VRM. If APPLID is specified, CICS PA obtains the fields from the CMF Dictionary for that APPLID. Otherwise the VRM is used. If APPLID and VRM are not specified, the default is **680**.

See Figure 163 on page 301 for an example of the Field Categories selection list.

Form Type or Model

Select the type of Report Form or model which dictates how the new Form is to be initialized (such as the fields, order, sort sequence). Type is important since a Form can only be used by reports and extracts of compatible type:

- 1. List** LIST report forms can be used for the Performance List report and similar list-style reports and extracts: For the names of compatible reports and extracts, see "LIST Report Form" on page 302.

2. List Extended (Sorted)

LISTX report forms are similar to LIST report forms but also allow up to three sort fields and a processing limit to be specified. For the names of compatible reports and extracts, see “LISTX Report Form” on page 310.

3. Summary

SUMMARY report forms can be used for the Performance Summary report and other summary reports and extracts. For the names of compatible reports and extracts, see “SUMMARY Report Form” on page 315.

Alternatively, you can select **Model** to create a new Report Form modelled on an existing Report Form or HDB Template.

4. Model (Report Form)

If the new Report Form is to be modelled on an existing one, specify the name of the model Report Form and data set where it is stored. **Prompt** (F4) is available for both the Report Form data set name and the Report Form member name.

5. Model (HDB Template)

If the new Report Form is to be modelled on an existing HDB Template, specify the name of the model HDB Template and Repository where it is stored. **Prompt** (F4) is available for both the Repository data set name and the HDB Template name.

For HDB reporting and extract to CSV, it is useful to model a Report Form on an HDB Template. This ensures that the fields requested in the Form match the fields collected in the HDB.

When you have specified all required details, press Enter to create the Report Form.

Select field categories

To display the list of available CICS field categories, enter / to select Field Categories or press **F11** from the New Report Form panel.

```

                                     Select Field Categories
Command ====> _____

CMF Groups:
- DFHAPPL - Application naming      - DFHJOUR - Journal
- DFHBTS  - BTS                    - DFHMAPP - BMS Maps
- DFHCHNL - CHANNEL option         / DFHPROG - Program Control
 / DFHCICS - CICS task information  - DFHRMI  - Resource Manager (RMI)
- DFHDATA - Data processing        - DFH SOCK - Secure Sockets
- DFHDEST - Transient Data         / DFHSTOR - Storage Control
- DFHDOCH - Document Handler       - DFHSYNC - Syncpoint processing
- DFHEJBS - EJB Server             / DFHTASK - Task Control
- DFHFEP1 - Front End (FEPI)       - DFHTEMP - Temporary Storage
- DFHFILE - File Control           / DFHTERM - Terminal Control
-                                     - DFHWEBB - Web Interface

Region Type:                       User Fields:
- AOR   - Application-owning        - DBCTL  - IMS DBCTL
- FOR   - File-owning              - CROSSYS - Cross-System
- TOR   - Terminal-owning          - OMCICS  - OMEGAMON
- DB2   - AOR with DB2

```

Figure 163. Select field categories

This panel displays the field categories that you can select to populate a new Report Form. The categories reflect the various ways of using and configuring your CICS systems. You can choose just the ones that you require for your reporting needs. Only categories applicable to the specified CICS version are available for selection. If not specified, **680** is assumed.

Enter **/** to select one or more field categories, then press **Next** (F11) or **Exit** (F3). The fields in the selected categories, and relevant to the specified CICS version, will appear in the new Report Form.

Selecting no categories has the same effect as selecting all categories except **DBCTL**, **CROSSYS**, and **OMCICS**.

To limit the Report Form to fields that are relevant to particular types of CICS region (such as application-owning regions), select one or more region type. Selecting a region type excludes from the Report Form any fields that are not relevant to that region type, as defined in the sample monitoring control tables provided by CICS (in sample library **SDFHSAMP** members **DFHMCTx\$**).

Primary Commands: The following primary commands are valid for this panel:

SELECT

This command selects all field categories.

RESET

This command (or **RES**) resets all field categories by clearing the selection line actions.

Specifying Report Form contents

The Report Form **Edit** panel is displayed when, from the Report Forms panel, you do either of the following:

- Create a new Report Form.
Use the **NEW** command, select **File->New** in the action bar, or press **New** (F6). Specify the new Report Form options then press Enter.
- Select an existing Report Form.
Enter line action **E** or **S** against a Report Form, or use the **SELECT** command.

Alternatively, you can enter line action **V** to display the Report Form View panel. Viewing a Report Form works in every way like Edit except there is no exclusive hold on the data and changes cannot be saved. However you can use **SAVEAS**.

There are three different Report Form panels because the contents and processing differs slightly for the different Report Form types: **LIST**, **LISTX**, and **SUMMARY**. However, most of their operation is similar.

LIST Report Form

The LIST Report Form can be used to tailor the format and content of the following reports and extracts:

- Performance List report
- Cross-System Work report
- Transaction Tracking List Report
- Performance extract
- List HDB reports

The Report Form defines the fields to be included, the order of the columns, and a title for the report.

The Report Form panel has two views as there are too many columns of information to display in a single screen view. When you select a Report Form to Edit or View, the view shown in Figure 164 is displayed by default.

```

File Edit Confirm Upgrade Options Help
-----
                        EDIT LIST Report Form - SAMPLIST                      More: >
Command ==> _____ Scroll ==> PAGE

Description . . . . List Report Form_____ Version (VRM): 680

Selection Criteria:
_ Performance *                               Page width . . 132_

Field
/ Name +   Type   Fn Description
---
TRAN      _____   ___ Transaction identifier
STYPER    _____   ___ Transaction start type
TERM      _____   ___ Terminal ID
USERID    _____   ___ User ID
RSYSID    _____   ___ Remote System ID
PROGRAM   _____   ___ Program name
TASKNO    _____   ___ Transaction identification number
STOP      _____   ___ Task stop time
RESPONSE  _____   SEV Transaction response time
DISPATCH _____   TIME Dispatch time
CPU       _____   TIME SEV CPU time
SUSPEND   _____   TIME Suspend time
DISPWAIT  _____   TIME Redispatch wait time
FCWAIT    _____   TIME File I/O wait time
FCAMCT    _____   ___ File access-method requests
IRWAIT    _____   TIME MRO link wait time
EOR       _____   ___ ----- End of Report -----
EOX       _____   ___ ----- End of Extract -----
ABCODEC   _____   ___ Current ABEND code
F1=Help   F3=Exit   F4=Prompt F5=Rfind   F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

Figure 164. LIST Report Form (with Default Form)

Scroll **Right** (F11) to toggle between the views.

```

File Edit Confirm Upgrade Options Help
-----
                        EDIT LIST Report Form - SAMPLIST                      More: >
Command ===> _____ Scroll ===> PAGE

Description . . . . List Report Form _____

Title . . First half title _____
          Second half title _____

/  Field
  Name      Type      Length  Dictionary Definition  - User Field -
  _____  _____  _____  _____  _____  Offset Length
---  TRAN      _____  4      TRAN      DFHTASK C001  _____  _____
---  STYPE     _____  2      TTYPE     DFHTASK C004  _____  _____
---  TERM      _____  4      TERM      DFHTERM C002  _____  _____
---  USERID    _____  8      USERID    DFHCICS C089  _____  _____
---  RSYSID    _____  4      RSYSID    DFHCICS C130  _____  _____
---  PROGRAM   _____  8      PGMNAME   DFHPROG C071  _____  _____
---  TASKNO    _____  8      TRANNUM   DFHTASK P031  _____  _____
---  STOP      TIMET      12     STOP      DFHCICS T006  _____  _____
---  RESPONSE  _____  8      RESP      CICSIPA D901  _____  _____
---  DISPATCH  TIME      8      USRDISPT  DFHTASK S007  _____  _____
---  CPU       TIME      8      USRCPUT   DFHTASK S008  _____  _____
---  SUSPEND   TIME      8      SUSPTIME  DFHTASK S014  _____  _____
---  DISPWAIT  TIME      8      DISPWTT   DFHTASK S102  _____  _____
---  FCWAIT    TIME      8      FCIWTT    DFHFILE S063  _____  _____
---  FCAMCT    _____  8      FCAMCT    DFHFILE A070  _____  _____
---  IRWAIT    TIME      8      IRIOWTT   DFHTERM S100  _____  _____
---  EOR      _____  _____  _____  _____  _____  _____
---  EOX      _____  _____  _____  _____  _____  _____
---  ABCODEC   _____  4      ABCODEC   DFHPROG C114  _____  _____
F1=Help      F3=Exit      F4=Prompt    F5=Rfind      F7=Backward  F8=Forward
F10=Actions  F11=Right    F12=Cancel

```

The LIST Report Form consists of the following:

Form Description

Up to 32 characters of text to describe the purpose of the Report Form. This description is shown on the Report Forms panel to help you identify the Forms in the list. It is initially set to **List Report Form**.

Version (VRM)

This identifies the CICS release that this Report Form was created for. It determines which CMF fields are available for selection in this Report Form.

Selection Criteria

Optionally, you can specify Selection Criteria to filter the data on time periods and field values to restrict the reporting to only the data that is of interest to you.

When a report specifies a Report Form and both have Selection Criteria specified, records must match both criteria to be included in the report.

Line Actions: The available line actions are:

- / Display the selection list of line actions.
- S Select (edit) the Selection Criteria. See "Specifying Selection Criteria" on page 158 for information on specifying Selection Criteria.
- A Activate the Selection Criteria so they are included for reporting. Selection Criteria can only be activated if you have specified at least one Select Statement and it is not excluded. An asterisk * indicates they are active.

- D Deactivate the Selection Criteria. Any you might have specified here will not be used in reporting.

Page Width

Page width of the report, in the range 80 to 8000. The default is **132**.

When you increase the page width, you can include more fields in the report. Move EOR down the list or move fields above EOR to include the fields of interest. CICS PA automatically adjusts the EOR marker when the fields overflow the page width.

When you view the report output (using SDSF), scroll right to see the additional fields. Note that when you print the report, data that exceeds the maximum printer page width is truncated.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

If the report uses a Report Form, and a title is specified on both, the title on the report takes precedence.

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

The title is ignored for extracts.

Field rows

One row for each field. The order of the fields in the Report Form dictates the order of the columns in the report or extract. The fields have the following attributes: Field Name, Type (clock and time stamp fields only), Description, Length, Dictionary Definition, User Field Offset and Length (character user fields only).

Field Name

One of the following:

- The CICS PA field name. For CICS CMF fields, this is usually the Informal name or similar. The names for user fields are derived from the MCT. Use line action **S** or **Prompt** (F4) to select from a list of fields applicable to this Form type and CICS version.
- The Application Group name. For details, see Chapter 11, "Application Grouping," on page 333.

Type an Application Group name in the Field Name column and **APG** in the Type column, and then press Enter. Otherwise, if you press Enter without APG in the Type column, the panel attempts to interpret the Application Group name as a CMF data field.

When you add an Application Group to a Report Form, CICS PA adjusts the EOR marker to allow for the maximum width of an Application name (32 characters). However, when producing a report, CICS PA adjusts the Application Group column width to fit the longest Application name in the report.

Application Groups are stored in a repository. Report Forms are independent of repositories, so the panel does not validate the Application Group name.

- The special entry **EOR**.
EOR is managed by CICS PA. It signals the end of the report line. The fields listed above EOR fit on the report line and are included in the

report in the same order as they appear in the list. Those below EOR will not be reported and are ignored.

CICS PA automatically sets EOR when the Report Form is created and resets it if necessary when the Form is changed to ensure that the maximum page width of 132 is not exceeded. In positioning EOR, CICS PA allows for one blank separator between each field.

To produce a report line shorter than 132, either move EOR towards the top of the Form, delete unwanted fields, or move them below EOR.

- The special entry **EOX**.

EOX signals the end of the extract record. There are no restrictions on record length so EOX can be positioned anywhere in the list. EOX is initially positioned just below EOR. Fields above EOX are included in the extract, those below EOX are ignored. If EOX is not specified, EOR is used.

Format Type

Either:

- The value **APG**, indicating that the Field Name refers to the name of an Application Group

or

- The presentation format of the field.

For numeric (A) fields, optionally specify one of the following:

K Divide value by 1000, typically for count fields.

M Divide value by 1000000, typically for count fields.

KB Kilobytes (divide by 1024), typically for storage fields.

MB Megabytes (divide by 1024x1024), typically for storage fields.

For clock (S) fields, you must specify either:

TIME Accumulation of elapsed time in seconds with requested precision of 0.0001 to 0.000001. Default: TIME with PRECISION(4).

COUNT

Number of occurrences of the condition.

For time (T) fields START and STOP, you must specify one of:

TIMET

Time in the format *hh:mm:ss.thm* (default)

TIMEM

Time in the format *hh:mm*

TIMES

Time in the format *hh:mm:ss*

TIMEP

Time in one of the following formats, according to the requested precision:

4 (default)

hh:mm:ss.thmi

5 *hh:mm:ss.thmij*

6 *hh:mm:ss.thmiju*

DATE Date in the format *mm/dd/yyyy*

DATEISO

Date in the format *yyyy-mm-dd*

DATEM

Date in the format *mm/dd*

DATEYR

Date in the format *mm/dd/yy*

Fn (Function)

Field function. Specify **SEV** to indicate that the field is an alert reporting field. That is, the report column will contain the alert severity level when an alert is detected in this transaction field, otherwise this column will contain blanks.

Note:

1. SEV is only valid for CMF Clock (type S), Count (type A), and CICS PA derived (type D) fields.
2. If a SEV field is defined in the Form but not in the alert definition, it will always be blank in the report.
3. If an alert field is defined in the alert definition but there is no equivalent SEV field in the Form, no threshold checking will be performed for that field.
4. Report Forms created before the introduction of Performance Alerts are automatically upgraded to include Fn (function). This occurs automatically when the Form is edited using the CICS PA dialog.

Figure 164 on page 303 shows that alerts for fields RESPONSE and CPU(TIME) will be reported in the respective columns in the report.

Field Description

This is a short description of the field. Enter line action **H** (Help) to see a more detailed description. See Figure 77 on page 166 for an example of the help details displayed in a pop-up window.

Length

The length of the field in the report or extract. This is used to calculate the width of the print line.

Dictionary Definition

The description of the CMF data field in the format *informalname owner xnnn* where:

- *informalname* is the CMF field name
- *owner* is the CICS component that 'owns' the field
- *x* indicates the data type:
 - A - 32- or 64-bit count
 - C - character string
 - D - CICS PA derived time
 - P - packed decimal number
 - S - clock (time-count)
 - T - STCK time stamp
 - X - CICS PA calculated count
- *nnn* is the field identifier

Some special fields, such as APPLID and RESPONSE, are not defined in the CMF Dictionary and are given an owner of 'CICSPA'. They are either derived from the fixed section of the CMF record (for example, APPLID), or calculated from two or more other CMF fields (for example, RESPONSE).

User Field Offset and Length

This is used for character user fields when only part of the field is to be reported. **Offset** is the position of the first character and **Length** is the number of characters from this position to be reported. For example, if the user field contains the value ABCDEFG, then specifying offset 1 and length

4 gives the output ABCD. Both values are required for character user fields and default to the entire field (offset 1 and maximum length).

CICS PA JCL generation translates these values to
FIELDS(Character(Substr(offset,length),...

Line Actions

The following line actions are valid on this panel:

- / Display the menu of line actions.
- S Select a field name from a list of all CMF fields appropriate to the type of Report Form and CICS release. See "Performance field selection" on page 310 for an example of the field selection panel.
- I Insert a blank row after this row for entry or selection of another field.
- R Repeat this row.
- RR Repeat a block of rows bounded by two RRs.
- C Copy this row.
- CC Copy a block of rows bounded by two CCs.
- M Move this row.
- MM Move a block of rows bounded by two MMs.
- A Move/Copy after this row.
- B Move/Copy before this row.
- D Delete this row.
- DD Delete a block of rows bounded by two DDs.
- H Field Help. Display a detailed explanation of the field. This is the same field selection panel displayed by line action S: see the example in Figure 77 on page 166.

Note:

1. Line operations can span the EOR and EOX rows. CICS PA will reset EOR after the operation has completed to ensure the page width is not exceeded. Only one EOR and one EOX is retained, that closest to the top of the list. If EOX is deleted, EOR is assumed to define the length of the extract.
2. Fields can appear more than once in a Report Form with different types specified. For example: FCWAIT(TIME), FCWAIT(COUNT).
3. Deleted user fields (LIST and SUMMARY Forms) cannot be recovered.

Primary Commands

The following primary commands are valid for the LIST, LISTX, and SUMMARY Report Form panels:

FIND string

This command (or F) looks for the specified character string within the Field Name, Description, and Dictionary Definition columns. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use F5 or the RFIND command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is displayed. Use **F5** or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

RUN or JCL

Specify run-time options before submitting the Report Form JCL.

SAVE This command is only available from Edit mode and saves any changes you have made. To save any changes made in View mode, use **SAVEAS**.

Also available from **File** in the action bar.

SAVEAS formname | datasetname(formname)

This command is available from both Edit and View mode to save the contents of this Report Form under another name, either in the current data set (assumed if no data set name is provided) or in another suitable data set (if the name of a valid PDS is provided).

Also available from **File** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

CONFIRM ON | OFF

CONFIRM ON (or **CONFIRM**) instructs CICS PA to prompt for confirmation when you request to Cancel from the Report Form panel when there have been updates.

With **CONFIRM OFF**, Cancel requests are actioned immediately, discarding any changes.

This command changes the setting only for the current Edit/View session. On exit, it reverts to the value set by **Cancel Confirmation** in CICS PA Settings.

Also available from **Confirm** in the action bar.

UPGRADE vrm

This command is used to upgrade the Report Form to the specified CICS version (vrm) provided it is a later release. CMF Fields for all CICS releases after the current release and up to the specified release are added to the bottom of the Form.

Also available from **Upgrade** in the action bar.

Upgrading Report Forms

Report Forms are release-dependent. When you define a new Report Form you specify the CICS System or CICS Version (VRM) so that CICS PA can initialize the Form with fields appropriate to that release. However, you can later upgrade the Report Form to a later release by using **Upgrade** in the action bar of the Report Form panels. This facility is available for all Report Form types.

- *. Upgrade to CICS version 640
- 2. Upgrade to CICS version 650
- 3. Upgrade to CICS version 660
- 4. Upgrade to CICS version 670
- 5. Upgrade to CICS version 680

Figure 165. Upgrading your Report Form

Select **Upgrade** in the action bar or enter the **UPGRADE** command to introduce the new CMF fields of a later release of CICS into your Report Form. The new fields are inserted at the bottom of the Form as candidate fields. Upgrading does not affect the fields currently in the Form, nor does it affect the format of reports or extracts that use this Form. To then incorporate a new field into your report or extract, move it above the EOR or EOX marker respectively.

You can upgrade your Report Form to a CICS Version (VRM) that is not marked by an asterisk *. To do this, select the VRM and press Enter. Otherwise, press Cancel to retain the Report Form at the current level.

Performance field selection

Performance Field Selection allows you to select a field name from a list of available fields for insertion into your Report Form. This is the same facility as that used when specifying Selection Criteria. For more information, see:

- "Field selection" on page 164
- "Select a field" on page 164
- "Performance field help" on page 166

LISTX Report Form

The LISTX Report Form can be used to tailor the format and content of the following reports and extracts:

- Performance List Extended report
- Cross-System Work report (sort sequence and limit are ignored)
- Performance extract (sort sequence and limit are ignored)

Like the LIST Report Form, LISTX defines the fields to be included, the order of the columns, and a title for the report. LISTX can also define a sort sequence for up to three fields and, for one of the sort fields, a limit on the number of records to be processed.

The Report Form panel has two views as there are too many columns of information to display in a single screen view. Scroll **Right** (F11) to toggle between the views.

When you select to Edit or View a Report Form, the first view shown in Figure 166 on page 311 is displayed by default.

```

File Edit Confirm Upgrade Options Help
-----
EDIT LISTX Report Form - XMP LISTX                               More: >
Command ==> _____ Scroll ==> PAGE

Description . . . List Extended Report Form_____ Version (VRM): 680

Selection Criteria:
_ Performance *                                                Page width . . 132_

Field
/ Name + S Type Limit Description
---
TRAN A _____ Transaction identifier
STYPE * _____ Transaction start type
USERID * _____ User ID
RSYSID * _____ Remote System ID
PROGRAM * _____ Program name
TASKNO * _____ Transaction identification number
STOP * TIMET _____ Task stop time
RESPONSE * _____ Transaction response time
DISPATCH * TIME _____ Dispatch time
CPU * TIME _____ CPU time
SUSPEND * TIME _____ Suspend time
DISPWAIT * TIME _____ Redispach wait time
FCWAIT * TIME _____ File I/O wait time
FCAMCT * _____ File access-method requests
IRWAIT * TIME _____ MRO link wait time
EOR - _____ ----- End of Report -----
EOX - _____ ----- End of Extract -----
F1=Help F3=Exit F4=Prompt F5=Rfind F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

```

File Edit Confirm Upgrade Options Help
-----
EDIT LISTX Report Form - XMP LISTX                               More: >
Command ==> _____ Scroll ==> PAGE

Description . . . List Extended Report Form_____

Title . . First half title _____
          Second half title _____

Field
/ Name + S Type Limit Length Dictionary Definition
---
TRAN A _____ 4 TRAN DFHTASK C001
STYPE * _____ 2 TTYPE DFHTASK C004
USERID * _____ 8 USERID DFHCICS C089
RSYSID * _____ 4 RSYSID DFHCICS C130
PROGRAM * _____ 8 PGMNAME DFHPRG C071
TASKNO * _____ 8 TRANNUM DFHTASK P031
STOP * TIMET _____ 12 STOP DFHCICS T006
RESPONSE * _____ 8 RESP CICS PA D901
DISPATCH * TIME _____ 8 USRDISPT DFHTASK S007
CPU * TIME _____ 8 USRCPUT DFHTASK S008
SUSPEND * TIME _____ 8 SUSPTIME DFHTASK S014
DISPWAIT * TIME _____ 8 DISPWTT DFHTASK S102
FCWAIT * TIME _____ 8 FCLOWTT DFHFILE S063
FCAMCT * _____ 8 FCAMCT DFHFILE A070
IRWAIT * TIME _____ 8 IRIOWTT DFHTERM S100
EOR - _____
EOX - _____
F1=Help F3=Exit F4=Prompt F5=Rfind F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

Figure 166. LISTX Report Form (with Default Form)

The LISTX Report Form consists of the following:

Form Description

Up to 32 characters of text to describe the purpose of the Report Form.

This description is shown on the Report Forms panel to help you identify the Forms in the list. It is initially set to **List Extended Report Form**.

Version (VRM)

This identifies the CICS release that this Report Form was created for. It determines which CMF fields are available for selection in this Report Form.

Selection Criteria

Optionally, you can specify Selection Criteria to filter the data on time periods and field values to restrict the reporting to only the data that is of interest to you.

When a report specifies a Report Form and both have Selection Criteria specified, records must match both criteria to be included in the report.

Line Actions: The available line actions are:

- /** Display the selection list of line actions.
- S** Select (edit) the Selection Criteria. See "Specifying Selection Criteria" on page 158 for information on specifying Selection Criteria.
- A** Activate the Selection Criteria so they are included for reporting. Selection Criteria can only be activated if you have specified at least one Select Statement and it is not excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you might have specified here will not be used in reporting.

Page Width

Page width of the report, in the range 80 to 8000. The default is **132**.

When you increase the page width, you can include more fields in the report. Move EOR down the list or move fields above EOR to include the fields of interest. CICS PA automatically adjusts the EOR marker when the fields overflow the page width.

When you view the report output (using SDSF), scroll right to see the additional fields. Note that when you print the report, data that exceeds the maximum printer page width is truncated.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

If the report uses a Report Form, and a title is specified on both, the title on the report takes precedence.

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

The title is ignored for extracts.

Field rows

One row for each field. The order of the fields in the rows dictates the order of the columns in the report or extract. The fields have the following attributes: Name, Sort Sequence (only certain fields), Type (only clock and time stamp fields), Limit (only one of the sort fields), Description, Length, Dictionary Definition.

Field Name

One of the following:

- The CICS PA field name. For CICS CMF fields, this is usually the Informal name or similar. The names for user fields are derived from the MCT. Use line action **S** or **Prompt** (F4) to select from a list of fields applicable to this Form type and CICS version.
- The Application Group name. For details, see Chapter 11, “Application Grouping,” on page 333.

Type an Application Group name in the Field Name column and **APG** in the Type column, and then press Enter. Otherwise, if you press Enter without **APG** in the Type column, the panel attempts to interpret the Application Group name as a CMF data field.

When you add an Application Group to a Report Form, CICS PA adjusts the EOR marker to allow for the maximum width of an Application name (32 characters). However, when producing a report, CICS PA adjusts the Application Group column width to fit the longest Application name in the report.

Application Groups are stored in a repository. Report Forms are independent of repositories, so the panel does not validate the Application Group name.

- The special entry **EOR**.

EOR is managed by CICS PA. It signals the end of the report line. The fields listed above EOR fit on the report line and are included in the report in the same order as they appear in the list. Those below EOR will not be reported and are ignored.

CICS PA automatically sets EOR when the Report Form is created and resets it if necessary when the Form is changed to ensure that the maximum page width of 132 is not exceeded. In positioning EOR, CICS PA allows for one blank separator between each field.

To produce a report line shorter than 132, either move EOR towards the top of the Form, delete unwanted fields, or move them below EOR.

- The special entry **EOX**.

EOX signals the end of the extract record. There are no restrictions on record length so EOX can be positioned anywhere in the list. EOX is initially positioned just below EOR. Fields above EOX are included in the extract, those below EOX are ignored. If EOX is not specified, EOR is used.

S (Sort Sequence)

Specify a sort sequence of **A** (ascending) or **D** (descending) for one to three fields listed in the order of the required sort precedence. At least one sort field must be specified. The default is **TRAN ascending**.

Candidate sort fields are indicated by an asterisk *. To change a candidate sort field to an active sort field, move it above EOR and overtype the asterisk with an **A** or **D**. To remove a sort field, either move it below EOR, delete it, or overtype the sort sequence with a blank or asterisk.

For one sort field only, you can specify a limit on the number of records to process at that level in the sort order.

Format Type

Either:

- The value **APG**, indicating that the Field Name refers to the name of an Application Group

or

- The presentation format of the field.

For numeric (A) fields, optionally specify one of the following:

K Divide value by 1000, typically for count fields.

M Divide value by 1000000, typically for count fields.

KB Kilobytes (divide by 1024), typically for storage fields.

MB Megabytes (divide by 1024x1024), typically for storage fields.

For clock (S) fields, you must specify either:

TIME Accumulation of elapsed time in seconds with requested precision of 0.0001 to 0.000001. Default: TIME with PRECISION(4).

COUNT

Number of occurrences of the condition.

For time (T) fields START and STOP, you must specify one of:

TIMET

Time in the format *hh:mm:ss.thm* (default)

TIMEM

Time in the format *hh:mm*

TIMES

Time in the format *hh:mm:ss*

TIMEP

Time in one of the following formats, according to the requested precision:

4 (default)

hh:mm:ss.thmi

5 *hh:mm:ss.thmij*

6 *hh:mm:ss.thmiju*

DATE Date in the format *mm/dd/yyyy*

DATEISO

Date in the format *yyyy-mm-dd*

DATEM

Date in the format *mm/dd*

DATEYR

Date in the format *mm/dd/yy*

Limit For one sort field only, you can specify a limit on the number of records to process at that level in the sort order.

For example, to produce a report of the worst 10 response times for each transaction id, specify the following at the top of the Form:

```

File Edit Confirm Upgrade Options Help
-----
                        EDIT LISTX Report Form - SAMPLX                Row 1 to 6 of 6
Command ==>> _____ Scroll ==>> PAGE

Description . . . List Extended Report Form _____ Version (VRM): 680

Selection Criteria:
_ Performance *                               Page width . . 120_

Field
/ Name +   S   Type   Limit   Description
-- TRAN    A   _____  _____ Transaction identifier
-- RESPONSE D   _____  10_____ Transaction response time
-- CPU     *   TIME   _____  _____ CPU time
-- PROGRAM *   _____  _____ Program name
-- EOR     -   _____  _____ ----- End of Report -----
-- APPLID *   _____  _____ CICS Generic APPLID

```

Figure 167. LISTX Report Form (showing Sort Sequence and Limit)

Field Description

This is a short description of the field. Enter line action **H** (Help) for a more detailed description as shown in the example in Figure 77 on page 166.

Length

The length of the field in the report or extract. This is used to calculate the width of the report line.

Dictionary Definition

The description of the CMF data field in terms of the CMF informal name, CICS owner, data type, and field identifier. See "LIST Report Form" on page 302 for further information.

Line Actions: For the list of valid line actions for the LISTX Report Form panel, see "LIST Report Form" on page 302.

Primary Commands: For the list of valid primary commands for the LISTX Report Form panel, see "LIST Report Form" on page 302.

SUMMARY Report Form

The SUMMARY Report Form defines the format and content of the following reports and extracts:

- | Performance Summary report
- | Transaction Profiling report
- | Transaction Tracking Summary report
- | Performance extract
- | Summary HDB reports

The Report Form defines the fields to be included, the order of the columns, sort sequence, statistical functions, and a title for the report.

The Report Form panel has three views as there are too many columns of information to display in a single screen view. Scroll **Right** (F11) to toggle between the views.

When you select to Edit or View a Report Form, the first view shown in Figure 168 on page 316 is displayed by default. This first view displays field descriptions. The second view displays data dictionary information for each field. The third view is relevant only

when you use the RNG (Range) function.

```

File Edit Confirm Upgrade Profiling Options Help
-----
EDIT SUMMARY Report Form - SAMPSUMM                               More: >
Command ==>> _____ Scroll ==>> PAGE

Description . . . . Summary Report Form _____ Version (VRM): 680

Selection Criteria:
  _ Performance _____ Page width . . 132_

Field
/ Name + Sort Type Fn Description
---
TRAN     K  A      _____ Transaction identifier
TASKCNT  _____ Total Task count
ALERT    _____ SEV Total Alert count or percentage
RESPONSE _____ AVE Transaction response time
RESPONSE _____ MAX Transaction response time
RESPONSE _____ SEV Transaction response time
DISPATCH _____ TIME AVE Dispatch time
CPU      _____ TIME AVE CPU time
CPU      _____ TIME SEV CPU time
SUSPEND  _____ TIME AVE Suspend time
SUSPEND  _____ TIME MAX Suspend time
DISPWAIT _____ TIME AVE Redispach wait time
FCWAIT   _____ TIME AVE File I/O wait time
FCAMCT   _____ AVE File access-method requests
F1=Help   F3=Exit   F4=Prompt   F5=Rfind   F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

Figure 168. SUMMARY Report Form (with Default Form)

```

File Edit Confirm Upgrade Profiling Options Help
-----
EDIT SUMMARY Report Form - SAMPSUMM                               More: >
Command ==>> _____ Scroll ==>> PAGE

Description . . . . Summary Report Form _____

Title . . First half title _____
          Second half title _____

Field
/ Name + Sort Type Fn Length Dictionary Definition - User Field -
---
TRAN     K  A      _____ 8 TRAN DFHTASK C001 _____
TASKCNT  _____ 8 TASKCNT CICSXA X902 _____
ALERT    _____ SEV 8 ALERT CICSXA A915 _____
RESPONSE _____ AVE 8 RESP CICSXA D901 _____
RESPONSE _____ MAX 8 RESP CICSXA D901 _____
RESPONSE _____ SEV 8 RESP CICSXA D901 _____
DISPATCH _____ TIME AVE 8 USRDISPT DFHTASK S007 _____
CPU      _____ TIME AVE 8 USRCPUT DFHTASK S008 _____
CPU      _____ TIME SEV 8 USRCPUT DFHTASK S008 _____
SUSPEND  _____ TIME AVE 8 SUSPTIME DFHTASK S014 _____
SUSPEND  _____ TIME MAX 8 SUSPTIME DFHTASK S014 _____
DISPWAIT _____ TIME AVE 8 DISPWTT DFHTASK S102 _____
FCWAIT   _____ TIME AVE 8 FCIOWTT DFHFILE S063 _____
FCAMCT   _____ AVE 8 FCAMCT DFHFILE A070 _____
F1=Help   F3=Exit   F4=Prompt   F5=Rfind   F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

```

File Edit Confirm Upgrade Profiling Options Help
-----
EDIT SUMMARY Report Form - SAMPSUMM More: >
Command ==> _____ Scroll ==> PAGE

Description . . . . Summary Report Form _____ Version (VRM): 680

Selection Criteria:
_ Performance Page width . . 132_

Field Sort
/ Name + K O Type Fn From To Report
---
TRAN K A
TASKCNT
ALERT SEV
RESPONSE AVE
RESPONSE MAX
RESPONSE SEV
DISPATCH TIME AVE
CPU TIME AVE
CPU TIME SEV
SUSPEND TIME AVE
SUSPEND TIME MAX
DISPWAIT TIME AVE
FCWAIT TIME AVE
FCAMCT AVE
F1=Help F3=Exit F4=Prompt F5=Rfind F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

```

File Edit Confirm Upgrade Profiling Options Help
-----
EDIT SUMMARY Report Form - SAMPSUMM More: >
Command ==> _____ Scroll ==> PAGE

Description . . . . Summary Report Form _____ Version (VRM): 680

Selection Criteria:
_ Performance Page width . . 132_

Field Sort
/ Name + K O Type Fn Severity Report
---
TRAN K A
TASKCNT
ALERT SEV WARNING PERCENT
RESPONSE AVE
RESPONSE MAX
RESPONSE SEV CRITICAL COUNT
DISPATCH TIME AVE
CPU TIME AVE
CPU TIME SEV WARNING COUNT
SUSPEND TIME AVE
SUSPEND TIME MAX
DISPWAIT TIME AVE
FCWAIT TIME AVE
FCAMCT AVE
F1=Help F3=Exit F4=Prompt F5=Rfind F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

The SUMMARY Report Form consists of the following:

Form Description

Up to 32 characters of text to describe the purpose of the Report Form. This description is shown on the Report Forms panel to help you identify the Forms in the list. It is initially set to **Summary Report Form**.

Version (VRM)

This identifies the CICS release that this Report Form was created for. It determines which CMF fields are available for selection in this Report Form.

Selection Criteria

Optionally, you can specify Selection Criteria to filter the data on time periods and field values to restrict the reporting to only the data that is of interest to you.

When a report specifies a Report Form and both have Selection Criteria specified, records must match both criteria to be included in the report.

Line Actions: The available line actions are:

- /** Display the selection list of line actions.
- S** Select (edit) the Selection Criteria. See “Specifying Selection Criteria” on page 158 for information on specifying Selection Criteria.
- A** Activate the Selection Criteria so they are included for reporting. Selection Criteria can only be activated if you have specified at least one Select Statement and it is not excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you might have specified here will not be used in reporting.

Page Width

Page width of the report, in the range 80 to 8000. The default is 132.

When you increase the page width, you can include more fields in the report. Move EOR down the list or move fields above EOR to include the fields of interest. CICS PA automatically adjusts the EOR marker when the fields overflow the page width.

When you view the report output (using SDSF), scroll right to see the additional fields. Note that when you print the report, data that exceeds the maximum printer page width is truncated.

Title Title of the report. Specify up to 128 characters of text to describe the report. CICS PA concatenates the two lines of 64 exactly as entered to make one line which prints at the top of each page of the report below the heading. The default is blank (no title).

If the report uses a Report Form, and a title is specified on both, the title on the report takes precedence.

This option generates the TITLE1('left-half') and TITLE2('right-half') operands.

The title is ignored for extracts.

Field rows

One row for each field. The order of the fields in the rows dictates the order of the columns in the report or extract. The fields have the following attributes: Name, Sort Sequence (only certain fields), Type (clock and time stamp fields only), Statistical Function (clock and count fields only), Description, Length, Dictionary Definition, Offset and Length (character user fields only).

Field Name

One of the following:

- The CICS PA field name. For CICS CMF fields, this is usually the Informal name or similar. The names for user fields are derived from the MCT. Use line action **S** or **Prompt** (F4) to select from a list of fields applicable to this Form type and CICS version.
- The Application Group name. For details, see Chapter 11, “Application Grouping,” on page 333.

Before entering an Application Group name, enter APG in the Type column. Otherwise, the panel attempts to interpret the Application Group name as a CMF data field.

Note: When you add an Application Group to a Report Form, CICS PA adjusts the EOR marker to allow for the maximum width of an Application name (32 characters). However, when producing a report, CICS PA adjusts the Application Group column width to fit the longest Application name in the report.

- The special entry **EOR**.

EOR is managed by CICS PA. It signals the end of the report line. The fields listed above EOR fit on the report line and are included in the report in the same order as they appear in the list. Those below EOR will not be reported and are ignored.

CICS PA automatically sets EOR when the Report Form is created and resets it if necessary when the Form is changed to ensure that the maximum page width of 132 is not exceeded. In positioning EOR, CICS PA allows for one blank separator between each field.

To produce a report line shorter than 132, either move EOR towards the top of the Form, delete unwanted fields, or move them below EOR.

- The special entry **EOX**.

EOX signals the end of the extract record. There are no restrictions on record length so EOX can be positioned anywhere in the list. EOX is initially positioned just below EOR. Fields above EOX are included in the extract, those below EOX are ignored. If EOX is not specified, EOR is used.

Sort Sequence

SUMMARY Sort fields are identified by **K** in the **Sort K** column. The report can be ordered in ascending or descending sequence, as specified in the **Sort O** column, **A** and **D** respectively.

Sort fields identify the grouping required for summarization, and can be START and STOP time, or any character field, including character user fields.

A Sort Order of * (asterisk) identifies a candidate sort field, and is ignored for reporting purposes.

To activate a candidate sort field, move it to the top of the Form and set Sort Sequence to A or D.

Key fields above EOR must appear first in the list of fields. The only fields that can appear ahead of a key field are TASKCNT or TASKTCNT. Key fields below EOR are ignored. Up to 8 key fields can be specified, and at least one must be specified. The order of the key fields in the list defines the sort and summarization precedence, with the first key field being the major sort field.

If you create a Report Form that consists entirely of key fields, with or without the special fields TASKCNT or TASKTCNT, then reports or

extracts that you create using this Report Form will contain additional default fields. To suppress these default fields, specify at least one other field that is not a key field: for example, the numeric field RESPONSE. For more information, see “Customizing or suppressing default fields” on page 425.

Alternate Sequencing

In addition to the Sort Key fields, one numeric field can be selected as Ascending or Descending to activate Alternate Sequencing. This will change the order of report lines from Sort Key to numeric field sequence. For example, specify Alternate Sequencing of D for RESPONSE time to see the transactions with the highest response time at the top of the report. Note that grouping by Sort Key for summarization remains unaffected.

Format Type

Either:

- The value **APG**, indicating that the Field Name refers to the name of an Application Group
- or
- The presentation format of fields.

For numeric (A) fields, optionally specify one of the following:

- K** Divide value by 1000, typically for count fields.
- M** Divide value by 1000000, typically for count fields.
- KB** Kilobytes (divide by 1024), typically for storage fields.
- MB** Megabytes (divide by 1024x1024), typically for storage fields.

For clock (S) fields, you must specify either:

TIME Accumulation of elapsed time in seconds with requested precision of 0.0001 to 0.000001. Default: TIME with PRECISION(4).

COUNT

Number of occurrences of the condition.

For time (T) fields START and STOP, you must specify one of:

TIMET

Time in the format *hh:mm:ss.thm*

TIMEM

Time in the format *hh:mm*

TIMES

Time in the format *hh:mm:ss* (default)

DATE Date in the format *mm/dd/yyyy*

DATEISO

Date in the format *yyyy-mm-dd*

DATEM

Date in the format *mm/dd*

DATEYR

Date in the format *mm/dd/yy*

DATETIM

Date and Time in the format *yyyy-mm-dd hh:mm:ss*

Fn (Function)

The required statistical representation of clock and count fields. The valid functions are:

AVE Average value (this is the default).

DEV Standard deviation.

- MAX** Maximum value.
- MIN** Minimum value.
- TOT** Total.
- nmn* Peak percentile (50-100).
- SEV** Alert severity. Identifies the alert reporting fields, including the ALERT field.

You must also specify the parameters for this function: the alert severity level CRITICAL, WARNING, or INFO, and whether to report COUNT or PERCENT. Press the Right (F11) key until the Alert columns scroll into view:

```

_____ Alert _____
Severity Report
_____

```

Tip: If you type SEV in the Fn column and then press Enter, the panel scrolls the Alert columns into view for you.

You can only enter values in the Alert columns if you have entered the SEV function in the Fn column.

Specifying the SEV function with Alert Severity and Report parameters generates the `fieldname(SEV(CRITICAL|WARNING|INFO,COUNT|PERCENT))` operand.

Note: The SEV function is only supported by the Performance Summary report and extract. If a Summary Form containing SEV fields is used in any other report, such as Profiling, the SEV function is ignored and the Field will adopt its default function.

- RNG** Range. This function calculates the number of tasks where the value of a field falls within a specified range or matches a single value. You can display the result in the report either as a count or as a percentage of tasks. You can use this function to produce distribution reports that answer questions such as: How many transactions had a response time between 0.4 and 0.6 seconds? What percentage of transactions had a response time of 1 second or longer?

To specify the parameters for this function, press the Right (F11) key until the Range columns scroll into view:

```

_____ Range _____
From      To      Report
_____

```

Tip: If you type RNG in the Fn column and then press Enter, the panel scrolls the Range columns into view for you.

You can only enter values in the Range columns if you have entered the RNG function in the Fn column.

Specifying the RNG function with a Report value of COUNT (the default value) generates the `RNGCOUNT()` operand; a Report value of PERCENT generates the `RNGPERCENT()` operand.

From and To (RNG function only)

Specify a range of values or a single value:

- To specify a single value, in the From column enter an equal sign (=) followed immediately by the value you want to match (for example, =0). Leave the To column blank.

- To specify a range with only an upper limit or a lower limit, in the From column enter one of the following comparison operators:

> >= < <=

followed immediately by the limit value (for example, >1.0). Leave the To column blank.

- To specify a range with upper and lower limits, enter the lower limit value in the From column and the upper limit value in the To column, with no comparison operators. To fall within the range, a field value must be greater than or equal to the lower limit, and less than the upper limit:

lower limit <= field value < upper limit

For time fields, values with a decimal point (such as 1.0) are interpreted as seconds; integers (such as 1000) are interpreted as milliseconds.

Report (RNG or SEV function)

Specifies whether to display the result in the report as a count or as a percentage. Valid values are **COUNT** and **PERCENT**. If you leave this column blank, the default value is COUNT for distributions (RNG function) and PERCENT for alerts (SEV function).

Tips:

1. If you type C or P and then press Enter, the panel automatically completes the value for you.
2. COUNT and PERCENT generate identical column headings. To distinguish between columns for percentages and counts, check the column values under the headings: percentages appear with a decimal point, whereas counts are integers with no decimal point.

Alert Severity (SEV function only)

The threshold level for Performance Alert reporting, either **CRITICAL**, **WARNING**, or **INFO**.

Field Description

This is a short description of the field. Enter line action **H** (Help) for a more detailed description as shown in the example in Figure 77 on page 166.

Length

The length of the field in the report or extract. This is used to calculate the width of the print line.

Dictionary Definition

The description of the CMF data field in terms of the CMF informal name, CICS owner, data type, and field identifier. See "LIST Report Form" on page 302 for further information.

User Field Offset and Length

For character user fields when only part of the field is to be reported. **Offset** is the position of the first character and **Length** is the number of characters (1-8) to be reported. For example, if the user field contains the value ABCDEFG, then specifying offset 4 and length 3 gives the output DEF. Both values are required for character user fields and default to offset 1 and maximum field length, limited to eight characters for the Performance Summary report.

CICS PA JCL generation translates these values to
 FIELDS(CHARACTER(SUBSTR(offset,length),...

```

File Edit Confirm Upgrade Profiling Options Help
-----
EDIT SUMMARY Report Form - SUMMUFLD
Command ==> _____ Scroll ==> PAGE
Description . . . Summary Report Form _____ Version (VRM): 680
Selection Criteria:
_ Performance _____ Page width . . 132_

Field
/ Name + Sort Type Fn Description
-- WBTOTAL_ - _____ AVE Web Total requests
-- CLOCK1_ - TIME_ AVE User field: CMF ID=USERNM1 S001
. . .
-- FIELD1_ K * _____ User field: CMF ID=USERNM2 C001
***** End of list *****

```

```

File Edit Confirm Upgrade Profiling Options Help
-----
EDIT SUMMARY Report Form - SUMMUFLD
Command ==> _____ Scroll ==> PAGE
Description . . . Summary Report Form _____
Title . . First half title _____
          Second half title _____

Field
/ Name + Sort Type Fn Length Dictionary Definition - User Field -
-- WBTOTAL_ - _____ AVE 8 WBTOTWCT DFHWEBB A235 Offset Length
-- CLOCK1_ - TIME_ AVE 8 CLOCK1 USERNM1 S001 _____
. . .
-- FIELD1_ K * _____ 12 FIELD1 USERNM2 C001 1_ 8_
***** End of list *****

```

Figure 169. SUMMARY Report Form (with User Fields)

Line Actions: For the list of valid line actions for the SUMMARY Report Form panel, see “LIST Report Form” on page 302.

Primary Commands: The following primary command is available only on the SUMMARY Report Form panel:

PROFILE

Applies only to the Transaction Profiling report. Inserts the special field PROFILE into the Form, immediately below the key fields. The PROFILE field accounts for the width of the headings (such as Report, Baseline, Delta, and Change%) that the Transaction Profiling report inserts after the key fields in the Form.

Also available from **Profiling** in the action bar.

For a list of other valid primary commands for the SUMMARY Report Form panel, see page “LIST Report Form” on page 302.

Chapter 10. Object Lists

An Object List defines a list of field values that can be used when specifying Selection Criteria for filtering the data for your reports and extracts. A typical use might be to define all the transaction IDs that belong to a particular application system. Object Lists enable you to define a group of related values once, then use it in many reports by simply specifying the name of the Object List in your Selection Criteria. This avoids duplicating the same list of values in different reports.

For example, instead of specifying Select Statements that include transactions B001,B002,B003,..., you predefine an Object List called BTRANS that has values B001,B002,B003,... Now when you specify the Select Statement, you simply specify BTRANS to include those transactions.

One Object List must only include values of the same type. They can be one of the following data types:

- Character field values. For example, Transaction IDs or User IDs
- Elapsed time ranges. For example, Response time from 100 to 200 milliseconds
- Count ranges. For example, File Control request count from 10 to 20

Object Lists versus Resource Lists

CICS PA supports two similar types of list: Object Lists and Resource Lists. Both types define lists of field values that you can refer to by name, avoiding duplicating the same list of values in different places. However, they are used for different functions, are defined using different menu options, and are stored in different locations:

Table 7. Differences between Object Lists and Resource Lists

| Type | Function | Menu option from the CICS PA Primary Option Menu | Storage location |
|----------------|---|---|-----------------------|
| Object Lists | Selection Criteria for filtering the data for reports and extracts | Option 4 Object Lists (see "Maintaining Object Lists" on page 326) | Object Lists data set |
| Resource Lists | <ul style="list-style-type: none">• Selection Criteria for filtering data to be loaded into an HDB• Resource field values for Application Grouping• Resource field values for Statistics Alerts | <ul style="list-style-type: none">• Option 5 Historical Database (edit a Template, edit its Selection Criteria, then select Object Lists ► Resource Lists from the action bar of the Performance Select Statement; see "Resource Lists" on page 641)• Option 8 Resource Definitions then option 2 Application Grouping (see Chapter 11, "Application Grouping," on page 333) | Repository |

Several panels contain the action bar choice **Lists**: this links directly to the panel for creating and maintaining Object Lists or Resource Lists, as a quicker alternative to navigating via the Primary Option Menu.

You can copy an Object List to a Resource List. For details, see "Maintaining Object Lists" on page 326.

Maintaining Object Lists

To display the list of Object Lists:

1. Use the **Options** menu on the action bar to nominate the Object Lists data set (if one has not yet been nominated, or you want to change the data set).
2. Select option 4 **Object Lists** from the CICS PA Primary Option Menu.

```
File Confirm Options Help
-----
                                Object Lists                                Row 1 to 5 of 5
Command ==> _____ Scroll ==> _____

Object Lists Data Set . . : xxxx.CICSPA.OBJL

/   Name           Description           Changed           ID
-   FINANCE       Finance Transactions       2005/01/03 12:27 JCH02
-   FINRESP       Finance Transaction Response Time 2004/12/27 09:00 MKR08
-   HQTERMS       Terminals at headquarters       2005/01/02 08:57 DAM13
-   HQUSERS       Users at headquarters           2005/01/05 10:49 SEC22
-   STOCK         Stock Transactions             2005/01/05 16:57 DOC17
***** End of list *****
```

Figure 170. Object Lists

This panel lists all the Object Lists in the current Object Lists data set and allows you to select one at a time to view or modify.

The Object Lists are listed with the following user-defined attributes:

Name 1-8 character name in ISPF member name format, used to uniquely identify the Object List within the Object Lists data set. By default, the panel is sorted on the Name field.

Description

Free format text up to 32 characters that describes the contents and purpose of the Object List.

Line Actions: The following line actions can be entered against an Object List:

- /** Display the menu of line actions.
- E** Edit the Object List.
- S** Select the Object List (same as Edit).
- V** View the Object List. This looks like the Edit panel but has no 'hold' on the data and has no Save capability. SaveAs is available.
- D** Delete the Object List.
- R** Rename the Object List.
- C** Copy the Object List to a Resource List.

Copying an Object List expands and copies the values of any sublists that the Object List refers to. Resource Lists do not support sublists.

You cannot copy an Object List if any of the following conditions is true:

- The Object List refers to a nonexistent sublist.
- The Object List refers to itself as a sublist.
- The Object List specifies a value in the 2nd Value field. Resource Lists do not support ranges.

Primary Commands: The following primary commands are valid for this panel:

NEW name [MODEL dsn(modelname)]

This command creates an Object List. The new Object List can be modeled


```

New Object List
Command ==> _____
Specify the name of the new Object List and optional model.
Name . . . ASSETS__
Model . . STOCK_____
_ Initialize with a sample object list

```

Figure 171. Specifying a New Object List

This panel allows you to create a new Object List. You must give the new Object List a name.

The new Object List can be modeled on one of your existing Object Lists or it can be initialized by selecting a sample object list. If you do not specify a model name or a sample, the object list will be initialized empty.

Name The name of the new Object List. A 1-8 character name in ISPF member name format. The name must be unique within the Object Lists data set.

Model

You can specify the name of an existing Object List as a model so that your new Object List is initialized with its contents. If the model is in the current Object Lists data set, specify just the name of the Object List. If it is in another data set, specify both the data set name and the Object List name in the format *datasetname(modelname)*.

Initialize with a sample object list

Enter / to select one of the sample object lists included with CICS PA.

When you have specified the required details, press Enter to create the Object List. You can change or delete any of the values that are copied from the model or sample and add new values.

Specifying values in Object Lists

The Object List Edit panel is displayed when, from the Object Lists panel, you do either of the following:

- Create a new Object List.
Use the **NEW** command or select **File->New** in the action bar.
- Select an existing Object List.
Enter line action **E** or **S** against an Object List or use the **SELECT** command.

Alternatively, you can enter line action **V** to display the Object List View panel.

Use this panel to specify values in an Object List. The Object List can then be 'reused' many times in **Selection Criteria** in Report Sets.

You can specify any number of values in an Object List. You can also specify any number of Object Lists as sublists to form a meaningful hierarchical grouping of values. The order of entries in the list is of no consequence to CICS PA reporting.

You must specify separate Object Lists for character field values and numeric field values:

- For a **character field value** you can specify up to eight characters of free text entered in the **1st Value** column. Masking characters % and * are allowed. Or in the **Sublist** column, specify the name of another Object List containing character values. Character field values are typically names. For example, for USERID, TRAN, or PROGRAM fields. There is no validation by the dialog of Object List character field values. However, at run time they are validated against the fields in the Selection Criteria. If the value length is shorter than the field length, it is padded to the right. If the value length is longer than the field length, a command error occurs.

```

File Edit Confirm Options Help
-----
                        EDIT Object List - BILLING                Row 1 to 4 of 4
Command ==> _____ Scroll ==> PAGE

Description . . . . Billing Transactions_____

Specify the Object List values:

/ 1st Value  2nd Value  Sublist
- BIL1      _____  _____
- BIL2      _____  _____
- %TRA*     _____  _____
- _____  _____  _____
***** End of list *****

```

Figure 172. Specifying Values for Character Fields in an Object List

- For a **numeric field value** you can specify an integer in the range 0 to 999999999. Enter single values in the **1st Value** column. For value ranges (spans), enter the 'From' value as the **1st Value** and the 'To' value as the **2nd Value**. Masking is not supported. Or in the **Sublist** column, specify the name of another Object List containing numeric values. Numeric values are for Decimal, Count, or Clock field types. For example, CPU, RESPONSE, TASKNO, FCAMCT, DISPWAIT fields.

Note: A Clock type field has two parts: an elapsed time in units of thousandths of a second, and a count of the number of occurrences of the condition. Integer values are appropriate for both parts.

```

File Edit Options Help
-----
                        EDIT Object List - BILRESP                Row 1 to 3 of 3
Command ==> _____ Scroll ==> PAGE

Description . . . . Billing Transact'n Response Time

Specify the Object List values:

/ 1st Value  2nd Value  Sublist
- 100      200      _____
- _____  _____  B1RESP____
- _____  _____  B2RESP____
***** End of list *****

```

Figure 173. Specifying Values for Numeric Fields in an Object List

The field lengths and formats are available in the Performance Select Statement, where Object Lists are used.

The Object List panel consists of the following:

Description

Up to 32 characters of text to describe the purpose of the Object List. This description is shown on the Object Lists panel to help you distinguish between the Object Lists displayed. It is initially set to **CICS PA Object List**.

1st Value

A field value.

- If this is an Object List for **character field values**, the value can be up to eight characters of any nature. Masking characters % and * are allowed. The percent % is for a single character substitution and the asterisk * is for many or none. For example, you might specify %%T* to select all programs which have T as the third character of their name. LETTERS, PETE, KAT, and KAT99 match this pattern.
- If this is an Object List for **numeric field values** for Decimal, Count, or Clock type fields, the value can be up to nine digits. The 1st value represents a single value if the 2nd value is blank, otherwise it represents the 'From' value in a range (span). Masking is not supported for numeric fields.

2nd Value

The 'To' value for a range (span) of numeric values for Decimal, Count, or Clock type fields. The value can be up to nine digits.

For character type fields, this value must be blank as value ranges are not supported.

Sublist

The name of an Object List in the current Object Lists data set. The values in the sublist are inserted at JCL generation time. An Object List and its sublists must contain values for the same type of field, either all character type or all numeric type.

This facility enables reuse of Object Lists and allows you to build up a hierarchy of lists of related values.

When CICS PA generates the Report Set JCL, the values in the sublist are listed in the **SELECT** statements along with the explicitly specified values. The order in which the values are listed in the **SELECT** statement is the same order as they are specified on the Object List panel(s), however this order is of no consequence to the reporting process.

Line Actions

| | |
|---|----------------------------------|
| / | Display the menu of line actions |
| I | Insert a new row |
| R | Repeat this row |
| C | Copy this row |
| M | Move this row |
| A | Move/Copy after this row |
| B | Move/Copy before this row |
| D | Delete this row |

Primary Commands

SAVE This command is only available from Edit mode and saves any changes you have made. To save any changes made in View mode, use **SAVEAS**.

Also available from **File** in the action bar.

SAVEAS objlname | datasetname(objlname)

This command is available from both Edit and View mode to save the contents of this Object List under another name, either in the current data set (assumed if no data set name is provided) or in another suitable data set (if the name of a valid PDS is provided). If you then Cancel from this panel, the contents of the current Object List remain unchanged.

Also available from **File** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

CONFIRM ON | OFF

CONFIRM ON (or **CONFIRM**) instructs CICS PA to prompt for confirmation when you request to Cancel from the Object List panel when there have been updates.

With **CONFIRM OFF**, Cancel requests are actioned immediately, discarding any changes.

This command changes the setting only for the current Edit/View session. On exit, it reverts to the default set by **Cancel Confirmation** in CICS PA Settings.

Also available from **Confirm** in the action bar.

Chapter 11. Application Grouping

Application Grouping enables you to create form-based performance reports or extracts that relate data to logical business units or functions known as *Applications*. In this context, an Application is a name that you associate with a set of performance data field values. For example, you can associate the Application name “Accounting” with the CICS transaction ID (TRAN) field values DEPT, WDRW, and ACC* (that is, matching any transaction ID beginning with the characters ACC). Then you can create reports or extracts that refer to the performance data for those transaction IDs as belonging to the “Accounting” Application.

To use Application Grouping, you need to follow these steps:

1. **Define an Application Group** using option 8 **Resource Definitions** from the CICS PA Primary Option Menu.

An Application Group consists of one or more Applications that you want to present together, in a single report or extract. Before adding Applications to an Application Group, you must specify a performance data field, such as CICS transaction ID (TRAN), whose values will define the Applications. This is known as the *resource field* for the Application Group. All Applications in an Application Group refer to values of the same resource field. The resource field can be any character user field (defined in an MCT) or one of a limited set of predefined CMF character fields.

Each Application consists of a name and a set of resource field values that you want to associate with that Application name. You can either specify these values individually, or you can refer to a Resource List that contains the values. If you want to define the same Application in several Application Groups, then rather than specifying its field values separately in each Application Group, consider defining and referring to a Resource List.

For more information, see “Defining Application Groups” on page 334.

2. **Add the Application Group to a Report Form** using option 3 **Report Forms** from the CICS PA Primary Option Menu:
 - a. Insert a new field in the Report Form
 - b. In the Field Name column, enter the Application Group name
 - c. In the Type column, enter **APG**

Report Forms are independent of repositories (where Application Groups are stored), so CICS PA does not validate that the Application Group name that you enter has been defined. For details on editing a Report Form, see “Specifying Report Form contents” on page 302.

3. **Use the Report Form to create a report or an extract** using one of the following options from the CICS PA Primary Option Menu:
 - Option 2 **Report Sets**, to create a report or an extract from SMF files. For details, see Chapter 8, “Report Sets,” on page 145.
or
 - Option 5 **Historical Database**, to create a report or an extract from an HDB. For details, see Chapter 21, “Using the HDB dialog,” on page 621.
or
 - Option 7 **Profiling**, to create a Transaction Profiling report. For details, see “Transaction Profiling report” on page 185.

The Application Group name appears in the report or extract as a column heading. If a row of data matches a resource field value specified by an Application in the Application Group, the column displays the Application name. For example, you might define an Application Group named CRITICAL that consists of your mission-critical Applications, where each Application is defined by a set of transaction IDs.

Application Grouping is especially useful for summarizing the performance of Applications that involve several transaction IDs. If you specify an Application Group as a key field in a SUMMARY Report Form, the report or extract groups and then summarizes the input records for each Application. If you specify TRAN as a key field after the Application Group, then, after the summary for each Application, the report or extract shows summaries for each transaction ID of that Application. For example, suppose you have associated the Application name "Application A" with transaction IDs matching the masked value A* (that is, transaction IDs beginning with the character A):

| CRITICAL | | | Avg |
|-----------------|-------------|---------------|--|
| Group | Tran | #Tasks | Response Time |
| Application A | A1 | 4 | .0500 |
| Application A | A2 | 3 | .0200 |
| Application A | A3 | 5 | .0700 |
| Application A | | 12 | .0508 <i>(combined summary for A1, A2, and A3)</i> |
| Application B | B1 ... | | |

By contrast, adding an Application Group to a LIST Report Form simply adds a column to the resulting report or extract, annotating each row with the associated Application name, with the same number of report lines as before: it does not perform any grouping or sorting.

Typically, you use Application Grouping to group input records for Applications based on CICS transaction IDs, as shown in the previous example. However, you can also use Application Grouping to group input records for other purposes, based on other performance fields. For example, you could define an Application Group where each "Application" is defined by the set of user IDs in a division of your enterprise. You can use this Application Group to track CICS usage patterns of staff in each division.

For examples of reports that use Application Grouping, see Figure 195 on page 407 and Figure 215 on page 439.

Defining Application Groups

To define an Application Group:

1. Select option 8 **Resource Definitions** from the CICS PA Primary Option Menu. If you have not yet defined a repository, you can do so from here. Specify the name of an existing repository, or if you specify a new data set name, CICS PA prompts you to create a new repository. For details, see "Repository" on page 623.
2. If you already know that you want to refer to Resource Lists when defining Application Groups, use option 1 to define the Resource Lists first. For details on defining Resource Lists, see "Resource Lists" on page 641. Otherwise, select option 2 **Application Groups** to display the Application Groups panel:

```

File Options Help
-----
Application Groups                               Row 1 to 1 of 1
Command ==> _____ Scroll ==> PAGE

Select to edit Application Group (APG). Enter NEW command to define a new APG.

/ Name           Description           Changed           ID
_ BUSFUNC Business functions           2008/05/06 12:46 GXH
***** Bottom of data *****

```

Figure 174. Application Groups

- To define a new Application Group, enter **NEW** on the command line, and then enter a name for the Application Group in the pop-up window.

An Application Group name consists of 1-8 characters. The first character must be an alphabetic character (A-Z) or a national character (@, #, or \$). The remaining characters can be alphabetic, national, or numeric (0-9) characters. Do not specify a name that matches a CMF field name or the leading characters of a CMF field name. For example, do not specify APP, because it matches the leading characters of the CMF field name APPLID, among others. However, APPG is valid.

Report or extracts for this Application Group will contain a column heading consisting of the Application Group name followed by the word "Group".

To edit an existing Application Group, enter line action **S** next to the Application Group.

```

File Edit Confirm Lists Options Help
-----
EDIT Application Group - BUSFUNC                 Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE

Description . . . Business functions_____
Resource field . . TRAN___ + User field offset ___ Length ___

Specify the Application names and their resource values.

----- Resources -----
/ Application Name      Values      List +
_ Statistics collection $*_____ (2) _____
_ Accounting            A*_____
_ CICS-supplied transactions _____ CICSSTRAN
_ Delivery              D*_____
_ Finance                F*_____
_ Unassigned transactions *_____
***** Bottom of data *****

```

Figure 175. Editing an Application Group

Before adding Applications to an Application Group, you must specify the resource field whose values will define the Applications. All Applications in an Application Group must refer to values of the same resource field, such as the CICS transaction ID (TRAN).

The order of the Applications on this panel is significant. Reports or extracts associate input records with the first matching Application. In the following example, Application B never appears in a report, because input records always match Application A first:

| Application Name | Values |
|------------------|--------|
| Application A | AP* |
| Application B | APB* |

To enable matches with Application B, you would move Application B before Application A in the list. Report rows that do not match any Application contain ***noapg*** in the Application Group column. To specify a different label for these rows, insert an Application name such as "No match" at the end of the list, with a single asterisk (*) as its value:

| Application Name | Values |
|------------------|--------|
| Application B | APB* |
| Application A | AP* |
| No match | * |

This Application matches any records that have not already matched an Application in the list. If you do not want these rows to appear in a report, then, when requesting the report, specify selection criteria either to only include records that match the Applications or to exclude records that do not match any Application.

The Application Group details are:

Description

Free-format text of up to 36 characters describing the Application Group. This description appears on the Application Groups panel to help identify each Application Group, but it does not appear in reports or extracts.

Resource field

The name of the CMF character field whose values identify the Applications. For example, to identify Applications by their CICS transaction IDs, specify TRAN as the resource field name. The resource field can be either a user character field (specified in the MCT) or one of a limited set of predefined CMF character fields:

Field name

| | Description |
|-----------------|---------------------------------------|
| TRAN | Transaction identifier |
| TERM | Terminal ID |
| USERID | User ID |
| PROGRAM | Program name |
| APPLID | CICS Generic APPLID |
| APPLPROG | Application naming Program |
| APPLTRAN | Application naming Tran ID |
| FCTY | Transaction Facility name |
| OTRAN | Originating Transaction identifier |
| OUSERID | Originating User ID |
| OAPPLID | Originating CICS APPLID |
| OFCTY | Originating Transaction Facility name |
| PHTRAN | Previous Hop Data Transaction ID |
| PHAPPLID | Previous Hop Data APPLID |

PSBNAME

PSB Name

OMEGWORK

OMEGAMON User work area

To select from the list of predefined fields, press **Prompt** (F4). If you specify a user field name, you must also specify an offset and a length, indicating the part of the field you want to compare with the Application values.

User field offset and length

If you specify a user field in **Resource field** then you must also specify an offset and a length. These identify the part of the user field that you want to compare with the Application values. The offset is the position of the first character and the length is the number of characters from this position. To compare the entire field, specify offset 1 and the maximum field length. For example, if the user field contains the value ABCDEFG, specifying offset 1 and length 4 gives the output ABCD, which is then compared with the Application values.

If you specify a predefined CMF field in **Resource field** you cannot specify an offset or a length. The entire field value is always compared with the Application values.

Application name

Free-format text of up to 32 characters, including mixed-case characters and blanks. This name appears in reports and extracts on rows that match the Application values, under the column heading for the Application Group.

Values

For each Application, you must specify one or more values of the resource field that identify the performance records belonging to the Application. You can specify these values in either of two ways:

- Refer to a Resource List that contains the values.
- Specify the values individually.

The Values column shows only the first value of an Application. You can edit the first value directly in the Values column. If an Application has more than one value, the number of values appears in parentheses (n) next to the first value. To edit these other values, enter line action **S**. This displays the Value List panel, showing all of the values for the Application:

```
Command ===> _____  
Application Name: Statistics collection  
Specify Resource Values.  
$* _____ #* _____ _____ _____  
_____  
_____  
_____  
If more than 16 values are required, you must use a Resource List.  
Press END (F3) to save the values, CANCEL (F12) to abort.
```

Figure 176. Editing the resource field values for an Application

Masking characters % (exactly one character) and * (any number of characters) are allowed. For example, specify TR* to match all values starting with TR. To specify a null value, type two single quotes ' ' or " ". You can specify up to 16 individual values for an Application. If you need to enter more than 16 values, define a Resource List.

(Resource) List

A Resource List is a set of values that you can refer to by name. If you want to define the same Application in several Application Groups, then rather than specifying its field values separately in each Application Group, consider defining and referring to a Resource List. If you want to specify more than 16 values for an Application, then you must use a Resource List, even if you do not intend to refer to the Resource List in other Application Groups.

To select a Resource List, press **Prompt** (F4).

To define a Resource List, select **Lists** in the action bar. After defining the Resource List, you return to this Application Group panel, so that you can refer to the newly defined Resource List. For more details, see "Resource Lists" on page 641.

Note:

- a. Resource Lists and Application Groups are both stored in a repository. An Application Group can only refer to Resource Lists that are stored in the same repository as the Application Group.
- b. Application Groups cannot refer to Object Lists. Object Lists are stored in the Control Data Set specified in your CICS PA Profile. For details, see "Object Lists versus Resource Lists" on page 325.

Chapter 12. CPU service units

The CPU Service Unit (SU) is a conversion of the CMF CPU time using a conversion factor that is specific to the processor where the transaction is executed.

CPU service unit factors provide a standardized unit for measuring CPU consumption that allows for the inherent differences in processors. By specifying the CPU SU conversion factor in CICS PA, CMF CPU times can be converted to a common unit of measurement: service units. This allows you to more accurately compare workload performance when it is being performed on different processors, and to provide consistent measurement for SLA and chargeback.

Reporting with the CPUSU derived field

The derived field CPUSU is available in List, ListX, and Summary Forms and List and Summary Templates.

You can report and extract converted values from HDBs either by specifying CPUSU in the Template and thereby loading it in the HDB or by specifying it in the Form. If the HDB is loaded with the CPUSU value, it will be reported and extracted as for any other field. In this case, the specification of the conversion factor in either the definition or file will be ignored. If on the other hand derived field CPUSU was not loaded into the HDB but is specified in the Form and the CPU field is in the HDB, the conversion factor will be used to calculate CPUSU value.

Attention:

1. Reporting CPUSU for a Summary HDB that was not loaded with the CPUSU value has a potential risk which might render the CPUSU value incorrect. This will occur when the summarized data in the HDB comes from Images with different CPU SU conversion factors. This means that a single CPU SU conversion factor does not apply to all transactions in the summarized data. To avoid this problem, ensure that all summarized transactions are eligible to use the same CPU SU conversion factor.
2. The specification of the CPUSU value in functions such as Selection Criteria and Form Range must include a decimal point. Not specifying a decimal value will result in the value being interpreted as a decimal fraction.

Rules for applying conversion factors

CPU SU conversion factors can be specified in two places:

1. As an image-specific value defined in the repository (Definition)
2. As a file-specific value specified in the CICSPA command suboperand SUFACTOR (File).

The following rules govern their application.

1. File and Definition conversion factors cannot be combined in the execution of a single CICSPA command. If File conversion factors are specified, any Definition conversion factors are all ignored.
2. File conversion factors are specific to each file and can be specified for individual IN ddnames or log stream names.

3. If an IN ddname is a concatenation of multiple SMF files, the specified conversion factor will apply to all files in the concatenation.
4. If multiple SUFACTOR operands refer to the same ddname or HDB name, only the first SUFACTOR conversion factor will be used for the input.
5. If one or more file SUFACTOR values are specified then any ddname or input without an SUFACTOR takes the current processor default.
6. In case of HDB reporting, the SUFACTOR will be available as an operand and will apply to all containers included in the report. In other words, there will not be a container-specific conversion factor specified or applied.

Defining CPU service unit conversion factors

The CPU Service Unit Conversion Factors definition allows you to specify a conversion factor for each individual image.

About this task

When you open the CPU Service Unit Conversion Factors panel CICS PA calculates and displays a conversion factor for the current image. You can use the following line actions to insert, delete, and update individual entries in this panel:

- I** Insert a conversion factor.
- D** Delete a conversion factor.
- U** (Use) Apply the conversion factor for the current Image to this entry.

In this way you can enter any image name. It does not have to be defined in personal systems or shared systems.

Alternatively, you can press the **Prompt** key in the Image Name field to apply this factor or another value to multiple selected images.

Procedure

1. Select option 8 **Resource Definitions** from the CICS PA Primary Option Menu.
2. Select option 4 **SU Conversion Factors**. The CPU Service Unit Conversion Factors panel is displayed:

```

File Systems Edit Options Help
-----
CPU Service Unit Conversion Factors      Row 1 to 1 of 1
Command ===> _____ Scroll ===> PAGE

Specify the CPU Service Unit conversion factor for each Image.

The Conversion Factor for current Image WXY2 is 22289.563

  Image  Conversion
 / Name + Factor   Description
-----
***** Bottom of data *****

```

Figure 177. CPU SU Conversion Factors

3. Press the **Prompt** key in the Image Name field. The Image Selection panel is displayed:

```

Image Selection                               Row 1 to 4 of 4
Command ==> _____ Scroll ==> PAGE

Select option and one or more Images then press EXIT.

1 1. Leave CPU SU factor blank
  2. Set to current Image CPU SU factor
  3. Set to CPU SU factor . . . . . _____

Image  Description
. AB01  ** New Image system **
. FTF1  ** New Image system **
. MV2A  System added by take-up
. MV2B  System added by take-up
. MV2C  System added by take-up
. WXY1  System added by take-up
. ZT01  System added by take-up
***** Bottom of data *****

```

Figure 178. CPU SU Image Selection

This panel lists the images defined in Personal System and Shared System definitions that are available for selection. If the same image is defined in both Personal Systems and Shared Systems the description is taken from the Personal System definition. Any images that are already listed on the CPU Service Unit Conversion Factors panel are omitted.

4. Type line action **S** to select one or more images for which you want to provide a CPU SU conversion factor.
5. Enter an option number to specify the conversion factor for the selected images.
 - 1 Do not initialize the selected images. This leaves the conversion factor for the selected images blank so that you can specify them individually in the CPU Service Unit Conversion Factors panel.
 - 2 Initialize the selected images using the conversion factor value for the current system.
 - 3 Initialize the selected images using a specified conversion factor value that you provide. The value must be a decimal number or integer in the range 1 - 999999999 (nine 9s).
6. Press **Enter** to apply the conversion factor to the selected images.
7. Press **Exit** (F3) to complete your selection and return to the CPU Service Unit Conversion Factors panel.

Chapter 13. Performance alerts

Performance alert reporting provides you with the ability to monitor and report adverse transaction performance conditions based on predefined thresholds. It complements statistics alert reporting to support your requirements for performance compliance and problem detection.

CICS CMF data is measured against user-defined performance thresholds and only transactions that fail alert thresholds are reported or flagged in the report. The Performance List and Summary reports and extracts compare nominated fields in each transaction's resource values against those defined in the alert definition. Only matching transactions are compared against the corresponding threshold values and the non-compliant transactions are reported.

Existing Reports Sets can be used to satisfy both your standard and alert reporting needs, including performance extracts into CSV data sets or loaded into DB2 tables.

Performance alert definitions are stored in the Repository. A performance alert definition is stored as two related parts, a template and a set of threshold values based on the template.

Using a Report Form to format your report is optional. This is because you can also use the performance alert template to format your report.

The performance alert definition allows you to define resource fields and values for transaction filtering. Transaction filtering associates specific threshold values with specific transactions. The resource fields are type character identification fields such as TRAN, APPLID, and USERID, or Application Group. You can specify from 1 to 3 resource fields with a value for each.

Each set of resource fields has an associated set of data fields with severity threshold values. This means that in a single alert definition, you can define different severity threshold values for different resources. This is shown in the following example.

| TRAN | APPLID | USERID | Info RESPONSE TIME | Warning RESPONSE TIME | Critical RESPONSE TIME | |
|------|--------|--------|--------------------------|-----------------------------|------------------------------|-------|
| / | | | | | | |
| HR* | PROD* | | | *1.1 | | |
| - | HRP* | PRODHR | PER* | <0.7 | <1.0 | >=1.0 |
| - | HRP* | PRODHR | SYD* | <0.1 | <0.5 | >=0.5 |
| - | HRP* | PRODHR | NY* | <0.4 | <0.7 | >=0.7 |

Figure 179. Example: Performance alert definition

This example shows three different resources each with a different set of threshold values. It also shows an adjustment value for the Response Time Warning column. This is a shortcut method of applying global adjustment to threshold values without editing every value in the definition. The adjustment value is applied to every threshold value in the column.

The structure of the alert definition is based on a template which defines the resource fields, data fields, severities and layout of the alert definition. The

template provides flexibility to construct and modify the alert definition to include the resource and data fields you want. The layout of the template is particularly important as it acts as a pseudo Report Form when no Form is specified in the report, and therefore the field order determines the report layout.

A performance alert definition has the following attributes:

- Template containing a maximum of three resource field names that are used to identify selected transactions for alert comparison. The template must contain at least one resource field, such as TRAN.
- Alert Values definition containing resource field values, such as FINC.
- Template containing at least one CMF data field name, such as RESPONSE. These are the fields for which performance threshold values are specified for transaction comparison.
- For each CMF data field, the Alert Values definition contains the threshold value for at least one of the Critical, Warning and Informational levels.
- Optionally, the template can contain additional CMF report fields if you intend to use the performance alert definition as a Report Form. These optional fields are not displayed in the Alert Values definition.

To create a performance alert report or extract, follow these steps:

1. **Define a performance alert definition.**

To begin:

- a. Select option 8 **Resource Definitions** from the CICS PA Primary Option Menu.
- b. Select option 3 **Performance Alerts** from the Resource Definitions Menu.

For more information, see “Defining performance alerts.”

2. **Use the performance alert definition to create a Performance List or Summary report.**

To create a Performance List or Summary alert report:

- a. Select option 2 **Report Sets** from the CICS PA Primary Option Menu.
- b. Select or create a report set.
- c. Expand the **Performance Reports** category, and then select **List or Summary**.

For more information, see “Performance List report” on page 169 or “Performance Summary report” on page 179.

3. **Use the performance alert definition to create a Performance List or Summary extract.**

To create a Performance List or Summary alert extract file:

- a. Select option 2 **Report Sets** from the CICS PA Primary Option Menu.
- b. Select or create a report set.
- c. Expand the **Extracts** category, and then select **Performance**.

For more information, see “Performance Data extract” on page 255.

For examples of performance alert reports and extracts, see “Performance alert examples” on page 350.

Defining performance alerts

To create a performance alert definition:

1. Select option 8 **Resource Definitions** from the CICS PA Primary Option Menu.
2. On the Resource Definitions Menu, specify the data set name of the Repository, then select option 3 **Performance Alerts**.

This displays the Performance Alert Definitions panel:

```
File Options Help
-----
Performance Alert Definitions Row 1 to 3 of 3
Command ==> NEW Scroll ==> PAGE

Edit Alert Template (T) or Alert Values (S). Enter NEW command to define a new
Alert Definition.

/ Name Description Changed ID
_ PROD1XCP Production System 1 Alerts 2008/05/01 16:34 AXS
_ PROD2XCP Production System 2 Alerts 2008/05/01 16:34 AXS
_ PROD3XCP Production System 3 Alerts 2008/05/01 16:34 AXS
***** Bottom of data *****
```

Figure 180. Performance Alert Definitions

3. To define a new Alert Definition, enter **NEW** on the command line, and then enter a name for the Alert Definition in the pop-up window. You can bypass the prompt by specifying the name in the command. For example, **NEW PROD4XCP**.

Alternatively, you can create a new Alert Definition modeled on an existing one. Enter line action **C** next to the definition you want to copy. In the pop-up window, enter the name of the new definition and destination repository. If a definition of the same name already exists in the destination repository, it will not be overwritten unless you select the option **Replace Alert Definition if it exists**.

An Alert Definition name consists of 1-8 characters. The first character must be an alphabetic character (A-Z) or a national character (@, #, or \$). The remaining characters can be alphabetic, national, or numeric (0-9) characters.

4. The definition has two parts: the template, which is defined first, and the alert values based on the template.

The following line actions can be entered against an Alert Definition:

- / Display the menu of line actions.
- S Select to edit the alert values. Same as **E**.
- T Edit the alert template. Same as **TE**.
- V View the alert values.
- TV View the alert template.
- D Delete the alert definition.
- C Copy the alert definition to this or another repository.

5. To edit the template of an existing Alert Definition, enter line action **T** next to the Alert Definition. If you do not intend to make and save changes, enter line action **TV** to view the template.

The Alert Template edit panel has four views. To cycle through the views, press **Right** (F11).

```

File Edit Confirm Options Help
EDIT Performance Alert Template - PROD4XCP Row 1 of 18 More: >
Command ==> _____ Scroll ==> CSR_

Description . Performance Alert Definition_____ Page width . . 104

Field Sort ----- Alert -----
/ Name + K O Type Function Severity Report
---
TRAN K A RESOURCE _____
TASKCNT_
ALERT_ SEV CRITICAL PERCENT_
ALERT_ SEV WARNING_ PERCENT_
RESPONSE AVE _____
RESPONSE SEV CRITICAL PERCENT_
RESPONSE SEV WARNING_ PERCENT_
RESPONSE MAX _____
CPU TIME AVE _____
CPU TIME SEV CRITICAL PERCENT_
CPU TIME SEV WARNING_ PERCENT_
CPU TIME MAX _____
EOR
APPLID K * RESOURCE _____
ALERT SEV INFO PERCENT_
RESPONSE SEV INFO PERCENT_
CPU TIME SEV INFO PERCENT_
EOX
***** Bottom of data *****

```

Figure 181. Performance Alert Template edit panel - initial view

Enter a description and specify template details:

Description

Free-format text of up to 36 characters describing the alert definition. This description appears on the Performance Alert Definitions panel to help identify each definition, but it does not appear in reports.

The template details are:

Field Name

The name of any CMF field. Fields that do not have SEV nor RESOURCE in the Function field will be treated as normal report fields when the template is used in place of a Report Form when reporting. Fields that have SEV or RESOURCE can also be used for reporting as described below.

Relevant to: List and Summary reports.

List report: Only the first of multiple entries for the same field+type+alert function is reported.

Summary report: Field name **ALERT** provides the total count or percentage of transactions for each alert severity level (Critical, Warning, or Info) for the summary key. If no alerts are specified, the ALERT field name is ignored.

Sort K Relevant to: Summary reports. Same function as in a Summary Report Form.

Sort O

Relevant to: List and Summary reports.

List report:

* Field is excluded from the report.

A, D or blank

Field is included in the report.

Summary report: Same function as in a Summary Report Form.

Type Relevant to: List and Summary reports. Same function as in the Report Form.

Function

Relevant to: List and Summary reports. Same function as in the Report Form with the following additional values:

RESOURCE

Indicates the resource field to be included in the alert values definition. At least one and a maximum of three RESOURCE fields must be specified. If a RESOURCE field is type APG (Application Group), it must be the first RESOURCE field specified.

SEV Indicates an alert field to be included in the alert values definition.

Alert Severity

Relevant to: Summary reports. Field alert severity, either CRITICAL, WARNING, or INFO.

Alert Report

Relevant to: Summary reports. Field alert reporting type:

COUNT

Total number of field alerts for the severity.

PERCENT

Percentage of field alerts for the severity based on the number of transactions processed.

Page width

Relevant to: List and Summary reports. This is a calculated, display-only field showing the width of the report page containing all the fields above the EOR indicator. It is displayed when you press Enter or scroll right (F11) or left (F10). It is automatically adjusted as you add or delete fields above EOR.

Note: The page width automatically adjusts to the calculated total length of the fields above EOR (plus one space between fields). This is in contrast to the way it works in Report Forms where you can specify the page width and EOR automatically moves to fit within the specified width.

The following line actions can be entered against a row in the template:

- / Display the menu of line actions.
- S** Select a field name from a scrolling prompt list of fields with long descriptions.
- I** Insert a new entry.
- R** Repeat this entry.
- C** Copy this entry.
- M** Move this entry.
- A** Copy/Move after this entry.
- B** Copy/Move before this entry.
- D** Delete this entry. When you delete alert fields from the template, associated alert values are also deleted.
- H** Field help with long description.

RR, CC, MM, DD

Block commands: Repeat, Copy, Move, Delete

When the template specification is complete, press F3 to save changes.

6. To specify the threshold values, enter line action **S** or **E** next to the alert definition. If you do not want to make and save changes, enter line action **V** to view the definition.

The Alert Values edit panel might have too many columns to display in a single view. Scroll **Right** (F11) or **Left** (F10) to see all columns.

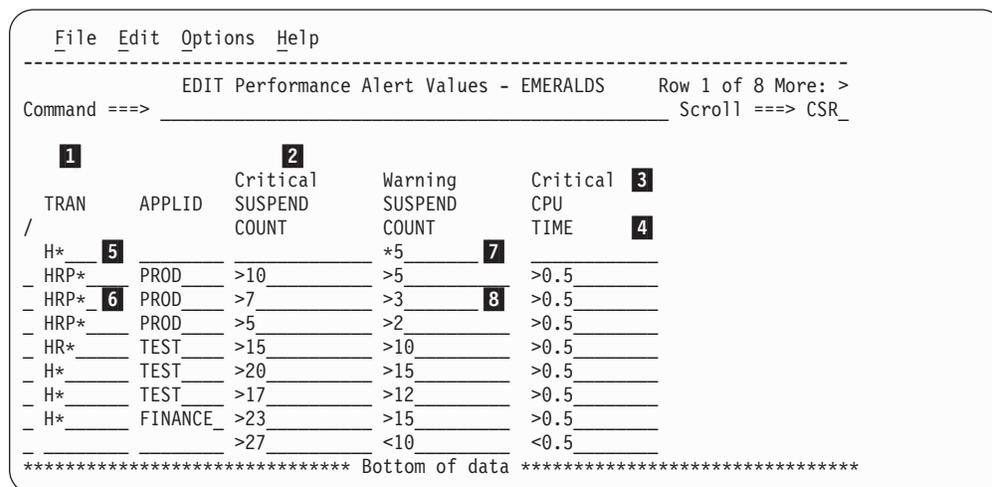


Figure 182. Performance Alert Values edit panel (with filter)

The fields and their order in the panel are determined by the Template and are altered with changes to the Template. Only fields with Function RESOURCE and SEV from the Template are displayed here. Report fields are excluded.

This panel is used to specify the resource and threshold values associated with the resource and alert fields in the Template. In addition, the panel allows for global adjustment of threshold column values for easy alteration of thresholds.

Complete the performance alert definition by specifying threshold values:

- 1 Resource fields.
- 2 Alert fields.
- 3 Field severity specified in the template. Possible values are: **Critical**, **Warning**, **Info**.
- 4 Field type. **TIME** or **COUNT** for **S** type fields, **APG** for Application Group fields, blank for all others. If there are no S type or APG fields specified, this row is not displayed.
- 5 Filter. Optional value used to filter the display to only show matching alert resource values. The filter value is not saved when you exit the panel. If two or three filter values are specified, they are AND'd.
- 6 Resource field value. Used to select the transactions to compare with the associated thresholds. Resource values support wild characters (for example, PRODC*) and application group names. A blank resource value field will not be checked and is the same as specifying * (asterisk).

Resource field columns remain fixed while other columns are scrollable left and right. At least one resource value must be specified in each row.

- 7 Threshold adjustment value. This is a number with or without a

preceding operator. It is used to adjust all threshold values in the column. Supported mathematical operators are: + - * / (add, subtract, multiply, divide). Supported comparison operators are: = < > =< >= <> != .

If you specify a number with a mathematical operator, all threshold values in the column are adjusted by performing the specified mathematical operation. For example, *2 will double all values in the column. If the adjusted result is negative, it is set to zero.

If you specify a number without a mathematical operator, it replaces all threshold values in the column.

If you specify both a mathematical operator and a comparison operator in the adjustment value, the comparison operator is ignored.

Press Enter to do the adjustment. The adjustment field is then cleared.

Enter **RESET** in the adjustment field to clear all threshold values in the column.

8 Threshold value for the alert field and severity combination. Attributes are:

- The field can contain numeric characters only and comparison operators = < > =< >= <> != . The default operator is >.
- Supports a decimal point. For example, 0.000001
- The maximum length for the number, including the decimal point, is 9 characters. For example, 999999999 is valid, but 9999999.00 is invalid.
- Storage fields will allow all currently supported unit values: **K, M, G, T, P**. The value specified will be multiplied by the unit using 1024 base. This is the same implementation as statistics alerts.
- Time fields of type seconds and milliseconds will both specify base unit of seconds. That is, a 500 millisecond threshold will be specified as 0.5.

The following line actions can be entered against a row of values:

| | |
|---|----------------------------------|
| / | Display the menu of line actions |
| I | Insert a new row |
| R | Repeat this row |
| C | Copy this row |
| M | Move this row |
| A | Copy/Move after this row |
| B | Copy/Move before this row |
| D | Delete this row |

When the definition is complete, press F3 to save changes.

7. The definition can now be used for performance alert reporting in List or Summary reports or extracts.

The EDIT Performance Alert Values panel allows you to specify the actual resource fields values and alert fields thresholds that constitute the alert.

You can specify different thresholds for different resource values, thus allowing you to measure different resources within the same alert report run.

The resource values are AND'd. That is, a transaction's resource values must match ALL the resource values in the alert entry to be eligible for threshold checking.

The order of the resource fields is only important when the alert definition is used in place of a Form in the report. For the List report, the resource fields will be reported in the order and position they are defined in the Template. If printed in the Summary report, they will determine the summary key, hence the summarized data values. The Summary report will generate errors if the resource fields do not conform to summary key rules.

Since you can specify one, two, or three resource fields in the Template, this panel is dynamic in terms of the number of resource field columns.

The order of the alert entries is important since a transaction's field values will only be compared against the thresholds for the first alert entry that matches the transaction's resource values. Once the resource values combination is matched, no other alert entries are checked, regardless of whether the matched entry generates an alert or not. Only when the resource values do not match, then the next entry in the alert definition is checked against the transaction. This makes it extremely important to define the resource values in the correct order when using wild characters in the resource values.

If a row contains all * (asterisk) resource values, it should be placed last in the list as it will be a catchall for transactions that don't match previous resource values. If it is placed before rows with resource values, it will render the subsequent rows irrelevant as it will match all transactions.

The threshold levels within a single field are hierarchical. That is, Critical severity is checked before Warning, which is checked before Information, with only the first exceeded threshold level reported.

Each alert field is independent of all other fields, with each field checked and reported separately.

The order of the alert fields is only important when the alert definition is used in place of a Form in the report.

Performance alert examples

Performance alerts are shown in the following report examples. Extract data sets can be created with record layouts the same as the report columns.

Note: The minimum Severity level selected for reporting is used to report transactions that have at least that level of reporting in *any* of the severity fields. This could result in transactions being reported with severity lower than the specified severity when the transaction also has one or more severity fields that meets the specified severity criteria. For example, if the user specifies SEVERITY(CRITICAL) for the report, only transactions with Critical severity are reported, however, if a transaction also exceeds Warning or Info thresholds, the lower severity will be also reported.

Example 1

```
CICSPA LIST(OUTPUT(LIST0001),  
           ALERTDEF(EXAMPLE1),  
           SEVERITY(ALL))
```

| Tran | SC | Term | Userid | RSID | Program | TaskNo | Stop Time | Response Time | Response Time | Sev | Dispatch Time | User Time | CPU Time | Suspend Count | Suspend Count | DispWait Time | FC Wait Time |
|------|----|------|--------|----------|---------|--------------|-----------|---------------|---------------|----------|---------------|-----------|----------|---------------|---------------|---------------|--------------|
| CSSY | U | | CBAKER | DFHAPATT | 20 | 07:50:50.574 | .0038 | .0001 | .0001 | | .0001 | .0001 | | 1 | | .0000 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 21 | 07:50:50.576 | .0060 | .0002 | .0002 | | .0002 | .0002 | | 3 | | .0000 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 22 | 07:50:50.582 | .0105 | .0016 | .0004 | | .0016 | .0004 | | 5 | | .0041 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 19 | 07:50:50.606 | .0364 | .0238 | .0012 | Info | .0238 | .0012 | | 6 | Info | .0053 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 17 | 07:50:50.661 | .0913 | .0272 | .0016 | Warning | .0272 | .0016 | | 10 | Warning | .0537 | .0000 |
| CGRP | U | | CBAKER | DFHZCGRP | 13 | 07:50:50.713 | .1452 | .0274 | .0015 | Warning | .0274 | .0015 | | 6 | | .1134 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 16 | 07:50:50.721 | .1520 | .0269 | .0019 | Warning | .0269 | .0019 | | 18 | Warning | .1096 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 14 | 07:50:50.733 | .1648 | .0258 | .0012 | Warning | .0258 | .0012 | | 6 | | .1353 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 18 | 07:50:50.844 | .2747 | .0565 | .0033 | Warning | .0565 | .0033 | | 16 | Warning | .2072 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 12 | 07:50:50.894 | .3263 | .0551 | .0047 | Warning | .0551 | .0047 | | 39 | Warning | .2422 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 11 | 07:50:50.909 | .3409 | .0617 | .0060 | Warning | .0617 | .0060 | | 13 | Warning | .2649 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 15 | 07:50:51.042 | .4730 | .0764 | .0093 | Warning | .0764 | .0093 | | 73 | Critical | .1103 | .0000 |
| CPLT | U | | CBAKER | DFHSIPLT | 8 | 07:50:56.495 | 5.9899 | 1.0481 | .0619 | Critical | 1.0481 | .0619 | | 93 | Critical | .0031 | .0210 |
| CSSY | U | | CBAKER | DFHAPATT | III | 07:50:56.552 | 5.9837 | 2.2985 | .5642 | Critical | 2.2985 | .5642 | | 1188 | Critical | .3840 | .5694 |

Figure 183. Performance Alerts - List report with SEVERITY(ALL)

Example 2

CICSPA LIST(OUTPUT(LIST0002),
ALERTDEF(EXAMPLE2),
SEVERITY(INFO))

| Tran | SC | Term | Userid | RSID | Program | TaskNo | Stop Time | Response Time | Response Time | Sev | Dispatch Time | User Time | CPU Time | Suspend Count | Suspend Count | DispWait Time | FC Wait Time |
|------|----|------|--------|----------|---------|--------------|-----------|---------------|---------------|----------|---------------|-----------|----------|---------------|---------------|---------------|--------------|
| CSSY | U | | CBAKER | DFHAPATT | 19 | 07:50:50.606 | .0364 | .0238 | .0012 | Info | .0238 | .0012 | | 6 | | .0053 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 17 | 07:50:50.661 | .0913 | .0272 | .0016 | Warning | .0272 | .0016 | | 10 | Info | .0537 | .0000 |
| CGRP | U | | CBAKER | DFHZCGRP | 13 | 07:50:50.713 | .1452 | .0274 | .0015 | Warning | .0274 | .0015 | | 6 | | .1134 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 16 | 07:50:50.721 | .1520 | .0269 | .0019 | Warning | .0269 | .0019 | | 18 | Info | .1096 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 14 | 07:50:50.733 | .1648 | .0258 | .0012 | Warning | .0258 | .0012 | | 6 | | .1353 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 18 | 07:50:50.844 | .2747 | .0565 | .0033 | Warning | .0565 | .0033 | | 16 | Info | .2072 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 12 | 07:50:50.894 | .3263 | .0551 | .0047 | Warning | .0551 | .0047 | | 39 | Warning | .2422 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 11 | 07:50:50.909 | .3409 | .0617 | .0060 | Warning | .0617 | .0060 | | 13 | Info | .2649 | .0000 |
| CSSY | U | | CBAKER | DFHAPATT | 15 | 07:50:51.042 | .4730 | .0764 | .0093 | Warning | .0764 | .0093 | | 73 | Critical | .1103 | .0000 |
| CPLT | U | | CBAKER | DFHSIPLT | 8 | 07:50:56.495 | 5.9899 | 1.0481 | .0619 | Critical | 1.0481 | .0619 | | 93 | Critical | .0031 | .0210 |
| CSSY | U | | CBAKER | DFHAPATT | III | 07:50:56.552 | 5.9837 | 2.2985 | .5642 | Critical | 2.2985 | .5642 | | 1188 | Critical | .3840 | .5694 |

Figure 184. Performance Alerts - List report with SEVERITY(INFORMATIONAL)

Example 3

CICSPA SUMMARY(OUTPUT(SUMM0001),
EXTERNAL(CPAXW001),
TOTALS(8),
INTERVAL(00:01:00),
ALERTDEF(EXAMPLE3))

| Tran | #Tasks | Crit Alert | Warn Alert | Info Alert | Avg Response Time | Crit Response Time | Warn Response Time | Info Response Time | Avg User Time | Avg CPU Time | Avg Suspend Count | Crit Suspend Count | Warn Suspend Count | Info Suspend Count |
|-------|--------|------------|------------|------------|-------------------|--------------------|--------------------|--------------------|---------------|--------------|-------------------|--------------------|--------------------|--------------------|
| CATA | 1 | 0% | 0% | 100% | .0097 | 0% | 0% | 100% | .0028 | | 6 | 0 | 0 | 1 |
| CEDA | 1 | 100% | 0% | 0% | 163.3748 | 100% | 0% | 0% | .3450 | | 414 | 1 | 0 | 0 |
| CEJR | 15238 | 1.1% | 5.7% | 21.4% | .4349 | 0.9% | 3.7% | 18.8% | .2348 | | 73 | 324 | 876 | 3482 |
| Total | 15240 | 1.2% | 5.6% | 21.4% | .4349 | 10% | 3.7% | 18.7% | .2348 | | 73 | 325 | 876 | 3483 |

Figure 185. Performance Alerts - Summary report

Chapter 14. Statistics alert reporting

Statistics alert reporting enables you to define conditions, in terms of CICS Transaction Server or CICS Transaction Gateway statistics field values, that interest you. You can then use those conditions to report on CICS statistics stored in SMF files or historical databases.

CICS PA supports specifying an alert definition in the statistics HDB definition. You select the required Statistics reports to be collected in this HDB. When a CICS TS or CICS TG alert report is activated to collect in this HDB, you can use a new line action called AO (Activate Alert-only collection) to collect only the reports that related to this Alert. "Alert only" reports are only collected if Alert is triggered.

You can collect records that trigger alert conditions in the CICS TS and CICS TG Alert reports, or restrict existing reports to only those records which triggered alert conditions, or you can do both.

For each condition, you define an arithmetic formula that uses CICS statistics field names as variables. The formula can be as simple as a single field name, or it can be a combination of field names, arithmetic operators, and numbers. For example, the following formula calculates current active user transactions (statistics field XMGCAT) as a percentage of the maximum task limit (XMGMT):

```
XMGCAT / XMGMT * 100
```

(All fields in a formula must belong to the same statistics record.)

You can define up to three thresholds for a formula, indicating the severity of the condition: critical, warning, or information. A threshold consists of a comparison operator and a numeric value. For example, to trigger alerts of increasing severity, you could define the following thresholds:

Critical

>95

Warning

>80

Info (Information)

>50

CICS PA reports only the highest severity for a condition: for example, if the formula value is 85, the report contains only a warning alert, not a critical alert or an information alert.

You define conditions in sets; each set is known as a statistics alert definition. When you request a report, you select which statistics alert definition you want to use. This enables you to create reports that target different types of statistics, such as Java-related statistics, or general performance tuning statistics.

To create a statistics alert report, you need to follow these steps:

1. Define a statistics alert definition:
 - a. Select option 6 **Statistics** from the CICS PA Primary Option Menu.
 - b. Select option 5 **Define Alerts** from the CICS Statistics Reporting Menu.For more information, see "Defining statistics alerts" on page 354.
2. Use the statistics alert definition to create a Statistics Alert report.

To create a Statistics Alert report from SMF files:

- a. Select option 2 **Report Sets** from the CICS PA Primary Option Menu.
- b. Select or create a report set.
- c. Expand the **Statistics Reports** category, and then select **Alert**.

For more information, see “Statistics Alert reports” on page 220.

To create a Statistics Alert report from an HDB, you can use either of two options of the CICS PA Primary Option Menu:

- Via the Historical Database option:
 - a. Select option 5 **Historical Database** from the CICS PA Primary Option Menu.
 - b. Select option 4 **Report** from the Historical Database Menu.
This displays a list of all HDBs in the Repository, including performance HDBs.
 - c. Select the statistics HDB you want to use.
 - d. Select **Request batch Alert report** from the Statistics HDB Reporting Menu.
- Via the Statistics option:
 - a. Select option 6 **Statistics** from the CICS PA Primary Option Menu.
 - b. Select option 3 **Historical Databases for CICS Statistics** from the CICS Statistics Reporting Menu.
This displays a list of statistics HDBs in the Repository.
 - c. Select the statistics HDB you want to use.
 - d. Select **Request batch Alert report** from the Statistics HDB Reporting Menu.

For more information, see Chapter 8, “Report Sets,” on page 145.

For examples of Statistics Alert reports, see “STATSALERT examples” on page 490.

Defining statistics alerts

To create a statistics alert definition:

1. Select option 6 **Statistics** from the CICS PA Primary Option Menu.
2. Select option 5 **Alerts** from the CICS Statistics Reporting Menu.

This displays the Statistics Alert Definitions panel:

```
File Options Help
-----
                Statistics Alert Definitions                Row 1 to 1 of 1
Command ==> _____ Scroll ==> PAGE
Select to edit a definition. Enter NEW command to create a new definition.

/ Name           Description           Changed           ID
 _SAMPLE   Sample alert definition     2009/02/17 09:10 AXS
***** Bottom of data *****
```

Figure 186. Statistics Alert Definitions

3. To define a new Alert Definition, enter **NEW** on the command line, and then enter a name for the Alert Definition in the pop-up window. To populate the new Alert Definition with sample Conditions, select the option **Initialize with sample scenarios**. These samples demonstrate a variety of typical Conditions that you might want in an Alert Definition for general performance reporting. Alternatively, you can create a new Alert Definition modeled on an existing one. Enter line action **C** next to the definition you want to copy. In the pop-up

window, enter the name of the new definition and destination repository. If a definition of the same name already exists in the destination repository, it will not be overwritten unless you select the option **Replace Alert Definition if it exists**.

An Alert Definition name consists of 1-8 characters. The first character must be an alphabetic character (A-Z) or a national character (@, #, or \$). The remaining characters can be alphabetic, national, or numeric (0-9) characters.

- To edit an existing Alert Definition, enter line action **S** next to the Alert Definition. If you do not want to make and save changes, enter line action **V** to view the Alert Definition.

The Alert Definition edit panel has two views: expanded and compressed. The following figure shows the expanded view. The compressed view is similar, but shows only the alert text that describes each condition. To switch between views, press **Left** (F10) or **Right** (F11).

```

File Edit Lists Options Help
-----
EDIT Statistics Alert Definition - SAMPLE Row 1 of 197 More: >
Command ==> _____ Scroll ==> PAGE
Description . . . Sample Alert_____

Specify the Conditions for this Alert Definition.

Alert Transaction dumpcode taken_____
Formula TDRTTKN_____ +
Critical _____ Warning >0_____ Info _____ +
Resource _____ List _____ +
APPLID _____

-----
Alert Transaction dumps requested_____
Formula TRANS_DUMP_TAKEN_____ +
Critical _____ Warning >0_____ Info _____ +
Resource _____ List _____ +
APPLID _____

-----

```

Figure 187. Alert Definition edit panel - expanded view

The details for an Alert Definition consist of a description, and a list of Conditions:

Description

Free-format text of up to 36 characters describing the definition. This description appears on the Statistics Alert Definitions panel to help identify each definition, but it does not appear in reports.

The details for each Condition are:

Alert Free-format text of up to 50 characters describing the Condition. This text appears in Statistics Alert reports when the Condition occurs (that is, when the Formula value meets a Critical, Warning, or Info threshold).

Formula

The expression that you want CICS PA to evaluate and compare with the thresholds (Critical, Warning, and Info).

This expression can be:

- A statistics field name, such as XMGTAMXT

- A combination of statistics field names, numeric values (decimal points allowed), () (parentheses), and the operators + (add), - (subtract), * (multiply), and / (divide)

For example, the following expression calculates peak in-use IP connection receive sessions as a percentage of the maximum limit:

`ISR_PEAK_RECEIVE_SESSIONS / ISR_RECEIVE_SESSIONS * 100`

All field names in an expression must be from the same statistics report. You can either type field names directly into the expression, or press **Prompt** (F4) to select from a list of fields; selecting a field name appends it to the expression.

If you press **Prompt** (F4) in a Formula field that does not yet contain any field names, CICS PA displays a hierarchical list of CICS Transaction Server and CICS Transaction Gateway statistics reports. Enter line action **S** next to the statistics report containing the fields you want to use; this displays the list of fields in the statistics report.

Tip: If you are editing an existing Formula and you are not familiar with the statistics field names it contains, press **Prompt** (F4). This displays a list of field names and short descriptions. To see a longer description for a particular field, move your cursor to the line action field for that field, and then press **Help** (F1).

Critical, Warning, Info

Specify one to three thresholds for Formula values that will trigger an Alert.

Each threshold represents a different severity level:

Critical

A problem has occurred that needs immediate attention

Warning

A problem might occur unless action is taken

Info Not a problem: reported for reference only

CICS PA reports only the highest matching severity level.

A threshold consists of a numeric value optionally preceded by one of the following comparison operators:

| | |
|----|---------------------------------|
| > | Greater than (default) |
| = | Equal to |
| < | Less than |
| <= | Less than or equal to |
| >= | Greater than or equal to |
| <> | Not equal to |
| ≠ | Not equal to (alternative form) |
| != | Not equal to (alternative form) |

To specify large values, append one of the following unit symbols: K (kilo), M (mega), G (giga), T (tera), or P (peta); where, for example, 1K = 1024 and 2.5M = 2.5 * 1024 * 1024.

For example, to trigger an Alert when the Formula value is greater than or equal to 32768, specify `>=32K`

Specify times in seconds, even for fields stored as milliseconds:

- For a threshold of 500 milliseconds, specify 0.5
- For a threshold of 2 minutes 15 seconds, specify 135

If you specify thresholds with unit symbols, then Statistics Alert reports show actual Formula values with the same unit symbols.

For Info thresholds only: to trigger an Alert regardless of the Formula value, specify a threshold of *. This information Alert is reported only if neither the critical nor the warning threshold is triggered.

Resource or List

Optional. Limits the reporting of this Condition to specific CICS resources. CICS PA reports the Condition only if the Resource value, or a value in the selected Resource List, matches the value of an “identification field” (key fields and other record identification fields) in the Statistics report identified by the Formula.

You can specify either a Resource value or a Resource List, but not both. (A Resource List is a set of Resource values that you can refer to by name.)

Masking characters % (exactly one character) and * (zero or more characters) are allowed in a Resource value.

For example, suppose the Formula contains fields from the Dispatcher TCB Modes report. To report the Condition only for TCB mode names that begin with the letter L, enter L* in the Resource field. To report the Condition for TCB mode names that begin with either the letter L or the letter J, in the List field you need to specify the name of a Resource List, that you have previously defined, that contains the values L* and J*. To define a Resource List, select **Lists** in the action bar. For more details, see “Resource Lists” on page 641.

You can specify a Resource or a Resource List only when the Formula refers to a tabular (multi-record) Statistics report, such as Dispatcher TCB Modes (one record per TCB mode). You cannot specify them for label-based (single-record) reports.

Note:

- a. Resource Lists and Alert Definitions are both stored in a repository. An Alert Definition can only refer to Resource Lists that are stored in the same repository as the Alert Definition.
- b. Alert Definitions cannot refer to Object Lists. Object Lists are stored in the Control Data Set specified in your CICS PA Profile. For details, see “Object Lists versus Resource Lists” on page 325

APPLID

Optional. Enter an APPLID to limit the reporting of this Condition to a particular CICS system or systems. Masking characters % (exactly one character) and * (zero or more characters) are allowed. For example, enter CICS%T to limit the reporting of this Condition to CICS systems with APPLID CICSAT, CICS1T, CICSBT, CICS2T, etc.

CICS PA uses this field to filter statistics records from a Statistics Alert report; it does not use this field to select which SMF files to use as input for the report. This is different to specifying an APPLID in a shared or personal CICS system definition. When you request a Statistics Alert report in a Report Set (that is, using data in SMF files), CICS PA selects SMF files based on the (personal or shared) system definitions that you have specified, including the APPLID of any CICS system definitions. Consequently, any APPLID that you specify in an Alert Definition might already have been filtered out by file selection.

An Alert Definition can contain many Conditions. To find a particular Condition in an Alert Definition, enter the command `FIND string`, where *string* is a character string that appears in one of the Condition field values. If you enter the `FIND` command on the compressed view of the panel, the command searches only the fields displayed on the compressed view.

Each Condition can be either active (the default state) or inactive. When you request a Statistics Alert report, CICS PA ignores any inactive Conditions. If you want to temporarily exclude a Condition from reporting, then rather than deleting it, make it inactive. This allows you to reinstate the Condition later, rather than having to enter its details again. To switch a Condition between active and inactive states, enter line action **X** next to the Condition.

If you request a report sorted by Alert, CICS PA sorts the Alerts in the report according to the order of the Conditions on this panel. Otherwise, the order of the Conditions on this panel is not significant. You can use line actions (described below) to move Conditions into the order that you prefer.

Line Actions

The following line actions can be entered against a Condition:

- `/` Display the menu of line actions.
- S or E** Switch to expanded view, and then scroll the display to this Condition, ready for editing.
- I** Insert a new Condition.
- R** Repeat this Condition.
- C** Copy this Condition.
- M** Move this Condition.
- A** Copy/Move after this Condition.
- B** Copy/Move before this Condition.
- D** Delete this Condition.
- X** Switch this Condition between active and inactive states.

Part 4. Requesting reports using batch commands

These topics provide a description of the command language together with sample JCL to produce many of the reports and extracts.

Chapter 15. JCL for reports and extracts

The CICS PA dialog automatically generates the JCL and batch commands to produce requested reports and extracts within a Report Set using specified SMF input files. The JCL can be directly submitted, or edited before submitting.

You can save the JCL in an external library to edit and submit independently of the CICS PA dialog. Alternatively, you can set up the JCL independently of the dialog, but this bypasses the comprehensive validation provided by the dialog.

JCL generation

The following JCL is an example of the job stream for requesting reports and extracts from CICS PA. The sample library **SCPASAMP** provided with CICS PA includes JCL members to generate all the CICS PA reports and extracts. See Chapter 17, “Sample library,” on page 537 for a complete list of these job streams.

```
//CPASAMP JOB (Job Accounting)
//*
//CICSPA EXEC PGM=CPAMAIN,PARM='UPPER'
//STEPLIB DD DSN=CICSPA.V5R1M0.SCPALINK,DISP=SHR
//CMDLIB DD DSN=CICSPA.CMDLIB,DISP=SHR
//CPAHDBRG DD DSN=USER.CICSPA.XYX.REPOSTRY,DISP=SHR
//*
/* CICS PA messages
//SYSPRINT DD SYSOUT=*
/*
/* SMF Files for APPLID=CICSP
//SMFIN001 DD DSN=CICS.APPL1.FILE1,DISP=SHR
// DD DSN=CICS.APPL1.FILE2,DISP=SHR,UNIT=AFF=SMFIN001
/*
/* Report output files - dynamically allocated by CICS PA,
/* or you can specify them in the JCL
//MYLIST DD SYSOUT=*
/*
/* Extract data sets
//CPAOXSYS DD DSN=CICSPA.CROSSSYS.EXTRACT,
// UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,CATLG)
//CPAOEXPT DD DSN=CICSPA.PERF.EXTRACT,
// UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,CATLG)
//CPAORSEL DD DSN=CICSPA.RECSEL.EXTRACT,
// UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,CATLG)
/*
/* External work files for use by reports that invoke SORT
//CPAXW001 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
//CPAXW002 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
//CPAXW003 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
//CPAXW004 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
//CPAXW005 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
/*
/* Sort work files
//CPASWK01 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
//CPASWK02 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
//CPASWK03 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
//CPASWK04 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
//CPASWK05 DD UNIT=SYSDA,SPACE=(CYL,(10,10)),DISP=(NEW,DELETE)
```

Figure 188. JCL for generating CICS PA reports and extracts (part 1 of 2)

```

//SYSOUT DD SYSOUT=*
/* Command input
//SYSIN DD *
* Report Set : SAMPLE
* Description: Sample CICS PA Report Set
  CICSPA SMFSTART(2012/01/12,),
          SMFSTOP(2012/01/13,)
* Reports for APPLID=CICSP
  CICSPA IN(SMFIN001),
          APPLID(CICSP),
          LIST(OUTPUT(MYLIST),
              SELECT(PERFORMANCE(INCL(USERID(MYID))))),
          LISTX,
          SUMMARY,
          TOTAL,
          WAITANALYSIS,
          PROFILING
          CROSS,
          TRANGROUP,
          BTS,
          WORKLOAD,
          TRACKINGLIST
          TRACKINGSUMMARY
          LISTEXCEPTION,
          SUMEXCEPTION,
          RESUSAGE,
          STATSALERT,
          CTGSTATISTICS,
          DB2,
          MQ,
          OMEGAMON,
          LOGGER,
          GRAPH(TRANRATE,RESPONSE),
          EXTRACTPERFORMANCE,
          RECSEL
          HDB(LOAD(hdbname)
          EXTRACTSTATISTICS)
/*
/* Dictionary records
//CPADICTR DD DISP=SHR,DSN=CICSPA.CICSP.DICT
//

```

Figure 189. JCL for generating CICS PA reports and extracts (part 2 of 2)

JOB, EXEC and DD statements

The job stream to generate batch reports and extract data sets consists of the following:

JOB

Job Statement Information from the CICS PA Settings profile options.

PGM=CPAMAIN, PARM='parameter list'

Request CICS PA reporting with optional parameters:

UPPER

UPPER translates all report output to upper case. This parameter is generated if you specify YES for **Reports in Upper Case** in the CICS PA Settings profile options. The default is mixed case (**UPPER** not specified).

STEPLIB DD

This is the library containing the CICS PA modules. It is specified in **CICS PA Load Library** in the CICS PA Settings profile options.

CMDLIB DD

This is the optional CICS PA command library containing pre-coded batch commands which can be inserted in the SYSIN command stream using the COPY or INCLUDE command.

CPAHDBRG DD

This identifies the Repository data set. The Repository is a VSAM KSDS that is the repository for all definitions associated with an HDB. It is also the repository for shared system definitions and Application Groups. It is required for all HDB command requests, including Load, Report, Extract, and Take-up.

CPAHBCD DD

This identifies the Repository container data sets. This DD is written in the context of an HDB load step and is expected to be read by a subsequent DB2 load step.

CPAHBDL DD

This identifies the Repository container data sets. This DD is used in the context of a DB2 load step where the HDB container data sets are not required to be kept (that is, the data retention period is 0).

CPAMACD DD

This identifies the HDB manifest container data set. The manifest is a catalog of HDBs. It is used by the CICS PA plug-in. This DD is used in the context of a manifest build step.

MANB0001 DD

This DD is used in the context of a manifest build step. It lists the HDBs that were included in the manifest.

SYSPRINT DD

CICS PA message data set. This DD statement defines the file used by CICS PA for its messages and run time information. It must be specified and should be checked for error messages.

SYSIN DD

Command input. This DD statement contains the CICS PA commands.

The CICS PA dialog automatically builds these commands at job submission time, based on the reports and extracts activated in the Report Set.

Report Output Files DD

These DD statements define the report output files. These files are specified using the **OUTPUT(ddname)** operand.

If not specified, CICS PA assigns a default DDname xxxnnnn where nnnn is a sequential number 0001-9999 to uniquely identify the report, and xxxx identifies the type of report:

LIST Performance List report

LSTX Performance List Extended report

SUMM
Performance Summary report

TOTL Performance Totals report

WAIT Wait Analysis report

PROF Transaction Profiling report
CROS Cross-System Work report
TRGP Transaction Group report
CBTS BTS report
WKLD
 Workload Activity report
TTLS Transaction Tracking List
TTSU Transaction Tracking Summary
XLST Exception List report
XSUM
 Exception Summary report
FILE File Usage Summary report
TEMP Temporary Storage Usage Summary report
DPLS Distributed Program Link Usage Summary report
RESU Transaction Resource Usage List report
STAL Statistics Alert reports
STTG CICS Transaction Gateway Statistics reports
DB2R DB2 report
MQ00 WebSphere MQ report
OMEG
 OMEGAMON reports
LOGR System Logger report
GRTE Transaction Rate graph report
GRSP Transaction Response Time graph report
CROX Cross-System Work Extract Recap report
EXPT Performance Data Extract Recap report
RSEL Record Selection Extract Recap report
HDBL HDB Load Recap report
LOEX System Logger Extract Recap report
STEX Statistics Extract Recap report

For example, if two LIST reports were requested without the OUTPUT operand specified, CICS PA writes the output to files with ddnames LIST0001 and LIST0002.

If a Report Output File is not specified in the JCL, CICS PA will dynamically allocate it with the same attributes as SYSPRINT, regardless of whether the OUTPUT operand was specified or not.

CPAOxxxx DD

Extract output data sets. These DD statements define the Extract Data Sets. The Extract Output Files are specified using the **DDNAME(ddname)** operand. CICS PA will accept any ddname via the DDNAME operand; it need not be prefixed by CPAO. However, if the DDNAME operand is omitted, CICS PA

expects that the default Extract Output ddname is specified in the JCL. See Table 8 on page 366 for the default ddname for each type of Extract.

The CICS PA dialog automatically generates the DD statements at Report Set run time. When generating the JCL, CICS PA assigns a default ddname **CPAOxxnn** where nn is a sequential number **01-99** to ensure ddnames are unique, and xx indicates the type of extract data set:

XS Cross-System Work Extract data set

EX Performance Data Extract data set

RS Record Selection Extract data set

LE System Logger Extract data set

If the extract data set is not cataloged, CICS PA uses the allocation details specified for **Extract Data Sets** in the Reporting Allocation Settings profile options. If the data set is already cataloged, CICS PA uses **DISP=MOD** or **DISP=OLD** to either append or overwrite the data set contents according to your specification on the Extract panel. Alternatively, you can use a GDG to create a new data set each time the Extract is run.

SMFINnnn DD

SMF data set. These DD statements define the SMF data sets to be processed by CICS PA. CICS PA commands refer to these DD statements via the **INPUT** operand (see “INput” on page 392). This determines which SMF Files are processed by the reports.

The CICS PA dialog automatically generates these DD statements at job submission time, based on the CICS APPLIDs selected for reporting and their associated SMF Files.

SMF File ddnames need not be prefixed by SMFIN. CICS PA will accept any ddname via the INPUT operand.

CPADICTR DD

Dictionary data set. These DD statements define the data sets which contain Dictionary records. It is only required if you want to include User Fields in your reporting.

Usually, the SMF File contains a Dictionary record to define the format of its performance records. If the Dictionary record is missing from the file, CICS PA will look in the CPADICTR data sets to find a Dictionary record for the particular CICS system (APPLID or APPLID/MVS) so report processing can proceed. If not present, CICS PA will use the default Dictionary record for the CICS system being processed.

External sorting

Some CICS PA reports and extracts sort records to produce their output. CICS PA uses the SORT utility (DFSORT or equivalent product) to perform External Sorting. See Table 8 on page 366 for a list of reports that use SORT.

External Work data sets are used to save records that are to be sorted. If the **EXTERNAL** operand is not specified, CICS PA assigns an External Work File from a pool specified in the JCL. External Work Files in the pool are identified with unique ddnames prefixed by **CPAXW**. Each report that requires an External Work File and does not specify the **EXTERNAL** operand is assigned one from the pool. You must ensure that there are enough External Work Files in the pool to handle all the reports that need one.

Table 8. CICS PA reports, default ddnames, and external sort requirements

| Report or Extract | Description | Default Report Output ddname | Default Extract Output ddname | External Sort Required? |
|--------------------|---|--|-------------------------------|-------------------------|
| LIST | Performance List Report | LISTnnnn | N/A | N |
| LISTX | Performance List Extended Report | LSTXnnnn | N/A | Y |
| SUMMARY | Performance Summary Report | SUMMnnnn | N/A | Optional |
| TOTAL | Performance Totals Report | TOTLnnnn | N/A | N |
| WAITANALYSIS | Wait Analysis Report | WAITnnnn | N/A | N |
| PROFILING | Transaction Profiling Report | PROFnnnn | N/A | Optional |
| CROSS | Cross-System Work Report | CROSnnnn | N/A | Y |
| TRANGROUP | Transaction Group Report | TRGPnnnn | N/A | Y |
| BTS | BTS Report | CBTSnnnn | N/A | Y |
| WORKLOAD | Workload Activity Report | WKLDnnnn | N/A | Depends |
| TRACKINGLIST | Transaction Tracking List Report | TTLNnnnn | N/A | Y |
| TRACKINGSUMMARY | Transaction Tracking Summary Report | TTSUnnnn | N/A | Y |
| LISTEXCEPTION | Exception List Report | XLSTnnnn | N/A | N |
| SUMEXCEPTION | Exception Summary Report | XSUMnnnn | N/A | N |
| RESUSAGE | Transaction Resource Usage Reports (File Usage Summary, Temporary Storage Usage Summary, DPL Usage Summary, List) | FILEnnnn, TEMPnnnn, DPLSnnn, RESUnnnn | N/A | N |
| STATSALERT | Statistics Alert Reports | STALnnnn | N/A | Y |
| CTGSTATISTICS | CICS TG Statistics reports (Activity Summary, Usage and Capacity report, Configuration Summary, Client Workload report, CICS Workload report) | STTGnnnn | N/A | N |
| DB2 | DB2 Report | DB2Rnnnn | N/A | Y |
| MQ | WebSphere MQ Report | MQ00nnnn | N/A | N |
| LOGGER | System Logger Report | LOGRnnnn | N/A | Depends |
| OMEGAMON | OMEGAMON Reports | OMEGnnnn | N/A | N |
| GRAPH(TRANRATE) | Transaction Rate Graph Report | GRTEnnnn | N/A | N |
| GRAPH(RESPONSE) | Response Time Graph Report | GRSPnnnn | N/A | N |
| CROSS | Cross-System Work Extract | XSYSnnnn | CPAOXSYS | Y |
| EXTRACTPERFORMANCE | Performance Data Extract | EXPTnnnn | CPAOEXPT | Depends |
| RESEL | Record Selection Extract | RSELnnnn | CPAORSEL | N |
| LOGGER | System Logger Extract | LOEXnnnn | CPA0EXPT | Y |
| EXTRACTSTATISTICS | Statistics Extract | STEXnnnn | TSxxxxnn, TGxxxxnn | N |

The following DD statements are required for External Sorting:

CPAXWnnn DD

External Work Files. These DD statements define the External Work Files used by the reports that sort their records. CICS PA commands refer to these DD statements via the **EXTERNAL** operand (see “EXTERNAL” on page 385).

The CICS PA dialog automatically generates these DD statements at job submission time, based on the **External Work Data Sets** specification in the Reporting Allocation Settings profile options.

External Work ddnames need not be prefixed by CPAXW. CICS PA will accept any ddname via the EXTERNAL operand.

CPASWKnn DD

Sort Work Data Sets. These DD statements define the Sort Work Files used by DFSORT (or equivalent product) on behalf of the reports that sort their records. **nn** is the Sort Work File sequence number.

The CICS PA dialog automatically generates four DD statements at job submission time, based on the **Sort Work Data Sets** specification in the Reporting Allocation Settings profile options.

SORTLIB DD

This is the library in which DFSORT (or equivalent product) is installed, and can be omitted if SORT is installed in the link-list.

SYSOUT DD

Sort Message Data Set. This DD statement defines the file used for SORT messages. It is required if DFSORT is used.

Using sysout2pdf to output batch reports as PDF

The sysout2pdf z/OS UNIX utility converts "traditional" plain text z/OS batch reports, such as reports generated by CICS PA, into PDF files. You can write plug-in filters for sysout2pdf to manipulate the report contents, highlight text, or add PDF navigation features such as bookmarks. You can also use sysout2pdf to send the PDF using email.

Preparing to use sysout2pdf

This topic explains the prerequisites for using sysout2pdf.

- sysout2pdf must be configured as part of the installation of CICS PA and according to the instructions in the *Program Directory*.
- sysout2pdf and Apache Formatting Objects Processor (FOP) must be installed under z/OS UNIX. Read the technote “Installing sysout2pdf and FOP on z/OS UNIX”, which is published on the IBM support web site at the following address:

<http://www-01.ibm.com/support/docview.wss?uid=swg21449724>

Note: sysout2pdf was developed and tested on z/OS V1.9 using FOP 0.85 and 1.0.

- Your z/OS UNIX system must have a JAVA_HOME environment variable that refers to a Java™ Runtime Environment (JRE), 1.5.x or later.
- Your TSO user ID (that is, the TSO user ID under whose authority your batch jobs run) must have an OMVS segment defined in RACF®, and must have permission to:
 - Execute the sysout2pdf z/OS UNIX shell script.
 - Read the specified z/OS UNIX input file (batch report).

- Write files to the z/OS UNIX file path for the output PDF.
- If you want to use sysout2pdf to send PDF attachments by email, then sendmail must be configured on your z/OS UNIX system.

Using sysout2pdf

This topic shows how to extend existing JCL that generates a batch report to use sysout2pdf.

Suppose you already have some JCL that generates a batch report. Now you want to use sysout2pdf to send you the report as a PDF using email. You need to make the following two changes to your JCL:

- Replace the parameters of the DD statement for the report data set with parameters that direct the report to a z/OS UNIX file.
- Append a BPXBATCH job step that calls the sysout2pdf z/OS UNIX shell script.

Example

1. Specify the following DD statement for the batch report:

```
//WAIT0001 DD PATH='/u/myhome/temp/wait analysis.txt',
//          PATHOPTS=(OWRONLY,OCREAT,OTRUNC),FILEDATA=TEXT,
//          PATHMODE=(SIRUSR,SIWUSR,SIRGRP,SIROTH)
```

The PATH parameter must refer to a z/OS UNIX directory that exists, and that you are permitted to write to.

The PATHOPTS parameter specifies the access and status options for the file specified on the PATH operand. If the file exists, it will be overwritten. If it does not exist it one will be created. The file will be opened for writing.

The FILEDATA parameter specifies that the data is to be treated as text.

The PATHMODE parameter specifies the file permissions: in this example, the file owner has read and write permission; other users have read permission only.

2. Append the following job step:

```
//BPXBATCH EXEC PGM=BPXBATCH,REGION=0M
//STDENV DD *
FOP_HOME=/usr/local/fop
/*
//STDPARM DD *
sh /usr/local/sysout2pdf/sysout2pdf
-mailto username@example.com
-subject "CICS PA: Wait Analysis"
-body "PDF attached"
-from "CICS PA"
-mailin
-rmin
-rmpdf
-filter cpa-wait
"/u/myhome/temp/wait analysis.txt"
/*
//STDOUT DD SYSOUT=*
//STDERR DD SYSOUT=*
```

The last argument that you supply to the shell script (in the STDPARM DD statement) must match the z/OS UNIX file path that you specified in the DD statement for the batch report. (Notice that STDPARM allows you to split the command-line arguments across multiple lines.)

The path following the sh command refers to the location of the sysout2pdf shell script.

The example above sends an email containing both the PDF and (as instructed by the `-mailin` option) the original plain-text input file (the batch report), and then removes both the input file and the generated PDF file (as instructed by the `-rmin` and `-rmpdf` options). The PDF contains bookmarks defined by the filter file `cpa-wait` (in the filters directory next to the `sysout2pdf` shell script). You might prefer not to send the PDF using email, and instead open it directly in a PDF reader application on your PC (say, via an SMB connection to z/OS UNIX).

Syntax

`sysout2pdf` options can be used to control the name, content, and formatting of the PDF output. The order of the options is not significant but *infile* must be specified after any options. If the `mailto` option is used you can specify the headers and body text for the generated email message.

`sysout2pdf`

```
[-body email_body_text]  
[-date prefix|suffix]  
[-dateformat string]  
[-filter file]  
[-fold width]  
[-from address]  
[-mailin]  
[-mailto address]  
[-nocc]  
[-nocleanup]  
[-nulltospace]  
[-param name value]  
[-pdf file]  
[-rmin]  
[-rmpdf]  
[-style file]  
[-subject email_subject]  
infile
```

Options

`-body email_body_text`

Body text of the email (currently supports plain text only).

`-date prefix|suffix`

Prefixes or suffixes the generated PDF file name with the current date. Does not apply if you specify a `-pdf` option (to explicitly specify the PDF file path).

`-dateformat string`

The date format string used by the `-date` option. For allowed values, see the z/OS UNIX `date` command.

Default prefix date format string:

```
"+%Y-%m-%d-"
```

Default suffix date format string:

```
"+-%Y-%m-%d"
```

For example, if you specify `-date suffix`, and the input file is `myreport.txt`, and today is 30 November 2010, then the PDF will be named `myreport-2010-11-30.pdf`

`-filter file`

A program (such as a shell script) that reads the input file from `stdin`, edits it, and then writes it to `stdout`.

Use this option to customize sysout2pdf for particular reports: for example, to highlight specific string patterns in different colors or to add bookmarks. See the examples in the filters directory.

Initially, sysout2pdf treats the value of this argument as a file path; however, if the file path does not exist, sysout2pdf treats the value as the name of a file in the filters directory next to the sysout2pdf shell script.

For example, if the sysout2pdf shell script is in the directory /bin/sysout2pdf, then the following argument:

```
-filter cpa-wait
```

has the same effect as:

```
-filter /bin/sysout2pdf/filters/cpa-wait
```

-fold *width*

If the z/OS batch application produces a report with no record delimiters, use this argument to insert a newline character at the end of each record. (Records must be fixed-length.)

-from *address*

The address that you want to appear in the From field of the email. Default is sysout2pdf.

-mailin

Attach the input file (the original batch report) to the email, with ISO 8859-1 character encoding (not EBCDIC), and with each line delimited by a carriage return/line feed pair of characters (that is, the default Microsoft Windows \r\n, not just the single-character UNIX \n "newline"). Unless you specify the -nocc option, sysout2pdf removes the first column from the input file before attaching it.

-mailto *address*

One or more email addresses to which you want to send the PDF. Separate multiple addresses with commas. The PDF is sent as a base64-encoded MIME attachment.

-nocc

Specify this option for batch reports that do not contain carriage control characters in the first byte of each record.

-nocleanup

Do not remove temporary file after completing. sysout2pdf creates the temporary file temp*.xml in the same directory as the output PDF file.

-nulltospace

Convert null (\0) characters in the report to spaces. Applications that produce reports containing null characters are typically considered ill-behaved. Try using the -nulltospace option if you get the following error:

```
FSUM9201 input file "[standard input]" is binary
```

-param *name value*

Parameter to be passed through to the XSLT stylesheet. You can specify multiple param options, each specifying a parameter name and value. The parameter names that you can specify depends on the XSLT stylesheet that you use. The default XSLT stylesheet supports the following parameters:

| Name | Default value |
|-------------|---------------|
| font-size | 9pt |
| line-height | 11pt |

| Name | Default value |
|---------------|---------------|
| page-height | 8.5in |
| page-width | 11in |
| margin-top | 0.5in |
| margin-bottom | 0.5in |
| margin-left | 0.5in |
| margin-right | 0.5in |

Tip: To specify a different standard page size, instead of specifying:

```
-param page-width 210mm
-param page-height 297mm
```

use the `-style` option to achieve the same effect:

```
-style a4-portrait
```

-pdf *file*

Output PDF file path. If omitted, `sysout2pdf` creates a PDF in the same directory as the input batch report, and with the same base file name. For example, if the batch report file name is `batchreport.txt`, the PDF will be called `batchreport.pdf`.

-rmin

Remove input file after creating the PDF file.

-rmpdf

Remove PDF file after completion (intended for use with the `-mailto` option).

-style *file*

A custom XSLT stylesheet to use instead of the default file (`styles/default.xml`). Use this option to customize the appearance of your PDF.

Initially, `sysout2pdf` treats the value of this argument as a file path; however, if the file path does not exist, `sysout2pdf` treats the value as the name of an XSLT stylesheet file, without its `.xml` extension, in the `styles` directory next to the `sysout2pdf` shell script.

For example, if the `sysout2pdf` shell script is in the directory `/bin/sysout2pdf`, then the following argument:

```
-style a4-portrait
```

has the same effect as:

```
-style /bin/sysout2pdf/styles/a4-portrait.xml
```

Styles supplied with `sysout2pdf` include:

```
default
letter-landscape (identical to default)
letter-portrait
a4-landscape
a4-portrait
```

-subject *email_subject*

Subject line of the email.

infile

File path of the batch report. This is the only required argument. It must be the last argument specified.

Examples

This topic shows examples of using `sysout2pdf` to create and send PDF output from batch reports. Each example is split over multiple lines for readability and can be issued in this way from a batch job. To run an example directly in a UNIX command shell, you must enter the command on a single line. For other examples, see members CPASPSM1, CPASPSM2, and CPASPWT1 in the sample library SCPASAMP.

Simplest case: create a PDF file

This example creates the PDF file `/u/myid/report.pdf` (with a landscape-oriented, letter-sized page, and 9-point text):

```
sysout2pdf  
"/u/myid/report.txt"
```

Create a PDF file with a date-stamped file name suffix

This example creates the PDF file `/u/myid/report-2010-30-11.pdf` (assuming today is 30 November 2010):

```
sysout2pdf  
-date suffix  
"/u/myid/report.txt"
```

Create a PDF file with a wide page size

This example creates a PDF file with a page size that is twice as wide as a landscape-oriented Letter-sized page:

```
sysout2pdf  
-param page-width 22in  
"/u/myid/report.txt"
```

Create a PDF file using a filter

This example creates a PDF file using a filter that is specifically designed for the CICS PA wait analysis report. This filter creates bookmarks to each transaction code in the Wait Analysis report.

```
sysout2pdf  
-filter cpa-wait  
"/u/myid/wait0001.txt"
```

Send the PDF file using email

This example creates the PDF file `/u/myid/report.pdf`, and then sends `report.pdf` by email to `user@example.com`:

```
sysout2pdf  
-mailto user@example.com  
"/u/myid/report.txt"
```

Send the PDF file and input file using email, and then delete them

This example creates the PDF file `/u/myid/report.pdf`, sends it and the input file by email (`-mailin`) to `user@example.com`, and then removes (deletes) both the PDF file (`-rmpdf`) and the input file (`-rmin`). Use `-rmin` and `-rmpdf` when you only want the report by email, and you do not want to leave any files on z/OS UNIX.

```
sysout2pdf
-mailto user@example.com
-mailin
-rmin
-rmpdf
"/u/myid/report.txt"
```

Send an email with custom subject line, from address, and body text

This example sends an email with the subject line "My CICS performance report", the from address "CICS PA", and the body text "PDF and plain-text versions attached".

```
sysout2pdf
-mailto user@example.com
-subject "My CICS performance report"
-from "CICS PA"
-body "PDF and plain-text versions attached"
-rmin
-rmpdf
"/u/myid/report.txt"
```

Customizing the appearance of the PDF

You can use options in both the originating batch application and `sysout2pdf` to output an appropriate number of records on each page. You can also use a filter to add bookmarks to the generated PDF.

You might need to experiment to make the pages of your batch report fit neatly onto the pages of a PDF. There are several ways you can achieve this.

A typical 133-column-wide report fits neatly onto the default PDF style (landscape letter-size pages, half-inch margins, 9-point text). However, reports can be paginated with more lines per page than will fit using this style. Ideally, batch applications provide a parameter that allows you to adjust this value. For example, CICS Performance Analyzer provides the `LINECNT` parameter. `LINECNT(45)` works well with the default `sysout2pdf` style. Otherwise, you can specify a different page size (using the `-style` or `-param` command-line options) and a different font size (using `-param`).

For further customization, edit a copy of `styles/default.xml`, and use it via the `-style` command-line option. Note that `styles/default.xml` specifies `encoding="IBM-1047"` (that is, EBCDIC encoding) in the XML declaration.

Adding bookmarks: To add a bookmark to the PDF, use a filter to insert the following XML element at the bookmark target:

```
<bookmark id="id">title</bookmark>
```

where *id* is a unique identifier for the bookmark (not visible to users) and *title* is the title of the bookmark. To nest a bookmark under another bookmark, add a `parent-id="id"` attribute to the child bookmark, where *id* is the `id` attribute value of the parent bookmark. For example:

```
<bookmark id="secta">Section A</bookmark>
<bookmark id="subsecta1" parent-id="secta">Section A.1</bookmark>
```

See the supplied filters (in the filters directory) for examples.

Coding tips for sysoutpdf jobs

These topics provide some tips on troubleshooting and on preparing batch report input and coding `sysoutpdf` jobs to avoid problems.

STDPARM cannot have sequence numbers

If you use the ISPF editor to create the STDPARM file or STDPARM inline statements, set sequence numbers off by entering NUMBER OFF on the command line before you begin typing the data. If sequence numbers already exist, enter UNNUM to remove them and set number mode off. Otherwise, you will get an error such as the following in the STDERR job output data set (where *nnnnnnnn* is a line sequence number):

```
... sysout2pdf: Input file not found: nnnnnnnn
```

Use REGION=0M to allocate memory to the JVM

Note the REGION=0M parameter on the EXEC statement for the BPXBATCH step. You can also specify this on the JOB statement. This parameter ensures that the Java Virtual Machine (JVM) has enough memory. If you omit REGION=0M, or you specify a REGION size that is too small, you will get errors similar to the following:

In the STDOUT job output data set:

```
<JIT: fatal error, failed to allocate 8192 Kb data cache>
```

In the STDERR job output data set:

```
JVMJ9VM015W Initialization error for library ... : cannot initialize JIT  
Could not create the Java virtual machine.
```

If your report contains null (0) characters, specify the -nulltospace option

Some reporting applications generate reports that contain null characters instead of spaces. This can be problematic.

sysout2pdf uses the z/OS UNIX shell command sed to manipulate report text. If sed detects a null character in its input file, it issues the following message in the STDERR job output data set, and then stops:

```
FSUM9201 input file "[standard input]" is binary
```

To overcome this error, specify the -nulltospace option, which causes sysout2pdf to translate nulls to spaces before calling sed.

Configure SMTP to accept maximum report size

If an email containing a requested report is not received and there is no error message from sysout2pdf, the problem may be in your sendmail configuration.

sysout2pdf uses the z/OS UNIX command sendmail to send email. sendmail uses the z/OS SMTP server. If an email exceeds the maximum number of bytes that the SMTP server accepts, the SMTP server discards the email, and writes the following error message to the MVS system log (SYSLOG):

```
EZA5501I Mail file too large. Data from username@example.com was discarded.
```

To overcome this error, ask your z/OS system administrator to increase the value specified by the MAXMAILBYTES statement in the SMTP configuration data set (supplied member name SMTPCONF).

How sysout2pdf works

sysout2pdf is a z/OS UNIX shell script. sysout2pdf reformats a z/OS batch report as XML and then uses Apache FOP (an open-source tool) to output the report as PDF.

sysout2pdf performs the following steps:

1. If requested (by the `-fold` option), splits the input file into multiple lines by inserting newline characters at regular intervals. This is only necessary if the batch report does not contain end-of-record delimiters (in which case, the resulting z/OS UNIX file consists of a single, and possibly very long, line).
2. Replaces XML-significant characters (`<` `>` `&`) with references to the equivalent XML entities (`<` `lt` `gt` `amp`).
3. Unless the `-nocc` ("no carriage control") option was specified, treats the first column of each line as a carriage-control character. Converts some, ignores others (such as overstrike), and then removes the first column. For example, replaces "new page" characters except for the first with the XML tags:
`</section><section>`

This means "end the current section, and then start another."

4. Applies a filter, if specified (by the `-filter` option).
5. Adds the following XML to the start of the file:
`<?xml version="1.0"?>`
`<report><section>`
6. Adds the following XML to the end of the file:
`</section></report>`
7. Calls FOP to transform the XML into XSL-FO (a particular type of XML) according to the XSLT stylesheet, and then convert the XSL-FO to PDF.
8. If requested (by the `-mailto` option), sends an email containing the PDF.

Chapter 16. Using the CICS PA commands

The CICS PA commands are used to request reports and extracts. If you use the CICS PA dialog to build and submit Report Sets, the commands are generated automatically, but you do have the opportunity to edit them before job submission.

The commands are specified in the **SYSIN DD** statement of your CICS PA batch JCL. There are three ways to include the commands in your job stream:

1. You can code the commands directly under **//SYSIN DD ***
2. You can precode the commands and store them in a member of a PDS which is then referenced in your JCL using

```
//SYSIN DD DSN=pdsname(member),DISP=SHR
```
3. You can precode commands and store them for future use in the CICS PA command library referenced by the **CMDLIB DD** statement in your JCL. The precoded commands can then be included in your job stream using the **COPY** or **INCLUDE** instruction under **//SYSIN DD *** (for further information see “COPY instruction” on page 534)

See Chapter 15, “JCL for reports and extracts,” on page 361 for a description and examples of the JCL for producing CICS PA reports and extracts.

General command format

The standard command format for producing reports and extracts is:

| Name | Command | Operands | Comments |
|-----------------------------------|---------------|----------------------|---------------------|
| name in columns 1-8 (or blank) | CICSPA | one or more operands | comments (or blank) |

The general format of the command as it appears in the **SYSIN DD** statement of your job stream is:

```
CICSPA operand[(suboperand)][,operand[(suboperand)],...]
```

Name

Optional. Identifies the command. It is a label from one to eight characters long and must start in column 1. It must not be a command name or an acceptable abbreviation of a command name.

Command

Required. The **CICSPA** command requests CICS PA reports and extracts.

Operands

One or more operands are required to specify which reports and extracts you want, and specify options for these.

An operand is either a report operand or a control operand:

1. A **report operand**. Each time one is specified, a new report or extract is created.
2. A **control operand**. When specified as a global operand before report operands, it affects *all* the following reports and extracts until it is next

specified. Each time it is specified, it overrides its previous setting. This is useful if you want to run multiple variations of a number of reports. (Note that **SELECT** is an exception to this rule; new selection criteria are *added* to those previously specified.)

Some control operands, such as **SELECT** and **LINECount**, might be specified as suboperands of report operands. As report-level operands, they apply only to the particular report or extract, and override the global specification.

Operands can be specified as many times as required, separated by commas. They can have suboperands and value lists. The rules for continuations, delimiters, and the formats of the operand values are described in “Rules for operands.”

Comments

Optional. Separated by at least one blank from the last operand on the line.

General conventions

The format of the commands follows these general conventions:

- Any line with * (an asterisk) in column 1 is treated as a comment (unless the asterisk is part of a continued quoted string).
- Column 72 is for continuation in some cases.
- Columns 73 through 80 of all lines are ignored.
- Blank lines are ignored.
- A single command can contain a maximum of 8191 characters.

Rules for operands

The **CICSPA** command requires one or more operands, separated by commas, to identify the particular reports and extracts to produce, along with their associated options. Many operands can be abbreviated. They can contain suboperands and a list of values, positionally dependent, and enclosed in parentheses. For example, **ACTIVE(FROM(date,time),TO(date,time))**

Continuation rules

An operand is normally continued by ending the first line with a comma and continuing anywhere on the next line.

You can use any number of continuation lines within the following limits:

- The maximum operand length is 4000 characters
- The maximum length of a character string in single quotation marks is 256 characters
- The maximum number of operands is 1000
- The maximum nesting depth is 254.

It is permissible to extend an operand to column 71, put a nonblank character in column 72, and continue anywhere on the next line. There are no restrictions as to where the operand must be divided when continuing.

A special rule applies to continuation of character strings enclosed in single quotation marks. To continue a quoted string, enter a nonblank character in column 72 and continue the string beginning in column 1 of the next line (this is the only case in which a restriction is placed on the beginning column of the continuation). Comments or blank lines enclosed in single quotation marks are processed as part of the quoted string.

Delimiters

The following characters are used as operand delimiters:

Quotation mark

Designates the beginning or ending of a literal, as for example, a heading. When a quoted string contains a quotation mark, use two quotation marks; for example, 'THAT"S ALL FOLKS'. CICS PA replaces each pair of consecutive quotation marks with a single quotation mark before processing the command string. The ending quotation mark of a quoted string can be followed by a comma or a left or right parenthesis. Quoted strings cannot exceed 256 characters.

Dash or hyphen

Separates a range of values and, except when used in a quoted string, is treated as such. If a dash is followed by another delimiter, the second value is null.

Parentheses

Enclose suboperands or values. The right parenthesis must be followed by another right parenthesis, a comma, a space, or a left parenthesis.

Equal sign

Designates that a value follows. For example, A = B is treated as A(B). The equal sign can be used in this way only when followed by a single value. If you assign more than one value, use parentheses. When the equal sign is followed by a left parenthesis, it is ignored.

Comma

Delimits operands. (Omit the comma when its use is redundant). Consecutive commas cause generation of a null in the scan list, and must be counted toward the maximum number of operands allowed.

Operand value formats

Certain types of operand values are used in more than one command and have a standard format. These types are:

Numeric values

In general, numeric values can be up to nine digits. Exceptions and specific maximum values are set by the individual command processors.

Name values

In general, name values are from one to eight characters. They contain any combination of letters, numbers, and special characters except for blanks and the delimiters described previously.

Date and Time values

These values are used with **FROM** and **TO** operands to assign a time value, a date value, or both. Specific rules for each are as follows.

Time

Time is always expressed as **hhmmss.th** for hours, minutes, seconds, and hundredths of a second. You can use delimiters to separate the time components (for example, **hh.mm.ss.th** or **hh:mm:ss.th**).

When delimiters are not used, the first two digits are assumed to be the hour, unless they exceed 23. In this case, only the first digit is the hour. For example, 55 is 5:50, 257 is 2:57, and 187 is 18:70 (an error).

When delimiters are used, each value component is checked for validity. For example, 35.54 is an error, but 3554 is assumed to be 3:55:40, which is valid.

Date

A date can be either a calendar date or a relative date. If both the **FROM** and **TO** dates are specified, they must both be calendar dates or both relative dates.

Calendar dates

A calendar date can be either Gregorian (**yyyy/mm/dd** for year/month/day) or Julian (**yy/ddd** for year/day-of-year). Several formats for each are allowed.

The date is recognized as Gregorian if the slash is used as a delimiter. Allowable formats are:

yyyy/mm/dd

mm/dd (the current year is assumed)

Leading zeros can be omitted from both month and day.

When the slash is not used, the date is assumed to be Julian. Allowable formats are:

yy.ddd

yyddd

ddd (the current year is assumed and leading zeros can be omitted in this format only)

Note: Two digit years provided as input are converted to:

19yy if yy is 50–99

20yy if yy is 00–49

For example, 99097 is converted to 1999097 (April 7, 1999) whereas 05026 is converted to 2005026 (January 26, 2005).

Relative dates

A Relative Date can be specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both **FROM** and **TO** dates are specified, they must be in the same format.

Single Date or Time Values

If you need to specify only the date, use a comma to designate the missing time value. For example:

TO=(2005/01/13,)

If you need to specify only the time, it is unnecessary to precede the value with a comma to designate the missing date value. For example:

TO=1230 or **FROM=510**

Pairs of Date or Time values

Most commands allow a pair of date and time values. For example:

FROM(2005/01/16,09:00),TO(2005/01/17,17:30)

The following default values are provided if the value is not specified:

FROM date: 1973/01/01 (January 1, 1973)

TO date: 2025/12/31 (December 31, 2025)

FROM time: 00:00:00.00

TO time: 23:59:59.99

CICSPA report operands

A **report operand** requests a report or extract each time it is specified. Report operands can be specified as many times as required.

Table 9 lists all the CICS PA reports and extracts. Each has a default format which you will get if you use only the command shown in the table.

Table 9. CICS PA report operands (default reports and extracts)

| Command | Report or extract | Topic |
|---|--|---|
| Performance Reports | | |
| CICSPA LIST | Performance List | "LIST - Performance List report" on page 396 |
| CICSPA LISTX | Performance List Extended, Cross-System Work Extended | "LISTX - Performance List Extended report" on page 408 |
| CICSPA SUMMARY | Performance Summary | "SUMMARY - Performance Summary report" on page 419 |
| CICSPA TOTAL | Performance Totals | "TOTAL - Performance Totals report" on page 440 |
| CICSPA WAIT | Wait Analysis | "WAITANALYSIS - Wait Analysis report" on page 442 |
| CICSPA PROFILING | Transaction Profiling | "PROFILING - Transaction Profiling report" on page 445 |
| CICSPA CROSSsystem | Cross-System Work | "CROSSsystem - Cross-System Work report and extract" on page 462 |
| CICSPA TRANGROUP | Transaction Group | "TRANGROUP - Transaction Group report" on page 469 |
| CICSPA BTS | CICS Business Transaction Services | "BTS - BTS report" on page 471 |
| CICSPA WORKLOAD | Workload Activity | "WORKLOAD - Workload Activity report" on page 472 |
| CICSPA TRACKINGLIST | Transaction Tracking List | "TRACKINGLIST - Transaction Tracking List report" on page 474 |
| CICSPA TRACKINGSUMMARY | Transaction Tracking Summary | "TRACKINGSUMMARY - Transaction Tracking Summary report" on page 477 |
| Exception Reports | | |
| CICSPA LISTEXception | Exception List | "LISTEXC - Exception List report" on page 479 |
| CICSPA SUMEXception | Exception Summary | "SUMEXC - Exception Summary report" on page 481 |
| Transaction Resource Usage Reports | | |
| CICSPA RESUSAGE | File Usage Summary, Temporary Storage Usage Summary, Distributed Program Link Usage Summary, Transaction Resource Usage List | "RESUSAGE - Transaction Resource Usage reports" on page 482 |
| Statistics Reports | | |
| CICSPA STATSALERT | Statistics Alert | "STATSALERT - Statistics Alert reports" on page 489 |
| CICSPA CTGSTATISTICS | CICS TG Statistics Reports | "CTGSTATISTICS - CICS TG Statistics reports" on page 492 |
| Subsystem Reports | | |

Table 9. CICS PA report operands (default reports and extracts) (continued)

| Command | Report or extract | Topic |
|----------------------------------|--|--|
| CICSPA DB2 | DB2 Activity | "DB2 - DB2 report" on page 493 |
| CICSPA MQ | WebSphere MQ Activity | "MQ - WebSphere MQ report" on page 498 |
| CICSPA OMEGAMON | Adabas, CA-Datcom, CA-IDMS, or Supra Activity (as monitored by OMEGAMON) | "OMEGAMON - OMEGAMON reports" on page 500 |
| System Reports | | |
| CICSPA LOGGER | System Logger | "LOGGER - System Logger report and extract" on page 503 |
| Performance Graph Reports | | |
| CICSPA GRAPH(TRANRATE) | Transaction Rate | "GRAPH - Graph reports" on page 508 |
| CICSPA GRAPH(RESPONSE) | Transaction Response Time | "GRAPH - Graph reports" on page 508 |
| Extracts | | |
| CICSPA CROSSsystem | Cross-System Work | "CROSSsystem - Cross-System Work report and extract" on page 462 |
| CICSPA EXTRACTPERFORMANCE | Performance Data Extract | "EXTRACTPERFORMANCE - Performance data extract" on page 510 |
| CICSPA LIST(DDNAME(xx)) | Performance List Extract | "LIST - Performance List report" on page 396 |
| CICSPA SUMMARY(DDNAME(xx)) | Performance Summary Extract | "SUMMARY - Performance Summary report" on page 419 |
| CICSPA RECSEL | Record Selection | "RECSEL - Record Selection extract" on page 512 |
| CICSPA HDB(LOAD(hdbname)) | HDB Load | "HDB(LOAD - HDB Load" on page 514 |
| CICSPA LOGGER | System Logger | "LOGGER - System Logger report and extract" on page 503 |
| CICSPA EXTRACTSTATISTICS | Statistics Extract | "EXTRACTSTATISTICS - Statistics extract" on page 515 |

If you want to tailor the reports and extracts to meet your particular information requirements, you must specify additional operands, suboperands, and possibly value lists. For example, **APPLID**, **INput**, and **SELECT** (see "CICSPA control operands" on page 390) are typically required to control the input, so too are **OUTPUT(ddname)** to control report output and **DDNAME(ddname)** to control extract output.

For details on how to use the report operands to request variations of the reports and extracts, turn to the corresponding page reference in Table 9 on page 381. For information on the output produced, see the *CICS Performance Analyzer for z/OS Report Reference*.

Some suboperands are common to many of the reports and extracts. See "Common options" on page 383 for a general discussion of these.

Other suboperands are peculiar to individual reports and extracts. Turn to the page references in Table 9 on page 381 for a discussion of these for each report and extract.

All CICS PA reports and extracts use CMF data as input and can be tailored by choosing which CMF data records and which fields are processed. There are two filtering methods:

1. The most versatile method to use is **SELECT** which allows inclusion (or exclusion) of specific records according to values in the fields of individual CMF records.
2. **FIELDS** can be used for the **LIST**, **LISTX**, and **SUMMARY** reports to specify which CMF fields to report, the order of the fields, and how the fields are summarized.

There are five data types for CICS-defined fields: **character**, **count**, **decimal**, **clock**, **time stamp**. For both filtering methods (**SELECT** and **FIELDS**), you will need to specify additional suboperands for CMF field types of **clock** and **time stamp** (unless defaults are assumed) to identify which of their formats you want.

There are effectively four data types for user fields: **character**, **count**, **clocktime**, **clockcount**. You will need to specify additional suboperands for user fields depending on the data type.

See "Tailoring using FIELDS" on page 386 and "Using SELECT statements" on page 516 for further information and examples.

Common options

The following suboperands can be specified for many of the CICS PA reports or extracts:

OUTPUT
DDNAME
EXTERNAL
LINECount
TITLE1 and **TITLE2**

Example:

```
CICSPA LISTX(  
    TITLE1('Report includes all transactions'),  
    TITLE2('**Please check response time in the Response field'),  
    LISTX(OUTPUT(LISTX2),  
        EXTERNAL(LISTXW2),  
        LINEC(50),  
        TITLE1('Report includes just the CPAX transaction'),  
        TITLE2('**Please check response time in the Resp field'),  
        SELECT(PERFORMANCE(INCLUDE(TRAN(CPAX))))))
```

This example will produce two Performance List Extended reports:

1. The first report is routed to the default DDname LSTX0001 with the default line count of 60. The work file used by the external sort will have the default DDname CPAXW001. The title line that will print on each page of the report is:

Report includes all transactions **Please check response time in the Response field

2. Since the **SELECT** operand is used in the second report, it will contain records from the CPAX transaction only. It is routed to the DDname LISTX2 with a line count of 50. The work file used by the external sort will have the DDname LISTXW2. The title line that will print on each page of the report is:

Report includes just the CPAX transaction **Please check response time in the Resp field

OUTPUT

The syntax is **OUTPUT(ddname)** or **OUTPUT=ddname**.

This provides the DDname of the output data set where a report is to be printed. It is important when you are running more than one report. To interleave multiple reports in a single output data set, specify the same DDname for each report. To direct each report to its own output data set, specify unique DDnames that refer to separate data sets.

If not specified, CICS PA assigns a default DDname xxxxxxxx where xxxxxx is a sequential number 0001-9999 to uniquely identify the report, and xxxxxx identifies the type of report:

LIST Performance List report
LSTX Performance List Extended report
SUMM Performance Summary report
TOTL Performance Totals report
WAIT Wait Analysis report
PROF Transaction Profiling report
CROS Cross-System Work report
TRGP Transaction Group report
CBTS BTS report
WKLD Workload Activity report
TTLS Transaction Tracking List
TTSU Transaction Tracking Summary
XLST Exception List report
XSUM Exception Summary report
FILE File Usage Summary report
TEMP Temporary Storage Usage Summary report
DPLS Distributed Program Link Usage Summary report
RESU Transaction Resource Usage List report
STAL Statistics Alert reports
STTG CICS Transaction Gateway Statistics reports
DB2R DB2 report
MQ00 WebSphere MQ report
OMEG OMEGAMON reports
LOGR System Logger report
GRTE Transaction Rate graph report
GRSP Transaction Response Time graph report

CROX Cross-System Work Extract Recap report
EXPT Performance Data Extract Recap report
RSEL Record Selection Extract Recap report
HDBL HDB Load Recap report
LOEX System Logger Extract Recap report
STEX Statistics Extract Recap report

DDNAME

The syntax is **DDNAME(ddname)** or **DDNAME=ddname**.

This provides the DDname of the output data set where extract records are written. If not specified, CICS PA assigns a default DDname **CPAOxxnn** where nn is a sequential number **01-99** to ensure the data sets are uniquely identified, and xx indicates the type of extract:

XS Cross-System Work Extract data set
EX Performance Data Extract data set
RS Record Selection Extract data set
LE System Logger Extract data set

EXTERNAL

The syntax is **EXTERNAL(ddname)** or **EXTERNAL=ddname**.

This provides the DDname of the work data set used by the external SORT facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is a sequential number **001-999** to uniquely identify the work file. There must be one External Work File specified in the JCL for each report that needs one. See "External sorting" on page 365 for information on the DD statements for External Work Files.

The following reports and extracts use external sorting:

LISTX Performance List Extended report
SUMMARY
Performance Summary report (optional)
PROFILING
Transaction Profiling report (optional)
CROSS
Cross-System report and extract
TRANGROUP
Transaction Group report
BTS BTS report
WORKLOAD
Workload Activity report (possibly)
TRACKINGLIST
Transaction Tracking List
TRACKINGSUMMARY
Transaction Tracking Summary
STATSALERT
Statistics Alert reports
DB2 DB2 report
LOGGER
System Logger report and extract

EXTRACTPERFORMANCE

Performance Data Extract (optional for Summary Form)

LINECount

The syntax is **LINEC(nnn)** or **LINEC=nnn**.

Use this to specify the maximum number of lines, including headings, to print on each page of the report. The default is **60**.

LINECount can be specified as a global operand applying to multiple reports, or a suboperand of a particular report. The report-specific value takes precedence over the global for that report only.

This operand does not apply to the Extracts and System Logger report.

TITLE1 and TITLE2

The syntax is **TITLE1('title_first_half')** and **TITLE2('title_second_half')**. This allows you to specify a title for your report to print on each page of the report below the report heading (see the example in Figure 190). The maximum length of the title field is **128** characters. Specify the first 64 characters, enclosed in single quotation marks, as **TITLE1**. If your title exceeds 64 characters, specify the remainder of the title, enclosed in single quotation marks, as **TITLE2**.

The **TITLE1** text is aligned with the left margin of the report, and the **TITLE2** text starts in column 65. To produce a centered title, use leading spaces.

```
V5R1M0                                CICS Performance Analyzer
                                        Performance List

LIST0001 Printed at 12:03:45 04/17/2013  Data from 11:10:51  1/12/2005          APPLID CICSPAOR      Page      1
This is TITLE1 on the left              This is TITLE2 on the right

Tran SC Term Userid RSID Program  TaskNo Stop      Response Dispatch User CPU Suspend DispWait FC Wait  FCAMRq  IR Wait
      Time      Time
CSSY U   CBAKER  DFHAPATT  16 11:10:51.123  .0139  .0007  .0006  .0133  .0000  .0000  0  .0000
CSSY U   CBAKER  DFHAPATT  17 11:10:51.213  .0185  .0010  .0014  .0175  .0001  .0000  0  .0000
. . .
```

Figure 190. Example of a report title

Filtering using SELECT and SELECT2

The **SELECT** and **SELECT2** operands allow inclusion or exclusion of specific records according to values in the fields of individual records. **SELECT** and **SELECT2** provide the same Selection Criteria functionality. **SELECT2** is generated by the CICS PA dialog when the Report Form has Selection Criteria. If both **SELECT** and **SELECT2** are specified, the record must match both for the record to be processed. For a detailed discussion, see “Using **SELECT** statements” on page 516.

Tailoring using FIELDS

The **FIELDS** operand allows you to tailor reports by requesting which CMF fields are reported, the order of the fields, and how the fields are summarized. **FIELDS** also allows you to insert columns for Application Groups. For details on how to do this for the particular reports:

- For the Performance List report, see “**LIST(FIELDS)**” on page 398.
- For the Performance List Extended report, see “**LISTX(FIELDS)**” on page 410.
- For the Performance Summary report, see “**SUMMARY(FIELDS)**” on page 421.

There are five types of CMF fields. The types are determined by CICS, defined in the CMF Dictionary record, and determine the field data type. The CMF field types are listed in Table 10.

Table 10. CMF field types

| CMF field type | Description | Output length |
|-----------------------|-----------------------------|---------------|
| C – Character | Character string | Variable |
| A – Count | Binary counter | 8 |
| P – Decimal | Packed decimal number | 8 |
| S – Clock | Accumulation of Clock time: | |
| Time | Elapsed Time in seconds | 8 |
| Count | Number of occurrences | 8 |
| T – Time Stamp | STCK Date/Time Stamp | 5-12 |

Suboperand APG for Application Groups

To include an Application Group in a report, specify the Application Group name with the suboperand APG. For example, to insert a report column for an Application Group named MYAPPGRP:

```
LIST(FIELDS(MYAPPGRP(APG),...))
```

The APG suboperand identifies MYAPPGRP as an Application Group instead of a CMF field.

In the JCL for the report, the DDname CPAHDBRG identifies the repository data set that defines the Application Group.

Suboperands for Clock type fields

Use the suboperands **TIME** and **COUNT** when specifying a clock type field. Clock type fields contain two parts: one is an accumulation of elapsed time (**TIME**), and the other is a count of the number of times the condition occurred (**COUNT**). You can request one or both types; they are treated as separate fields. For example:

```
LIST(FIELDS(SUSPEND(TIME),SUSPEND(COUNT),DISPATCH(TIME)))
```

Any clock type field specified in **FIELDS** without **TIME** or **COUNT** is assigned the default of **TIME**. However, no default exists when a clock type field is requested in a **SELECT** statement, so in this case you *must* specify either **TIME** or **COUNT**.

The precision of **TIME** fields is 0.0001 to 0.000001 (microseconds) controlled by the global operand **PRECISION(n)** where n represents 4, 5 or 6 decimal places. The default is 4.

Suboperands for Time Stamp fields

You need to specify the format in which you want time stamp type fields reported. The date and time formats are shown in the following table. Any time stamp field specified in **FIELDS** without a format is assigned the default of **TIMET**.

Table 11. Time stamp field formats

| Type | Output format | Output field length |
|----------------|---------------|---------------------|
| DATE | mm/dd/yyyy | 10 |
| DATEISO | yyyy-mm-dd | 10 |
| DATM | mm/dd | 5 |

Table 11. Time stamp field formats (continued)

| Type | Output format | Output field length |
|---|--|---------------------|
| DATEYR | mm/dd/yy | 8 |
| TIMET | hh:mm:ss.thm | 12 |
| TIMEM | hh:mm | 5 |
| TIMES | hh:mm:ss | 8 |
| DATETIM | yyyy-mm-dd hh:mm:ss | 19 |
| TIMEP (output format determined by the PRECISION(n) operand: 4, 5, or 6 decimal places) | hh:mm:ss.thmi hh:mm:ss.thmij hh:mm:ss.thmiju | 13 14 15 |

These format options are most commonly used with the **START** and **STOP** operands.

The syntax for using these is to list the options separated by commas and enclosed in parentheses, following **START** or **STOP**. For example:

```
CICSPA LIST(FIELDS(TRAN,TERM,USERID,
                  START(DATEYR,TIMET),
                  STOP(TIMEM)))
```

Suboperands for User fields

CICS PA can access user fields in the CMF performance records. The user fields are defined in the CICS Monitoring Control Table (MCT) as either character type, count type, or clock type. As with CICS-defined clock type fields, user clock type fields have two parts: an elapsed time and a count of the number of times the condition occurred. When specifying user fields to CICS PA, the elapsed time part of clock type fields is called **CLOCKTIME**, and the count part of clock type fields is called **CLOCKCOUNT**. Therefore, CICS PA makes it appear as if there are four types of user fields: **CHARACTER**, **COUNT**, **CLOCKTIME**, **CLOCKCOUNT**.

When specifying user fields in the command stream, certain suboperands must be used to identify the user fields in the CMF performance record. The **OWNER** suboperand is common to all user fields. Use **OWNER** to specify the eight-character owner name of the user field.

The owner of the User Field is the entry name assigned to the User Field in the DFHMCT ID= macro specification. If the entry name is not specified in the ID= parameter, CICS assigns a default entry name or owner of 'USER'. CICS PA does not have a default owner name. Even if the owner name is USER, the **OWNER** suboperand must be specified.

The remaining suboperands are different for CHARACTER type fields versus numeric (COUNT, CLOCKTIME, CLOCKCOUNT)

CHARACTER type

Use the **OWNER** suboperand when specifying **CHARACTER** type fields. Only one character user field can be defined for each owner name.

The syntax is:

```
CHARACTER(OWNER(owner)[,SUBSTR(offset,length)])
```

When printing a character user field on the Performance List or Performance Summary report, CICS PA defaults to using the entire length (up to 8 characters for the Performance Summary report) of the character user field.

Use the **SUBSTR** suboperand to specify that only part of the character user field is to be printed.

The first value (**offset**) is the position of the first character to be printed (starting at 1), and the second value (**length**) is how many characters are to be printed. For example, if the character field value is "1234567", specifying **SUBSTR(1,2)** results in "12", and specifying **SUBSTR(3,3)** results in "345".

When character user fields are used in a SELECT statement, the SUBSTR operand *must* be specified.

COUNT, CLOCKTIME, and CLOCKCOUNT types

Use the **OWNER** and **NUMBER** operands when specifying user field types **COUNT**, **CLOCKTIME**, and **CLOCKCOUNT**. Up to 256 count type fields and up to 256 lock type fields can be defined for each owner. The **OWNER** operand specifies the eight-character name of the user field owner. This is the entry name in the DFHMCT ID= macro specification for the user field, or the CICS-assigned default name of 'USER'. **NUMBER** operand specifies the three-digit number that identifies a specific count or clock type field.

The operand syntax is

```
COUNT(OWNER(owner),NUMBER(nnn))
CLOCKTIME(OWNER(owner),NUMBER(nnn))
CLOCKCOUNT(OWNER(owner),NUMBER(nnn))
```

All **COUNT**, **CLOCKTIME**, and **CLOCKCOUNT** type fields can be summarized in the Performance Summary report. Additional operands are then required to define the type of summarization (see "SUMMARY - Performance Summary report" on page 419).

Example:

Consider a DFHMCT User Fields definition for owner (or group) USEREMP which consists of the following fields:

- Character field FIELD1 with a length of 16
- Count field COUNT1
- Clock field CLOCK1

```
DFHMCT TYPE=EMP,
CLASS=PERFORM,
ID=(USEREMP.1),
CLOCK=(1,CLOCK1),
COUNT=(1,COUNT1),
FIELD=(1,FIELD1),
PERFORM=(SCLOCK(1),
ADDcnt(1,1),
MOVE(1,16))
```

The following command generates a Performance List report that shows the following user field values:

- The first 8 characters of FIELD1
- The last 8 characters of FIELD1
- The counter in COUNT1
- The elapsed time in CLOCK1
- The counter in CLOCK1

```
CICSPA LIST(FIELDS(TRAN,STYPE,USERID,
CHARACTER(OWNER(USEREMP),SUBSTR(1,8)),
CHARACTER(OWNER(USEREMP),SUBSTR(9,8))),
```

```
COUNT(OWNER(USEREMP),NUMBER(001)),
CLOCKTIME(OWNER(USEREMP),NUMBER(001)),
CLOCKCOUNT(OWNER(USEREMP),NUMBER(001)))
```

CICSPA control operands

Control operands are used to specify factors that affect the content of reports and extracts.

The following table lists all the control operands showing the format of the command and description of the function.

Table 12. CICSPA control operands

| Command | Control Function |
|-------------------------|--|
| CICSPA APPLID | Application identifier of the CICS systems from which data is processed. Most reporting occasions will filter on APPLID. However, if reporting on all APPLIDs is required, the command CICSPA NOAPPLID can be used. |
| CICSPA PRECISION | Precision of numeric fields. Specifies 4, 5, or 6 decimal places to report up to microseconds. |
| CICSPA FORMAT | Time and date delimiters to use for the reports and extracts. |
| CICSPA INput | ddnames of the SMF input data sets. This required operand identifies the source of SMF records for the reports and extracts that follow. |
| CICSPA SUFACTOR | CPU SU conversion factor for a ddname specified in an INPUT statement. |
| CICSPA LINECount | Number of lines per page for the reports. |
| CICSPA SELECT SELECT2 | Record selection for the reports and extracts. This is a powerful and flexible mechanism for filtering the input data. |
| CICSPA SMFSTART SMFSTOP | Start/Stop time period to limit the time range of SMF input data processed by CICS PA based on the SMF record time stamp. |
| CICSPA READ2EOF | Process all records through to EOF. That is, do not stop reading the SMF file as soon as the first record is encountered that is later than SMFSTOP. |
| CICSPA ZONE | Time zone for all reports and extracts, in number of hours west or east of Greenwich Mean Time (GMT). |

Control operands are important for specifying how reports and extracts are created. These operands are normally coded before report operands, allowing them to apply to multiple reports. For example,

```
CICSPA ZONE=-8,TOTAL,SUMEXC
```

causes both the Performance Totals and Exception Summary reports to print as though the data came from time zone -8 (U.S. Pacific time).

If a control operand is specified more than once, the report operands will use the control operand immediately preceding it. This is useful if you want to create variations of one report. For example,

```
CICSPA ZONE=10,TOTAL,SUMEXC,ZONE=-8,TOTAL
```

This example creates two Performance Total reports, with the first printed as though the data came from time zone 10 (for example, Sydney), and the second printed as though from time zone -8. The Exception Summary report is printed as though the data came from time zone 10.

Except for SELECT, values are reset with a new CICSPA command. For example,
CICSPA ZONE=-8,TOTAL
CICSPA TOTAL

This example creates two Performance Totals reports, with the first report printed as though the data came from time zone -8, and the second one printed as though from the default of the local time zone.

When a control operand is used, it affects all reports and extracts until a control operand is respecified or a new CICSPA command is issued. Note, however, that the CICSPA command does *not* reset the SELECT operand (see “Using SELECT statements” on page 516).

APPLID

The syntax for this operand is **APPLID(applid1,...,applidn)** if one or more CICS systems, or **APPLID=applid** if only one. This operand specifies the generic application identifiers of the CICS systems whose data you want to process. When data from two or more systems is combined in one input data set, this operand can be used to select which set of data to process. APPLID can be coded before report operands to apply to multiple reports.

NOAPPLID can be used to report all APPLIDs with records in the SMF File.

Example 1:

```
CICSPA APPLID(CICSPROD),LIST,SUMMARY
```

This example shows the Performance List and Performance Summary reports requested for a CICS system identified by APPLID CICSPROD.

Example 2:

```
CICSPA APPLID(CICSP1,CICSP2),LIST  
CICSPA SUMMARY  
CICSPA NOAPPLID,TOTAL
```

This example generates the Performance List and Performance Summary reports for APPLIDs CICSP1 and CICSP2, and the Performance Totals report for *all* APPLIDs with records in the input file.

PRECISION

The syntax is **PRECISION(n)** or **PRECISION=n**.

The precision of numeric fields, and of time stamp fields that specify the suboperand TIMEP. These fields can be formatted to either 4, 5, or 6 decimal places.

For example, specify PRECISION(6) to report microseconds. The default is 4.

FORMAT

The **FORMAT** operand specifies the time and date delimiters for the reports and extracts. The syntax for this operand is **FORMAT(t,d)**.

- t** The first operand specifies the separator character for time-of-day displays. The default is a colon (:), which produces time displays such as 08:30:12.321.
- d** The second operand specifies the separator character for the date. The default is a slash (/), which produces date displays such as 2005/01/13.

Any character can be specified, but special characters such as a space, comma, or parenthesis must be enclosed within single quotation marks.

A single quotation mark, which is a special character, can be used as a delimiter. To specify it, use *two* single quotation marks to request the delimiter character, enclosed within the single quotation marks needed with special characters.

Example 1:

```
CICSPA FORMAT(' ',/)
```

specifies a space for the time delimiter and a slash for the date delimiter.

Example 2:

```
CICSPA FORMAT('\'',/)
```

specifies a single quotation mark for the time delimiter and a slash for the date delimiter.

Example 3:

```
CICSPA FORMAT(:,/),LIST
```

specifies the default delimiters with a Performance List report.

Example 4:

```
CICSPA FORMAT('.', ' '),LIST
```

specifies a period for the time delimiter and a space for the date delimiter in this Performance List report.

INput

The syntax for this operand is **INPUT(ddname1,ddname2,...)** if one or more CICS systems, or **INPUT=ddname** if only one. Use this operand to specify the ddnames of the input data sets or log stream for each CICS system to be reported. If not specified, the default ddname is **SMFIN**. The CICS PA dialog, however, assigns ddnames in the format **SMFINnnn** where *nnn* is a sequential number in the range **001-999** to uniquely identify each CICS system's data sets.

For example, in the following statement the input for the Performance List and Performance Summary reports is taken from SMFIN004:

```
CICSPA INPUT(SMFIN004),  
LIST,  
SUMMARY
```

Specifying data input

The input data sets to be processed by CICS PA reports and extracts must be specified in your JCL. To do this:

1. Nominate the data sets in the **SMFINnnn DD** statements of your JCL, where *nnn* is a sequential number **001-999** to uniquely identify the data sets. (CICS PA will accept other ddnames of your choosing.)
2. Code the command **CICSPA INput(ddname)** where ddname is **SMFINnnn** corresponding to the data files to be processed.

Figure 191 shows an example of the JCL.

```
//CICSPA JOB (Job Accounting)
//CPA      EXEC PGM=CPAMAIN
//SYSPRINT DD  SYSOUT=*
//* SMF Files for APPLID=APPL1
//SMFIN001 DD  DSN=CICS.APPL1.FILE1,DISP=SHR
//          DD  DSN=CICS.APPL1.FILE2,DISP=SHR,UNIT=AFF=SMFIN001
//* SMF Files for APPLID=APPL2
//SMFIN002 DD  DSN=CICS.APPL2.FILE1,DISP=SHR,UNIT=AFF=SMFIN001
//          DD  DSN=CICS.APPL2.FILE2,DISP=SHR,UNIT=AFF=SMFIN001
. . .
//SYSIN    DD  *
          CICSPA IN(SMFIN001),APPLID(APPL1),
                  LIST(OUTPUT(LIST0001)),
                  SUMMARY(OUTPUT(SUMM0001))
          CICSPA IN(SMFIN002),APPLID(APPL2),
                  LIST(OUTPUT(LIST0002)),
                  SUMMARY(OUTPUT(SUMM0002))
/*
//
```

Figure 191. Sample JCL Specifying Data Input

SUFACTOR

Use the SUFACTOR operand to specify a CPU SU conversion factor for an input file. Each SMF input file ddname in the INPUT operand can have its own SUFACTOR suboperand. The SUFACTOR operand includes two keywords to identify the ddname and its associated conversion factor. The value must be a decimal number or integer in the range 1 - 999999999 (nine 9s).

Example:

```
CICSPA IN(ddname1,
          ddname2,
          ddnamen),
        [SUFACTOR(ddname1(nnnnn.nnn)),]
        [SUFACTOR(ddname2(nnnnn.nnn)),]
        [SUFACTOR(ddnamen(nnnnn.nnn)),]
        ...
```

LINECount

LINECount is a control operand or suboperand for any report. The syntax is **LINEC(nnn)** or **LINEC=nnn**. Use this operand to specify the maximum number of lines, including headings, to print on each page of the report. The default line count is 60.

Example 1:

```
CICSPA LINEC(40),  
      LIST,  
      LISTEXC
```

The number of lines per page is 40 for both the Performance List report and the Exception List report.

Example 2:

```
CICSPA LISTEXC,  
      LIST(LINEC(40))
```

In this case, the LINECount suboperand only affects the Performance List report.

SELECT

Use the SELECT operand to filter the input data that is reported. This operand allows you to select specific records for the reports according to values in individual CMF record fields or System Logger record fields.

One or more SELECT operands can be coded to allow control of multiple reports. It can also be used as a suboperand for any particular report or extract. For a detailed discussion on how this important operand works, see “Using SELECT statements” on page 516.

SELECT2

The SELECT2 operand is the same as SELECT. When Selection Criteria are specified in a Report Form and also in a report that uses that Report Form, both SELECT and SELECT2 operands are used. CICS PA checks both, and both must match for the record to be processed.

SMFSTART and SMFSTOP

Use these control operands to specify a time period to filter the input data before processing by all commands in the command input. CICS PA processes only those records with within the specified time period. If not specified, the entire input file is processed.

The syntax is:

```
CICSPA SMFSTART(date,time),  
      SMFSTOP(date,time)
```

Date is either a calendar date in the format *yyyy/mm/dd* or a relative date specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on.

- If both START and STOP dates are specified, they must be in the same format.
- If STOP date is not specified, it defaults to the end of file.
- If START date is not specified, it defaults to the first record in the data input file.

Time is a time-of-day in the format *hh:mm:ss.th*

- If START time is not specified, it defaults to the start of the day.
- If STOP time is not specified, it defaults to the end of the day.
- Times can span midnight.

Note:

1. When filtering records in an SMF file, SMFSTART and SMFSTOP refer to the SMF record time stamps. When filtering records in a historical database (HDB), SMFSTART and SMFSTOP refer to transaction start times. HDBs do not contain SMF record time stamps.

Do not confuse these operands with the SELECT FROM and TO report interval operands, which refer to transaction start and stop times.

2. For the DB2 report, if protected threads are in use, specify an SMFSTOP time that is at least 5 minutes past the required time (FROM/TO report interval). This is to ensure that no DB2 accounting statistics are excluded that relate to CMF performance records that are included in the report.

Example 1:

```
CICSPA SMFSTART(-1,08:30:00.00),  
      SMFSTOP(0,17:30:00.00)
```

CICS PA will process only the data from 8:30a.m. yesterday until 5:30p.m. today. Data outside this time period is ignored.

Example 2:

```
CICSPA SMFSTART(2005/02/19,),  
      SMFSTOP(,)
```

CICS PA will process the data from February 19, 2005 until the end of file. Data before this date is ignored.

READ2EOF

This operand forces CICS PA to process all records in the SMF file through to EOF. Normally CICS PA stops reading the SMF file as soon as the first record is encountered that is later than SMFSTOP. However, if the file is not in ascending time sequence, reading might end before all records earlier than SMFSTOP have been found.

This option is only effective when SMFSTOP is specified. Select it when the SMF file has been presorted and you want to ensure that all records within the SMFSTART and SMFSTOP time range are processed.

| The Read SMF File to EOF setting in the profile options is added as a READ2EOF
| operand to JCL built when the input is an SMF file and Report Interval is specified
| in the RUN panel.

ZONE

The syntax is **ZONE(n)** or **ZONE=n**.

This provides a way to override your local CPU time zone setting and convert CMF, DB2, MQ, and System Logger clock fields to a different time zone. It is only useful if the data you are reporting was generated by a system running with a different time zone.

CMF, DB2, MQ, and Logger records have clock fields in STCK format based on Greenwich Mean Time (GMT). CMF records have conversion factors that enable the clock fields to be converted to local time. However, if you are running the DB2, MQ, or System Logger reports against records from a system with a different time zone, then you must specify the time zone option.

Specify the time zone as an integer from -12 to +12 to represent the number of hours that local time is west or east of GMT. For example, specify -5 for New York, 10 for Sydney. CICS PA will then convert GMT STCK values to the required local time for all record types.

CICS PA JCL generation translates this field to the ZONE operand.

The default is blank (not specified). In this case, when the time zone is not specified, CICS PA does the following:

- For CMF records, the conversion factors SMFMNLSO (Leap Second Offset) and SMFMNDTO (Date/Time Offset) in the CMF record are used.
- For DB2, MQ, and Logger records, the conversion factors CVTLSO (Leap Second Offset) and CVTLDTO (Date/Time Offset) in the CVT are used, that is, the reporting system's time zone is used.

Example 1:

```
CICSPA ZONE(-5),
      LIST,
      SUMMARY
```

This example shows ZONE applied to multiple reports. Both the Performance List and Performance Summary reports are produced as if the input data came from the zone 5 hours west of GMT (for example, Toronto, New York, Lima).

Example 2:

```
CICSPA ZONE(8),
      LIST,
      SUMMARY
```

Both the Performance List and Performance Summary reports are produced as if the input data came from the zone 8 hours east of GMT (for example, Singapore, Perth).

LIST - Performance List report

The **LIST** operand requests the Performance List report or an extract file (see “Performance Data extract” on page 255).

The command format for the Performance List report is:

```
CICSPA LIST(
      [OUTPUT(ddname),]
      [ALERTDEF(defname),]
      [SEVERITY(CRITICAL|WARNING|INFO|ELIGIBLE|ALL),]
      [FIELDS(field1[(options)],...),]
      [LINECount(nnn),]
      [TITLE1('...1st 64 characters of title...'),]
      [TITLE2('...2nd 64 characters of title...'),]
      [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
      [SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))])
```

The command format for the List Extract is:

```
CICSPA LIST(
      [OUTPUT(ddname),]
      [DDNAME(ddname),]
      [DELIMIT('field-delimiter'),]
      [LABELS|NOLABELS,]
      [FLOAT,]
      [ALERTDEF(defname),]
```

```
[SEVERITY(CRITICAL|WARNING|INFO|ELIGIBLE|ALL),]
[FIELDS(field1[(options)],...),]
[TITLE1('...1st 64 characters of title...'),]
[TITLE2('...2nd 64 characters of title...'),]
[SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
[SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))]]
```

The options are:

OUTPUT

Controls the report output DDname. See “OUTPUT” on page 384 for further information. If not specified, CICS PA assigns a DDname in the format **xxxxnnnn** where **nnnn** is the report sequence number **0001-9999** to uniquely identify the output, and **xxxx** is:

LIST for the Performance List report.

EXPT for the Recap report for the List Extract.

DDNAME

Specifies the DDname of the extract data set where the extracted data is written. When this operand is specified, instead of producing the report, CICS PA produces the extract file, and a Recap of the extract process is written to the OUTPUT operand report file.

The DDname can be up to 8 alphanumeric characters, with the first non-numeric. The CICS PA dialog assigns DDnames in the format **CPAOEXnn** where **nn** is the extract sequence number **01-99**. (See the sample JCL in JCL for generating CICS PA reports and extracts (part 1 of 2)).

DELIMIT

Specifies the field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set. The default is a semicolon DELIMIT(';').

LABELS | NOLABELS

LABELS indicates that the first record to be written to the extract data set is to be a field labels record. This is the default.

NOLABELS indicates that CICS PA is not to write a field labels record to the extract data set.

FLOAT

Write numeric fields in the extract in S390 FLOAT format. This only applies to the List Extract when the FIELDS operand is specified.

Specify FLOAT format if you plan to import the extract into a DB2 table. When the DB2 Load Utility is used, it will interpret all numerical fields reliably and consistently in FLOAT format.

If FLOAT is not specified, the numeric fields are written in a mixture of integer, real and exponential using character digits. This is the default and is suitable when importing the extract data into a PC spreadsheet tool.

ALERTDEF

The name of a Performance Alert Definition for alert reporting.

SEVERITY

Determines the minimum severity level to be reported and type of transactions reported.

CRITICAL

Only Critical transactions are reported.

WARNING

Only Critical and Warning transactions are reported.

INFO All alerts are reported: Critical, Warning and Informational transactions.

ELIGIBLE

Only eligible transactions are processed and reported. Eligible transactions are those that have resource values that match resource values specified in the alert definition. The resulting report will include eligible only transactions with and without alerts.

This option provides the means to filter out transactions that would never generate an alert because their resource values do not match resource values specified in the alert definition.

ALL or blank

All transactions are reported, whether or not they generate an alert and whether or not they are eligible. This is the default.

FIELDS

Specifies which fields are included in the report or extract, their order, and format. See "LIST(FIELDS)" for details.

LINECOUNT

Controls the number of lines per page in the List report. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of the subheading line) for the List report or the Extract Recap. See "TITLE1 and TITLE2" on page 386 for further information.

SELECT | SELECT2(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what data to include or exclude from the report or extract based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

LIST(FIELDS

The Performance List report can be tailored by modifying which fields and Application Groups are reported and the order in which they appear in the report. This is done with the **FIELDS** operand followed by the field and Application Group names:

```
CICSPA LIST[(FIELDS(field1[(options)][,apname1(APG)],...))]
```

If **FIELDS** is not specified, the default is as if the following had been specified:

```
CICSPA LIST(FIELDS(TRAN,      Transaction ID
                      STYPE,    Start type of transaction
                      TERM,     Terminal ID
                      USERID,   User ID
                      RSYDID,   Remote System ID
                      PROGRAM,  Initial program name
                      TASKNO,   Transaction number
                      STOP(TIMET), Stop time (hh:mm:ss.thm)
                      RESPONSE, Response time
                      DISPATCH, Dispatch time
                      CPU,       CPU time
                      SUSPEND,  Suspend time
                      DISPWAIT, Dispatch wait time
```

| | |
|----------|----------------------------------|
| FCWAIT, | File Control I/O wait time |
| FCAMCT, | File Control access method calls |
| IRWAIT)) | Inter-Region (MRO) I/O wait time |

Note:

1. The default report format cannot be changed on an individual field basis. Even if only one field is required to be changed from the default, the entire list of field names must be entered.
2. Some field types require additional operands. These are:
 - “Clock (Time-Count) fields” on page 400.
 - “Time Stamp fields.”
 - “User fields” on page 401.

CPU, DISPATCH, and FCWAIT are examples of clock type fields. Therefore, they could have been specified as CPU(TIME), DISPATCH(TIME), and FCWAIT(TIME). Instead they are allowed to assume the default TIME.

Application Groups

The command format is:

```
CICSPA LIST[(FIELDS(application-group-name(APG),...))]
```

Character fields

The command format is:

```
CICSPA LIST[(FIELDS(fieldnames))]
```

The character fields that can be selected for the Performance List report are listed in *Fields by forms, HDB templates*. Refer to the **LIST Report Form** column and the fields with data type **C** in their CMF Field ID.

Time Stamp fields

The command format is:

```
CICSPA LIST[(FIELDS(START|STOP(date-time-format)))]
```

The time stamp fields are:

- START** Task start time
- STOP** Task stop time

One or more of the following formats can be selected for the time stamp fields for the Performance List report:

DATE Date in the format *mm/dd/yyyy*

DATEISO
Date in the format *yyyy-mm-dd*

DATEM
Date in the format *mm/dd*

DATEYR
Date in the format *mm/dd/yy*

TIMET
Time in the format *hh:mm:ss.thm*. This is the default if START or STOP is specified without a format.

TIMEM
Time in the format *hh:mm*

TIMES
Time in the format *hh:mm:ss*

TIMEP
Time in one of the following formats, according to the requested precision:

- 4 (default) *hh:mm:ss.thmi*
- 5 *hh:mm:ss.thmij*
- 6 *hh:mm:ss.thmiju*

For more information on specifying time stamp fields, see “Suboperands for Time Stamp fields” on page 387.

Count fields

The command format is:

```
CICSPA LIST[(FIELDS(fieldnames))]
```

For performance alert reporting, specify `fieldname(SEV)`.

The count fields that can be selected for the Performance List report are listed in Fields by forms, HDB templates. Refer to the **LIST Report Form** column and the fields with data type **A** in their CMF Field ID.

Optionally, numeric values can be converted for reporting by specifying one of the following:

- K** Divide value by 1000, typically for count fields
- M** Divide value by 1000000, typically for count fields
- KB** Kilobytes (divide by 1024), typically for storage fields
- MB** Megabytes (divide by 1024x1024), typically for storage fields

Clock (Time-Count) fields

The format of the command is:

```
CICSPA LIST[(FIELDS(fieldname1(TIME|COUNT),...))]
```

For performance alert reporting, specify `fieldname(SEV)`.

For clock type fields, you can report the first part of the field (elapsed TIME) or the second part (COUNT of the number of times the condition occurred). If neither is specified, the default is TIME. For more information on specifying clock fields, see “Suboperands for Clock type fields” on page 387.

The clock fields that can be selected for the Performance List report are listed in Fields by forms, HDB templates. Refer to the **LIST Report Form** column and the fields with data type **S** in their CMF Field ID.

Special fields

The command format is:

```
CICSPA LIST[(FIELDS(fieldname))]
```

The special field that can be selected for the Performance List report is:

CPUSU

The task USRCPUT (DFHTASK S008), converted to Service Units using a user-supplied conversion factor.

Special (Time) fields

The command format is:

```
CICSPA LIST[(FIELDS(fieldnames))]
```

For performance alert reporting, specify `fieldname(SEV)`.

Special time fields are accumulations of several CMF time fields.

The special time fields that can be selected for the Performance List report are:

COMMWAIT

Communications wait time. The total time value of the communications related fields IRWAIT, ISWAIT, SZWAIT, TCWAIT, LU61WAIT, and LU62WAIT.

IOWAIT

Total I/O wait time. The total time value of FCWAIT, JCWAIT, TDWAIT, and TSWAIT.

IRESP Transaction internal response time.

JVMMTIME

JVM Method time:

JVMTIME - (JVMITIME + JVMRTIME)

RESPONSE

Transaction response time.

RMIOTIME

Resource Manager Interface (RMI) Other time:

RMISUSP - (IMSWAIT + DB2RDYQW + DB2CONWT + DB2WAIT)

Before CICS Version 620, RMIOTIME was RMIOTHER. In CICS Version 620 and later, RMIOTHER is a CICS CMF Field in the DFHRMI class.

TOTCPU

Total task CPU time:

CPU + RLSCPU

User fields

User fields can be one of the following types:

CHARACTER

Character string

COUNT

Binary or Packed counter

CLOCKTIME and CLOCKCOUNT

The two parts of clock type fields:

CLOCKTIME

The elapsed time part

CLOCKCOUNT

The count of the number of times the condition occurred

The format of the command for requesting user fields in the Performance List report is:

For character type user fields:

```
CICSPA LIST[(FIELDS(CHARACTER(OWNER(owner)
                [,SUBSTR(offset,length)])))]
```

For numeric type user fields:

```
CICSPA LIST[(FIELDS(COUNT|CLOCKTIME|CLOCKCOUNT(
                OWNER(owner),NUMBER(nnn)))]
```

The options are:

OWNER(owner)

Must be specified for all user field types. It is the 1-8 character owner of the user field, identified by the entry name in the ID= parameter of the TYPE=EMP entry in the MCT, or the CICS-assigned default name of *USER* (no entry name in the ID= parameter).

SUBSTR(offset,length)

Optional. Applies to character fields only. It specifies that only part of the user field is to be reported; that part starting at the *offset* position (where 1 is the first character in the field) for the number of characters specified by *length*. If SUBSTR is not specified, the default is the entire field (although limited to 8 characters for the Performance Summary report).

NUMBER(nnn)

Must be specified for all numeric types (COUNT, CLOCKTIME, CLOCKCOUNT). It specifies the three-digit number that identifies a specific count or clock type field. For each owner, up to 256 count type and up to 256 clock type user fields can be defined to CICS, whereas for character user fields, only one can be defined for each owner.

For more information on specifying user fields, see "Suboperands for User fields" on page 388.

DBCTL fields

The command format is:

```
CICSPA LIST[(FIELDS(DBCTL(field1,field2,...)))]
```

If your MCT collects DBCTL User Data (using the DFH\$MCTD macro in SDFHSAMP), then the FIELDS operand can specify the DBCTL fields. See Fields by forms, HDB templates for a list of these fields. Refer to the **LIST Report Form** column and the fields with owner **DBCTL** in their CMF Field ID.

Note: The IMS Performance Analyzer (IMS PA) can provide a comprehensive analysis of IMS DBCTL performance.

LIST examples

A set of sample Report Forms is provided with CICS PA. See Table 6 on page 293 for the sample LIST Report Forms. You can use these sample Report Forms with your Performance List report or Performance Data extract. They provide a detailed picture of the many aspects affecting CICS system performance.

Example 1: Default report.

```
CICSPA LIST
```

Example 2:

This example generates a Performance List report where most of the "time spent" fields are requested. For the FCWAIT field, both the TIME part and the COUNT part are requested. The DISPATCH, IOWAIT, IRWAIT, TSWAIT, TCWAIT, and JCWAIT fields default to show the TIME part. The SUSPEND field could also default to TIME.

```
CICSPA LIST(FIELDS(TRAN,RESPONSE,IRESP,DISPATCH,
                  SUSPEND(TIME),IOWAIT,FCWAIT(TIME,COUNT),
                  IRWAIT,TSWAIT,TCWAIT,JCWAIT))
```

Example 3:

This example generates a Performance List report where most of the File Control related fields are requested.

```
CICSPA LIST(FIELDS(TRAN,FCTOTAL,FCADD,FCAMCT,
                  FCBROWSE,FCDELETE,FCGET,FCPUT,
                  FCWAIT(TIME,COUNT)))
```

Example 4:

This example generates a Performance List report that contains user fields.

```
CICSPA LIST(FIELDS(TRAN,STYPE,USERID,
                  CHARACTER(OWNER(USEREMP),SUBSTR(1,8)),
                  CHARACTER(OWNER(USEREMP),SUBSTR(9,8)),
                  COUNT(OWNER(USEREMP),NUMBER(001)),
                  CLOKTIME(OWNER(USEREMP),NUMBER(001)),
                  CLOKCOUNT(OWNER(USEREMP),NUMBER(001))))
```

Example 5:

This example generates a Performance List report of only the performance class records with a transaction identifier of ABCD.

```
CICSPA IN(SMFIN002),
        SELECT(PERFORMANCE(INCLUDE(TRAN(ABCD)))),
        LIST
```

Example 6:

Few transaction abends have the value USER. This example generates a Performance List report of only those performance class records with an abend code of USER.

```
CICSPA SELECT(PERFORMANCE(INCLUDE(ABCODEC(USER)))),
        LIST
```

Example 7:

```
CICSPA LIST(FIELDS(TRAN,          Transaction ID
                  STYPE,          Start type of transaction
                  TERM,           Terminal ID
                  USERID,         User ID
                  START(TIMES),    Start time (hh:mm:ss)
                  STOP(TIMES),     Stop time (hh:mm:ss)
                  RESPONSE,        Response time
                  IRESP,           Internal response time
                  DISPATCH,        Dispatch time
                  CPU,             CPU time
                  SUSPEND,         Suspend time
                  DISPWAIT,        Dispatch wait time
                  RMISUSP,         RMI suspend time
                  IRWAIT,          Inter-Region (MRO) I/O wait time
                  FCWAIT,          File Control I/O wait time
                  FCAMCT))         File Control access method calls
```

This example produces a Performance List report like that shown in Figure 192 on page 404.

LIST0001 Printed at 12:03:45 04/17/2013 Data from 11:16:47 2/14/2005 APPLID IYK2Z1V1 Page 3

| Tran | SC | Term | Userid | Start Time | Stop Time | Response Time | Int Resp Time | Dispatch Time | User CPU Time | Suspend Time | DispWait Time | RMISusp Time | IR Wait Time | FC Wait Time | FCAMRq |
|------|----|------|---------|------------|-----------|---------------|---------------|---------------|---------------|--------------|---------------|--------------|--------------|--------------|--------|
| CSAC | TO | TC26 | GBURGES | 11:17:25 | 11:17:25 | .0023 | .0023 | .0022 | .0013 | .0001 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:29 | 11:17:29 | .0021 | .0021 | .0020 | .0015 | .0001 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:29 | 11:17:32 | 2.6211 | .0017 | .0017 | .0011 | 2.6193 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:32 | 11:17:32 | .4257 | .0159 | .0157 | .0041 | .4100 | .0002 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:32 | 11:17:35 | 2.9266 | .0015 | .0015 | .0008 | 2.9251 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:35 | 11:17:44 | 9.3535 | .0016 | .0016 | .0008 | 9.3519 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:44 | 11:17:46 | 1.4981 | .0012 | .0012 | .0008 | 1.4969 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:46 | 11:17:47 | .9179 | .0010 | .0010 | .0010 | .9169 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:47 | 11:17:50 | 3.3607 | .6967 | .3832 | .3533 | 2.9774 | .0012 | .0000 | .0000 | .0000 | 0 |
| RMST | TO | P012 | CBAKER | 11:17:55 | 11:17:55 | .0220 | .0220 | .0035 | .0029 | .0186 | .0000 | .0000 | .0185 | .0000 | 0 |
| RMST | TO | P012 | CBAKER | 11:17:55 | 11:17:57 | 1.8028 | .0110 | .0083 | .0010 | 1.7945 | .0000 | .0000 | .0027 | .0000 | 0 |
| STAT | TO | P012 | CBAKER | 11:17:59 | 11:17:59 | .0025 | .0025 | .0024 | .0016 | .0001 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | P012 | CBAKER | 11:17:59 | 11:18:00 | .5878 | .0013 | .0008 | .0008 | .5865 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:17:50 | 11:18:01 | 10.8639 | .0018 | .0018 | .0008 | 10.8621 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:01 | 11:18:02 | .9011 | .0017 | .0017 | .0008 | .8994 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:02 | 11:18:02 | .2401 | .0026 | .0026 | .0008 | .2374 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:02 | 11:18:02 | .2184 | .0017 | .0017 | .0008 | .2167 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | P012 | CBAKER | 11:18:00 | 11:18:04 | 3.6050 | .0020 | .0020 | .0014 | 3.6030 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:02 | 11:18:04 | 1.5901 | .0015 | .0015 | .0008 | 1.5886 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | P012 | CBAKER | 11:18:04 | 11:18:05 | .8993 | .0014 | .0014 | .0010 | .8979 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | P012 | CBAKER | 11:18:05 | 11:18:07 | 2.1660 | 1.8732 | 1.3918 | 1.2435 | .7742 | .0016 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | P012 | CBAKER | 11:18:07 | 11:18:07 | .5329 | .0016 | .0016 | .0012 | .5313 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:04 | 11:18:08 | 4.2871 | .0017 | .0017 | .0008 | 4.2855 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:08 | 11:18:09 | .5435 | .0017 | .0017 | .0008 | .5418 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:09 | 11:18:09 | .3935 | .0016 | .0016 | .0008 | .3919 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:09 | 11:18:11 | 1.6852 | .0020 | .0020 | .0011 | 1.6832 | .0000 | .0000 | .0000 | .0000 | 0 |
| CEMT | TO | P056 | CBAKER | 11:16:37 | 11:18:12 | 95.0977 | .0042 | .0042 | .0035 | 95.0935 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:11 | 11:18:13 | 2.1833 | .0010 | .0010 | .0008 | 2.1823 | .0000 | .0000 | .0000 | .0000 | 0 |
| STAT | TO | TC26 | GBURGES | 11:18:13 | 11:18:17 | 4.2176 | .0016 | .0016 | .0009 | 4.2160 | .0001 | .0000 | .0000 | .0000 | 0 |

Figure 192. Performance List report example (using FIELDS)

Example 8:

This example shows the Performance List report tailored to present File Control information.

```

CICSPA IN(SMFIN001),
  APPLID(applid1),
  SELECT(PERFORMANCE(INCLUDE(
    FCTOTAL(1-999999999))),
  LIST(
    OUTPUT(LIST0001),
    FIELDS(TRAN,           Transaction identifier
           PROGRAM,       Program name
           STOP(TIMES),   Task stop time
           RESPONSE,      Transaction response time
           DISPATCH(TIME), Dispatch time
           CPU(TIME),     CPU time
           SUSPEND(TIME), Suspend time
           FCWAIT(TIME),  File I/O wait time
           FCAMCT,        File access-method requests
           FCADD,         File ADD requests
           FCBROWSE,     File Browse requests
           FCDELETE,     File DELETE requests
           FCGET,        File GET requests
           FCPUT,        File PUT requests
           FCTOTAL))     File Control requests

```

Example 9:

This example shows the Performance List report tailored to present Program Control information.

```

CICSPA IN(SMFIN002),
  APPLID(applid2),
  SELECT(PERFORMANCE(INCLUDE(
    PLOADTI(1-999999999))),
  LIST(OUTPUT(LIST0002),
    FIELDS(TRAN,           Transaction identifier
           PROGRAM,       Program name

```

| | |
|-----------------|--|
| PCLINK, | Program LINK requests |
| PCLOAD, | Program LOAD requests |
| PCLOADTM(TIME), | Program Library wait time |
| PCSTGHWM, | Program Storage HWM above and below 16MB |
| PCXCTL, | Program XCTL requests |
| PC24BHWM, | Program Storage HWM below 16MB |
| PC24CHWM, | Program Storage (CDSA) HWM below 16MB |
| PC24RHWM, | Program Storage (RDSA) HWM below 16MB |
| PC24SHWM, | Program Storage (SDSA) HWM below 16MB |
| PC31AHWM, | Program Storage HWM above 16MB |
| PC31CHWM, | Program Storage (ECDSA) HWM above 16MB |
| PC31RHWM, | Program Storage (ERDSA) HWM above 16MB |
| PC31SHWM)) | Program Storage (ESDSA) HWM above 16MB |

Example 10:

In this example, the Performance List report lists all transactions that use DBCTL.

```
CICSPA LIST(
  SELECT(PERFORMANCE(EXCLUDE(
    CHARACTER(OWNER(DBCTL), Exclude transaction if no PSB name
    SUBSTR(1,1),VALUE(' '))))),
  FIELDS(TRAN, Transaction identifier
    PROGRAM, Program name
    STOP(TIMES), Task stop time
    RESPONSE, Transaction response time
    DISPATCH(TIME), Dispatch time
    CPU(TIME), CPU time
    SUSPEND(TIME), Suspend time
    DBCTL(
      PSBNAME, PSB Name
      DLICALLS, Total DL/I Database calls
      POOLWAIT, Elapsed wait time for Pool Space
      INTCWAIT, Elapsed wait time for Intent Conflict
      SCHTELAP, Elapsed time for Schedule Process
      DBIOELAP, Elapsed time for Database I/O
      PILOCKEL, Elapsed time for PI Locking
      THREDCPU)))
```

Example 11:

```
CICSPA IN(SMFIN004),
  SELECT(PERFORMANCE(EXCLUDE(
    CHARACTER(OWNER(DBCTL), Exclude transaction if no PSB name
    SUBSTR(1,1),VALUE(' '))))),
  LIST(FIELDS(
    TRAN, Transaction identifier
    DBCTL(PSBNAME), PSB name
    START, Task start time
    RESPONSE, Transaction response time
    CPU, CPU time
    DISPATCH, Dispatch time
    SUSPEND, Suspend time
    DBCTL(
      POOLWAIT, Elapsed wait time for Pool Space
      INTCWAIT, Elapsed wait time for Intent Conflict
      SCHTELAP, Elapsed time for Schedule Process
      DBIOELAP, Elapsed time for Database I/O
      PILOCKEL, Elapsed time for PI Locking
      DBIOCALL, Number of Database I/Os
      DLICALLS)))
```

This DBCTL example produces a Performance List report like that shown in Figure 193 on page 406.

Note: The IMS Performance Analyzer (IMS PA) can provide a more comprehensive analysis of IMS DBCTL performance.

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Performance List

LIST0001 Printed at 12:03:45 04/17/2013 Data from 15:58:48 2/19/2004 APPLID CICPAOR1 Page 1

DBCTL transactions

| Tran | PSB | Start Time | Response Time | User Time | CPU Time | Dispatch Time | Suspend Time | PoolWait Time | ICwait Time | SchedElp Time | DBIOElap Time | PILockEl Time | DBIOcall | DLIcall |
|------|----------|--------------|---------------|-----------|----------|---------------|--------------|---------------|-------------|---------------|---------------|---------------|----------|---------|
| DLI0 | DDLPSB51 | 15:58:47.251 | 1.0479 | .0483 | .9427 | .1052 | .0000 | .0000 | .0000 | .0079 | .0000 | .0000 | 0 | 0 |
| DLI0 | DDLPSB51 | 15:58:49.634 | .0615 | .0118 | .0168 | .0447 | .0000 | .0000 | .0000 | .0034 | .0000 | .0000 | 0 | 0 |
| DLI0 | DDLPSB51 | 16:51:16.979 | 1.4467 | .0474 | 1.2820 | .1648 | .0000 | .0000 | .0000 | .0080 | .0000 | .0000 | 0 | 0 |
| DLI0 | DDLPSB51 | 16:58:03.662 | .0934 | .0114 | .0176 | .0758 | .0000 | .0000 | .0000 | .0034 | .0000 | .0000 | 0 | 0 |
| DLI0 | DDLPSB51 | 16:58:04.244 | .0933 | .0114 | .0161 | .0772 | .0000 | .0000 | .0000 | .0035 | .0000 | .0000 | 0 | 0 |
| DLI2 | DDLPSB51 | 17:00:16.874 | 3.0710 | .0110 | .1065 | 2.9644 | .0000 | .0000 | .0000 | .0034 | .0000 | .0000 | 0 | 0 |
| DLI7 | DDLPSB51 | 17:00:17.180 | 3.0274 | .0116 | .1441 | 2.8833 | .0000 | .0000 | .0000 | .0245 | .0000 | .0000 | 0 | 0 |
| DLI3 | DDLPSB51 | 17:00:17.212 | 3.2297 | .0129 | .0108 | 3.2189 | .0000 | .0000 | .0000 | .0056 | .0000 | .0000 | 0 | 0 |
| DLI4 | DDLPSB51 | 17:00:17.213 | 3.7488 | .0109 | .0112 | 3.7375 | .0000 | .0000 | .0000 | .0036 | .0000 | .0000 | 0 | 0 |
| DLI9 | DDLPSB51 | 17:00:17.217 | 18.7260 | .0108 | 2.8553 | 15.8707 | .0000 | .0000 | .0000 | .0034 | .0000 | .0000 | 0 | 0 |
| DLI1 | DDLPSB51 | 17:00:17.218 | 18.8168 | .0131 | .0227 | 18.7941 | .0000 | .0000 | .0000 | .0041 | .0000 | .0000 | 0 | 0 |
| DLI0 | DDLPSB51 | 17:00:17.217 | 18.9042 | .0130 | 2.7601 | 16.1441 | .0000 | .0000 | .0000 | .0034 | .0000 | .0000 | 0 | 0 |
| DLI0 | DDLPSB51 | 13:14:14.187 | .5046 | .0439 | .1369 | .3676 | .0000 | .0000 | .0000 | .0035 | .0000 | .0000 | 0 | 0 |
| DLI0 | PSB99 | 13:01:22.918 | 5.9288 | 2.1340 | 3.8341 | 2.0947 | .0000 | .0000 | .0000 | 1.0004 | .0000 | .0000 | 0 | 2 |
| DLI0 | PSB99 | 13:17:35.232 | 3.5302 | 2.1659 | 2.7387 | .7914 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 2 |
| DLI0 | PSB99 | 13:45:38.833 | 3.4382 | 2.1744 | 2.4742 | .9640 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 2 |
| DLI0 | PSB99 | 13:48:16.354 | 1.0711 | .0428 | .2282 | .8429 | .0000 | .0000 | .0000 | .0024 | .0000 | .0000 | 0 | 1 |
| DLI0 | PSB99 | 13:48:24.131 | .2516 | .0118 | .0184 | .2332 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 1 |
| DLI0 | PSB99 | 13:48:25.012 | .3658 | .0117 | .0168 | .3490 | .0000 | .0000 | .0000 | .0011 | .0000 | .0000 | 0 | 1 |
| DLI0 | PSB99 | 13:48:25.963 | .3745 | .0118 | .0174 | .3571 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 1 |
| DLI0 | PSB99 | 13:48:26.919 | .2871 | .0116 | .0180 | .2691 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 1 |
| DLI0 | PSB99 | 13:48:27.907 | .2511 | .0117 | .0170 | .2341 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 1 |
| DLI0 | PSB99 | 15:36:20.458 | .7925 | .0451 | .2664 | .5261 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 1 |
| DLI0 | PSB99 | 15:38:29.047 | .6985 | .0466 | .1953 | .5032 | .0000 | .0000 | .0000 | .0011 | .0000 | .0000 | 0 | 2 |
| DLI0 | PSB99 | 15:38:50.508 | .5742 | .0457 | .1260 | .4482 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 2 |
| DLI0 | PSB99 | 15:49:07.072 | .9596 | .0486 | .1879 | .7717 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 2 |
| DLI2 | PSB99 | 15:53:29.716 | 91.8213 | 1.8717 | 2.0128 | 89.8085 | .0000 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 1 |
| DLI3 | PSB99 | 15:53:30.402 | 156.501 | 1.9866 | 24.4980 | 132.003 | .0000 | .0000 | .0000 | .0055 | .0000 | .0000 | 0 | 1 |
| DLI5 | PSB99 | 15:53:30.497 | 233.355 | 1.9771 | 18.1590 | 215.196 | .0000 | .0000 | .0000 | .0049 | .0000 | .0000 | 0 | 1 |
| DLI1 | PSB99 | 15:56:53.478 | 95.2870 | 1.9511 | 16.4508 | 78.8363 | .0000 | .0000 | .0000 | .0050 | .0000 | .0000 | 0 | 1 |

Figure 193. Performance List report (DBCTL transactions)

Example 12:

```
CICSPA LIST(OUTPUT(EXPT0001),
            DDNAME(CPAOEX01),
            DELIMIT(';'),
            LABELS,
            TITLE1('LIST Performance Data Extract'),
            FIELDS(TRAN,RESPONSE,TERM,STYPE,
                 USERID,RSYSID,PROGRAM))
```

This example produces a List Performance Data extract data set and a Recap report like that shown in Figure 194. See "Performance Data extract" on page 255 for more information on the Performance Data extract facility.

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Performance List

EXPT0001 Printed at 12:03:45 04/17/2013 Data from 15:41:29 6/12/2004 APPLID CICPAOR1 Page 1

LIST Performance Data Extract

CPAOEX01 Extract has completed successfully
Data Set Name CICSPA.LIST.EXTRACT
Record count 339

Figure 194. List Performance Data extract (Recap report)

Example 13:

```
CICSPA LIST(OUTPUT(LIST0001),
            FIELDS(BUSFUNC(APG),
                 TASKNO,
                 STOP(TIMET),
                 RESPONSE,
                 DISPATCH(TIME),
                 CPU(TIME),
                 SUSPEND(TIME),
                 DISPWAIT(TIME)))
```

This Application Grouping example produces a Performance List report like that shown in Figure 195. This report uses the BUSFUNC Application Group shown in Figure 175 on page 335.

```
V5R1M0
```

CICS Performance Analyzer
Performance List

LIST0001 Printed at 12:03:45 04/17/2013 Data from 10:29:00 3/20/2008 APPLID CICPAORI Page 1

| BUSFUNC Group | TaskNo | Stop Time | Response Time | Dispatch Time | User Time | CPU Time | Suspend Time | DispWait Time |
|----------------------------|--------|--------------|---------------|---------------|-----------|----------|--------------|---------------|
| Finance | 19576 | 10:29:00.008 | .0018 | .0014 | .0014 | .0004 | .0004 | .0000 |
| CICS-supplied transactions | 19594 | 10:29:00.058 | .0013 | .0001 | .0001 | .0012 | .0012 | .0000 |
| CICS-supplied transactions | 19595 | 10:29:00.060 | .0010 | .0001 | .0001 | .0008 | .0008 | .0000 |
| CICS-supplied transactions | 19597 | 10:29:00.062 | .0008 | .0002 | .0002 | .0006 | .0006 | .0000 |
| CICS-supplied transactions | 19591 | 10:29:00.063 | .0269 | .0003 | .0003 | .0266 | .0266 | .0000 |
| Unassigned transactions | 19607 | 10:29:00.105 | .0005 | .0005 | .0004 | .0000 | .0000 | .0000 |
| CICS-supplied transactions | 19600 | 10:29:00.108 | .0409 | .0003 | .0002 | .0406 | .0406 | .0000 |
| Statistics collection | 19577 | 10:29:00.120 | .1121 | .0011 | .0010 | .1110 | .1110 | .0002 |
| Statistics collection | 19592 | 10:29:00.121 | .0837 | .0006 | .0006 | .0830 | .0830 | .0000 |
| Delivery | 19605 | 10:29:00.132 | .0419 | .0003 | .0003 | .0416 | .0416 | .0000 |
| CICS-supplied transactions | 19581 | 10:29:00.134 | .1184 | .0003 | .0002 | .1181 | .1181 | .0000 |
| CICS-supplied transactions | 19582 | 10:29:00.134 | .1175 | .0003 | .0003 | .1172 | .1172 | .0000 |
| CICS-supplied transactions | 19613 | 10:29:00.135 | .0153 | .0003 | .0003 | .0150 | .0150 | .0000 |
| Finance | 19614 | 10:29:00.141 | .0162 | .0003 | .0002 | .0160 | .0160 | .0000 |

Figure 195. Performance List report (Application Grouping)

Example 14: Performance Alerts List report and extract.

```
CICSPA PRECISION(4),
LIST(OUTPUT(LIST0001),
ALERT(ALERT01),
SEVERITY(ALL),
FIELDS(TRAN,
PROGRAM,
TASKNO,
STOP(TIMET),
RESPONSE,
RESPONSE(SEV),
DISPATCH(TIME),
DISPATCH(SEV),
CPU(TIME),
CPU(SEV),
FCAMCT,
IRWAIT(TIME)))
```

```
V5R1M0
```

CICS Performance Analyzer
Performance List

LIST0001 Printed at 16:47:24 4/20/2010 Data from 07:50:50 3/26/2009 APPLID XYZ287V2

| Tran | Program | TaskNo | Stop Time | Response Time | Response Time | Dispatch Time | Dispatch Time | User Time | CPU Time | User Time | CPU Time | FCAMRq | IR | Wait Time |
|------|----------|--------|--------------|-----------------|---------------|-----------------|---------------|-----------------|----------|-----------------|----------|--------|----|-----------|
| CSSY | DFHAPATT | 20 | 07:50:50.574 | .0038 | | .0001 | | .0001 | | .0001 | | 0 | | .0000 |
| CSSY | DFHAPATT | 21 | 07:50:50.576 | .0060 | | .0002 | | .0002 | | .0002 | | 0 | | .0000 |
| CSSY | DFHAPATT | 22 | 07:50:50.582 | .0105 Info | | .0016 | | .0004 | | .0004 | | 0 | | .0000 |
| CSSY | DFHAPATT | 19 | 07:50:50.606 | .0364 Info | | .0238 Info | | .0012 Info | | .0012 Info | | 0 | | .0000 |
| CSSY | DFHAPATT | 17 | 07:50:50.661 | .0913 Info | | .0272 Info | | .0016 Info | | .0016 Info | | 0 | | .0000 |
| CGRP | DFHZCGRP | 13 | 07:50:50.713 | .1452 | | .0274 | | .0015 | | .0015 | | 0 | | .0000 |
| CSSY | DFHAPATT | 16 | 07:50:50.721 | .1520 Warning | | .0269 Info | | .0019 Info | | .0019 Info | | 0 | | .0000 |
| CSSY | DFHAPATT | 14 | 07:50:50.733 | .1648 Warning | | .0258 Info | | .0012 Info | | .0012 Info | | 0 | | .0000 |
| CSSY | DFHAPATT | 18 | 07:50:50.844 | .2747 Warning | | .0565 Info | | .0033 Info | | .0033 Info | | 0 | | .0000 |
| CSSY | DFHAPATT | 12 | 07:50:50.894 | .3263 Warning | | .0551 Info | | .0047 Info | | .0047 Info | | 0 | | .0000 |
| CSSY | DFHAPATT | 11 | 07:50:50.909 | .3409 Warning | | .0617 Info | | .0060 Info | | .0060 Info | | 0 | | .0000 |
| CSSY | DFHAPATT | 15 | 07:50:51.042 | .4730 Warning | | .0764 Info | | .0093 Info | | .0093 Info | | 1 | | .0000 |
| CPLT | DFHSIPLT | 8 | 07:50:56.495 | 5.9899 | | 1.0481 | | .0619 | | .0619 | | 9 | | .0000 |
| CRLR | DFHRLR | 29 | 07:50:56.588 | .0485 | | .0126 | | .0010 | | .0010 | | 0 | | .0000 |
| CEJR | DFHEJITL | 57 | 07:51:00.188 | 2.5847 Critical | | 2.4988 Critical | | 1.7953 Critical | | 1.7953 Critical | | 0 | | .0000 |
| CP1R | DFHP1ITL | 37 | 07:51:00.349 | 3.7469 | | 3.4951 | | .0523 | | .0523 | | 0 | | .0000 |
| CEMT | DFHEMTP | 63 | 07:51:00.703 | .0616 Info | | .0504 Info | | .0057 Info | | .0057 Info | | 0 | | .0000 |

Figure 196. Performance Alerts List report

See the supplied sample jobs CPAPALST and CPAPAXTL in the SCPASAMP library.

LISTX - Performance List Extended report

The **LISTX** operand requests the Performance List Extended report or the Cross-System Work Extended report.

The command format for the Performance List Extended report is:

```
CICSPA LISTX(
    [OUTPUT(ddname),]
    [EXTERNAL(ddname),]
    [BY(by1(ASCEND|DESCEND),
        by2(ASCEND|DESCEND),
        by3(ASCEND|DESCEND)),]
    [LIMIT(fieldname(proclim)),]
    [FIELDS(field1[(options)],...),]
    [LINECount(nnn),]
    [TITLE1('...up to 64 characters...'),]
    [TITLE2('...up to 64 characters...'),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
    [SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))])
```

The command format for the Cross-System Work Extended report is:

```
CICSPA LISTX(
    [OUTPUT(ddname),]
    [EXTERNAL(ddname),]
    [BY(UOWID),]
    [PRINTMULTIPLE|NOPRINTMULTIPLE,]
    [PRINTSINGLE|NOPRINTSINGLE,]
    [FIELDS(field1[(options)],...),]
    [LINECount(nnn),]
    [TITLE1('...up to 64 characters...'),]
    [TITLE2('...up to 64 characters...'),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
    [SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
    [SELUOW(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))])
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **LSTXnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

EXTERNAL

Specifies the DDname for the work data set used by the external SORT facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See “EXTERNAL” on page 385 for further information.

BY

- For the Performance List Extended report:
 - BY dictates the summarization order of the report. Up to three fields can be specified, where *by1* is the major sort field, *by2* the intermediate, and *by3* the minor sort field. Not all fields can be sort fields. See “LISTX(BY(field1,field2,field3))” on page 409 for the list of fields which are sort candidates.

The default sort order is ASCEND (ascending). Specify DESCEND if you want a field sorted in descending order.

If BY is not specified, the default is BY(TRAN,TERM).
- For the Cross-System Work Extended report:

BY(UOWID) identifies that the CMF records are grouped by network unit-of-work. No other BY fields can be specified.

PRINTMULTIPLE

Print only the transaction performance records consisting of units-of-work that include multiple CMF records. This is the default for the report.

NOPRINTMULTIPLE

Do not print the transaction performance records consisting of units-of-work that include multiple CMF records.

PRINTSINGLE

Print the transaction performance records consisting of units-of-work that include only a single CMF record. To get a listing containing these records only, you must suppress the default PRINTMULTIPLE option by specifying NOPRINTMULTIPLE as well.

LIMIT

Optional. Limits the number of selected performance class records which are processed. Only one field can be specified. The LIMIT *fieldname* must be the same as one of the field names specified in the BY operand. See "LISTX(LIMIT" on page 410 for the list of eligible fields.

proclim specifies the maximum number of records to be processed at a level corresponding to the location of the field parameter in the BY operand.

FIELDS

Specifies which fields are reported, the order of the columns, and the format of any time stamp fields. The sort fields specified in the BY operand must also be specified in the FIELDS operand. See "LISTX(FIELDS" on page 410 for the complete list of fields and their options by field type.

LINECOUNT

Controls the number of lines per page. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT | SELECT2(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

SELUOW(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what units-of-work to include or exclude from the Cross-System Work Extended report based on data field values. If one task in a multi-task UOW matches the selection criteria, then all tasks for that UOW are selected.

It can be used in conjunction with SELECT to first filter out those tasks that you know are of no interest and thereby optimize the record sort process.

LISTX(BY(field1,field2,field3)

The summarization order of the Performance List Extended report can be modified. This is done with the BY operand followed by one to three field names specified in the order of the required sort precedence:

```
CICSPA LISTX[(BY(field1([APG,]ASCEND|DESCEND),...))]
```

Ascending sequence is the default. Specify DESCEND for descending sequence.

If BY is not specified, the default is **BY(TRAN)**.

The sort fields that can be specified for the Performance List Extended report are Application Groups, user fields, or the CMF fields listed in Fields by forms, HDB templates column and the fields marked S.

If the sort field is an Application Group, you must specify the APG suboperand. For example, to sort by the Application Group named MYAPPGRP, specify:

```
CICSPA LISTX(BY(MYAPPGRP(APG)))
```

LISTX(BY(UOWID))

```
CICSPA LISTX[(BY(UOWID))]
```

This requests the Cross-System Work Extended report in which the CMF records are grouped by network unit-of-work in ascending sequence. No other BY fields can be specified.

LISTX(LIMIT

The LIMIT operand can be specified for the Performance List Extended report to limit the number of records processed for a particular field. This field must be the same as one of the fields specified in the BY clause.

The format of the command is:

```
CICSPA LISTX[(LIMIT(fieldname([APG,]proclim)))]
```

where *fieldname* is one of the fields selected for "LISTX(BY(field1,field2,field3)" on page 409. For example, to set a limit of 2 on a user field:

```
CICSPA LISTX(LIMIT(CHARACTER(OWNER(CCVALIST),SUBSTR(1,16))(2)),...)
```

If the field is an Application Group, then you must specify the suboperand APG. For example, for an Application Group named MYAPPGRP:

```
CICSPA LISTX(LIMIT(MYAPPGRP(APG,20)),...)
```

LISTX(FIELDS

The Performance List Extended report and Cross-System Work Extended report can be tailored by modifying which fields and Application Groups are reported and the order in which they appear in the report. This is done with the FIELDS operand followed by the field and Application Group names:

```
CICSPA LISTX[(FIELDS(field1[(options)],...))]
```

If the BY and FIELDS operands are not specified, the Performance List Extended report is produced with defaults:

```
CICSPA LISTX(BY(TRAN),
              FIELDS(TRAN,           Transaction ID
                    STYPE,           Start type of transaction
                    USERID,          User ID
                    RSYSID,          Remote System ID
                    PROGRAM,          Initial program name
                    TASKNO,           Transaction number
                    STOP(TIMET),      Stop time (hh:mm:ss.thm)
                    RESPONSE,         Response time
                    DISPATCH,         Dispatch time
                    CPU,               CPU time
```

SUSPEND, Suspend time
 DISPWAIT, Dispatch wait time
 FCWAIT, File Control I/O wait time
 FCAMCT, File Control access method calls
 IRWAIT)) Inter-Region (MRO) I/O wait time

This produces the default report shown in Figure 197.

Note:

1. The report format cannot be changed on an individual field basis. Even if only one field is required to be changed from the default, the entire list of field names must be entered.
2. Some field types require additional operands:
 - See “Time Stamp Fields” on page 412.
 - See “Clock (Time-Count) Fields” on page 412.

CPU, DISPATCH, and FCWAIT are examples of clock type fields. They could have been specified as CPU(TIME), DISPATCH(TIME), and FCWAIT(TIME). Instead they are allowed to assume the default TIME.

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| Tran | SC | Userid | RSID | Program | TaskNo | Stop Time | Response Time | Dispatch Time | User Time | CPU Time | Suspend Time | DispWait Time | FC Wait Time | FCAMRq | IR Wait Time |
|------|----|---------|----------|---------|--------------|-----------|---------------|---------------|-----------|----------|--------------|---------------|--------------|--------|--------------|
| AADD | TO | BRENNER | DFHSAALL | 52 | 11:12:54.123 | .0945 | .0831 | .0084 | .0114 | .0113 | .0000 | 0 | .0000 | | |
| AADD | TO | BRENNER | DFHSAALL | 54 | 11:13:06.234 | .0636 | .0619 | .0047 | .0017 | .0016 | .0000 | 0 | .0000 | | |
| AADD | TP | BRENNER | DFHSAALL | 65 | 11:14:27.312 | .0029 | .0026 | .0017 | .0003 | .0002 | .0000 | 3 | .0000 | | |
| AADD | TO | BRENNER | DFHSAALL | 551 | 11:26:41.422 | .0016 | .0016 | .0013 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| AADD | TP | BRENNER | DFHSAALL | 561 | 11:27:02.531 | .0026 | .0022 | .0017 | .0003 | .0002 | .0000 | 3 | .0000 | | |
| AADD | TO | GBURGES | DFHSAALL | 136 | 11:20:04.642 | .0011 | .0010 | .0010 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| AADD | TO | GBURGES | DFHSAALL | 137 | 11:20:08.753 | .0022 | .0021 | .0012 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| AADD | TP | GBURGES | DFHSAALL | 138 | 11:20:15.865 | .0023 | .0022 | .0013 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| AADD | TO | GBURGES | DFHSAALL | 183 | 11:21:51.877 | .0022 | .0022 | .0012 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| AADD | TP | GBURGES | DFHSAALL | 184 | 11:21:58.988 | .0023 | .0022 | .0013 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| ABRW | TO | CBAKER | DFHSABRW | 139 | 11:16:51.099 | .6982 | .6717 | .0385 | .0264 | .0111 | .0051 | 6 | .0000 | | |
| ABRW | TP | CBAKER | DFHSABRW | 140 | 11:16:52.100 | .0018 | .0018 | .0015 | .0001 | .0000 | .0000 | 7 | .0000 | | |
| ABRW | TP | CBAKER | DFHSABRW | 141 | 11:16:52.210 | .0021 | .0020 | .0015 | .0001 | .0000 | .0000 | 7 | .0000 | | |
| ABRW | TP | CBAKER | DFHSABRW | 142 | 11:16:52.320 | .0018 | .0017 | .0014 | .0001 | .0000 | .0000 | 7 | .0000 | | |
| ABRW | TP | CBAKER | DFHSABRW | 143 | 11:16:53.331 | .0020 | .0019 | .0015 | .0001 | .0000 | .0000 | 7 | .0000 | | |
| ABRW | TP | CBAKER | DFHSABRW | 144 | 11:16:53.542 | .0038 | .0037 | .0013 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| ABRW | TO | CBAKER | DFHSABRW | 365 | 11:22:38.653 | .0020 | .0019 | .0015 | .0001 | .0000 | .0000 | 6 | .0000 | | |
| ABRW | TP | CBAKER | DFHSABRW | 366 | 11:22:40.764 | .0019 | .0016 | .0013 | .0002 | .0000 | .0000 | 7 | .0000 | | |
| ABRW | TP | CBAKER | DFHSABRW | 367 | 11:22:41.875 | .0018 | .0018 | .0015 | .0001 | .0000 | .0000 | 7 | .0000 | | |
| ABRW | TP | CBAKER | DFHSABRW | 368 | 11:22:41.886 | .0018 | .0017 | .0012 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| ABRW | TO | CBAKER | DFHSABRW | 206 | 11:24:34.921 | .0052 | .0021 | .0021 | .0031 | .0000 | .0000 | 0 | .0030 | | |
| ABRW | TO | BRENNER | DFHSABRW | 53 | 11:12:19.032 | .5819 | .0783 | .0121 | .5037 | .0127 | .0000 | 0 | .4908 | | |
| ABRW | TP | BRENNER | DFHSABRW | 59 | 11:13:17.140 | .0070 | .0034 | .0029 | .0036 | .0000 | .0000 | 0 | .0036 | | |
| ABRW | TP | BRENNER | DFHSABRW | 61 | 11:13:20.259 | .0080 | .0028 | .0024 | .0052 | .0000 | .0000 | 0 | .0051 | | |
| ABRW | TP | BRENNER | DFHSABRW | 62 | 11:13:21.366 | .0064 | .0027 | .0023 | .0036 | .0000 | .0000 | 0 | .0036 | | |
| ABRW | TP | BRENNER | DFHSABRW | 63 | 11:13:24.475 | .0018 | .0017 | .0014 | .0001 | .0000 | .0000 | 0 | .0000 | | |
| ABRW | TO | GBURGES | DFHSABRW | 109 | 11:19:44.584 | .0071 | .0040 | .0027 | .0030 | .0000 | .0000 | 0 | .0030 | | |
| ABRW | TP | GBURGES | DFHSABRW | 110 | 11:19:49.698 | .0064 | .0031 | .0021 | .0033 | .0000 | .0000 | 0 | .0032 | | |

Figure 197. Performance List Extended report (default BY and FIELDS)

Application Groups

The command format is:

CICSPA LISTX[(FIELDS(application-group-name(APG),...))]

Character Fields

The command format is:

CICSPA LISTX[(FIELDS(fieldnames))]

The character fields that can be selected for the Performance List Extended report are listed in Fields by forms, HDB templates. Refer to the LISTX Report Form column and the fields with data type C in their CMF Field ID.

Time Stamp Fields

The command format is:

```
CICSPA LISTX[(FIELDS(START|STOP(date-time-format)))]
```

The time stamp fields are:

START

Task start time

STOP

Task stop time

One or more of the following formats can be selected for the time stamp fields:

DATE Date in the format *mm/dd/yyyy*

DATEISO

Date in the format *yyyy-mm-dd*

DATEM

Date in the format *mm/dd*

DATEYR

Date in the format *mm/dd/yy*

TIMET

Time in the format *hh:mm:ss.thm*. This is the default if **START** or **STOP** is specified without a format.

TIMEM

Time in the format *hh:mm*

TIMES

Time in the format *hh:mm:ss*

TIMEP

Time in one of the following formats, according to the requested precision:

4 (default)

hh:mm:ss.thmi

5 *hh:mm:ss.thmij*

6 *hh:mm:ss.thmiju*

For more information on specifying time stamp fields, see “Suboperands for Time Stamp fields” on page 387.

Count Fields

The command format is:

```
CICSPA LISTX[(FIELDS(...,fieldname,...))]
```

The count fields that can be selected for the Performance List Extended report are listed in Fields by forms, HDB templates. Refer to the **LISTX Report Form** column and the fields with data type **A** in their CMF Field ID.

Optionally, numeric values can be converted for reporting by specifying one of the following:

K Divide value by 1000, typically for count fields

M Divide value by 1000000, typically for count fields

KB Kilobytes (divide by 1024), typically for storage fields

MB Megabytes (divide by 1024x1024), typically for storage fields

Clock (Time-Count) Fields

The command format is:

```
CICSPA LISTX[(FIELDS(fieldname1(TIME|COUNT),...))]
```

For clock type fields, you can report the first part of the field (elapsed TIME) or the second part (COUNT of the number of times the condition occurred). The default is TIME. For more information on specifying clock fields, see “Suboperands for Clock type fields” on page 387.

The clock fields that can be selected for the Performance List report are listed in Fields by forms, HDB templates. Refer to the **LISTX Report Form** column and the fields with data type **S** in their CMF Field ID.

Special fields

The command format is:

```
CICSPA LISTX[(FIELDS(fieldname))]
```

The special field that can be selected for the Performance List Extended report is:

CPUSU

The task USRCPUT (DFHTASK S008), converted to Service Units using a user-supplied conversion factor.

Special (Time) Fields

The command format is:

```
CICSPA LISTX[(FIELDS(fieldnames))]
```

Special time fields are accumulations of several CMF time fields.

The special time fields that can be selected for the Performance List Extended report are:

COMMWAIT

Communications wait time. The total time value of the communications related fields IRWAIT, ISWAIT, SZWAIT, TCWAIT, LU61WAIT, and LU62WAIT.

IOWAIT

Total I/O wait time. The total time value of FCWAIT, JCWAIT, TDWAIT, and TSWAIT.

IRESP Transaction internal response time

JVMMTIME

JVM Method time:

$JVMMTIME - (JVMMITIME + JVMMRTIME)$

RESPONSE

Transaction response time

RMIOTIME

Resource Manager Interface (RMI) Other time:

$RMISUSP - (IMSWAIT + DB2RDYQW + DB2CONWT + DB2WAIT)$

Before CICS Version 620, RMIOTIME was RMIOOTHER. In CICS Version 620 and later, RMIOOTHER is a CICS CMF Field in the DFHRMI class.

TOTCPU

Total task CPU time:

$CPU + RLSCPU$

User fields

User fields can be one of the following types:

CHARACTER

Character string

COUNT

Binary or Packed counter

CLOCKTIME and CLOCKCOUNT

The two parts of clock type fields:

CLOCKTIME

The elapsed time part

CLOCKCOUNT

The count of the number of times the condition occurred

The format of the command for requesting user fields in the Performance List Extended report is:

For character type user fields:

```
CICSPA LISTX[(FIELDS(Character(Owner(owner)
[,SUBSTR(offset,length)])))]
```

For numeric type user fields:

```
CICSPA LISTX[(FIELDS(COUNT|CLOCKTIME|CLOCKCOUNT(
OWNER(owner),NUMBER(nnn)))]
```

The options are:

OWNER(owner)

Must be specified for all user field types. It is the 1-8 character owner of the user field, identified by the entry name in the ID= parameter of the TYPE=EMP entry in the MCT, or the CICS-assigned default name of *USER* (no entry name in the ID= parameter).

SUBSTR(offset,length)

Optional. Applies to character fields only. It specifies that only part of the user field is to be reported; that part starting at the *offset* position (where 1 is the first character in the field) for the number of characters specified by *length*. If SUBSTR is not specified, the default is the entire field (although limited to 8 characters for the Performance Summary report).

NUMBER(nnn)

Must be specified for all numeric types (COUNT, CLOCKTIME, CLOCKCOUNT). It specifies the three-digit number that identifies a specific count or clock type field. For each owner, up to 256 count type and up to 256 clock type user fields can be defined to CICS, whereas for character user fields, only one can be defined for each owner.

For more information on specifying user fields, see "Suboperands for User fields" on page 388.

DBCTL fields

The command format is:

```
CICSPA LISTX[(FIELDS(DBCTL(field1,field2,...)))]
```

If your MCT collects DBCTL User Data (using the DFH\$MCTD macro in SDFHSAMP), then the FIELDS operand can specify the DBCTL fields. See Fields by forms, HDB templates for a list of these fields. Refer to the **LISTX Report Form** column and the fields with owner **DBCTL** in their CMF Field ID.

Note: The IMS Performance Analyzer (IMS PA) can provide a comprehensive analysis of IMS DBCTL performance.

LISTX examples

A set of sample Report Forms is provided with CICS PA. See Table 6 on page 293 for the sample LISTX Report Forms. You can use these sample Report Forms with your Performance List Extended and Cross-System Work Extended reports. They provide a detailed picture of the many aspects affecting CICS system performance.

Example 1: Default report

```
CICSPA LISTX
```

This example generates the default Performance List Extended report.

Example 2: Worst response times (all transactions)

Figure 198 shows an example of using the BY, LIMIT, and FIELDS operands to generate a Performance List Extended report sorted in descending order by response time. The LIMIT statement will limit the number of performance records processed to the first 20 and the resulting report will contain the 20 performance class records with the longest response time.

```
CICSPA LISTX(
    BY(RESPONSE(DESCEND)),
    LIMIT(RESPONSE(20)),
    FIELDS(TRAN,           Transaction ID
           TERM,           Terminal ID
           STYPE,          Start type of transaction
           USERID,         User ID
           RSYDID,         Remote System ID
           PROGRAM,        Initial program name
           TASKNO,         Transaction number
           STOP(TIMES),    Stop time (hh:mm:ss)
           RESPONSE,       Response time
           DISPATCH,       Dispatch time
           CPU,            CPU time
           SUSPEND,        Suspend time
           DISPWAIT,       Dispatch wait time
           FCWAIT,         File Control I/O wait time
           IRWAIT))        Inter-Region (MRO) I/O wait time
```

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| Tran | Term | SC | Userid | RSID | Program | TaskNo | Stop Time | Response Time | Dispatch Time | User Time | CPU Time | Suspend Time | DispWait Time | FC Wait Time | IR Wait Time |
|-----------|------|---------|--------|----------|---------|----------|-----------|---------------|---------------|-----------|----------|--------------|---------------|--------------|--------------|
| CSNC | U | CBAKER | | DFHCRNP | 21 | 11:34:10 | 1386.70 | 1.4058 | .0233 | 1385.29 | .0208 | .0000 | .0000 | .0000 | .0000 |
| CSNE | U | CBAKER | | DFHZNAC | 30 | 11:34:11 | 1379.15 | .0980 | .0226 | 1379.05 | .0034 | .0000 | .0000 | .0000 | .0000 |
| CSHQ | U | CBAKER | | DFHSHSY | 23 | 11:33:50 | 1362.60 | .3326 | .0344 | 1362.27 | .0140 | .0000 | .0000 | .0000 | .0000 |
| CWXN | U | CBAKER | | DFHWBXN | 119 | 11:34:06 | 1102.23 | .0129 | .0064 | 1102.22 | .0218 | .0000 | .0000 | .0000 | .0000 |
| CWXN | U | CBAKER | | DFHWBXN | 331 | 11:34:12 | 782.697 | .0041 | .0037 | 782.693 | .0103 | .0000 | .0000 | .0000 | .0000 |
| CEMT P052 | TO | CBAKER | | DFHEMTP | 61 | 11:23:34 | 592.514 | .1550 | .1244 | 592.359 | .0026 | .0000 | .0000 | .0000 | .0000 |
| CEMT S208 | TO | BRENNER | | DFHEMTP | 66 | 11:20:31 | 308.883 | .0021 | .0012 | 308.881 | .0000 | .0000 | .0000 | .0000 | .0000 |
| CWXN | U | CBAKER | | DFHWBXN | 333 | 11:25:52 | 282.577 | .0068 | .0034 | 282.570 | .0048 | .0000 | .0000 | .0000 | .0000 |
| CEMT TC32 | TO | GBURGES | | DFHEMTP | 597 | 11:32:06 | 187.648 | .0999 | .0741 | 187.548 | .0003 | .0000 | .0000 | .0000 | .0000 |
| STAT P012 | TO | CBAKER | | DFH0STAT | 263 | 11:33:38 | 158.917 | .2575 | .2219 | 158.659 | .0016 | .0000 | .0000 | .0000 | .0000 |
| CEMT P015 | TO | CBAKER | | DFHEMTP | 64 | 11:16:46 | 144.153 | .0131 | .0078 | 144.140 | .0001 | .0000 | .0000 | .0000 | .0000 |
| CEMT P056 | TO | CBAKER | | DFHEMTP | 67 | 11:20:33 | 141.000 | .0045 | .0032 | 140.996 | .0000 | .0000 | .0000 | .0000 | .0000 |
| CEMT P056 | TO | CBAKER | | DFHEMTP | 67 | 11:22:57 | 102.494 | .0034 | .0027 | 102.490 | .0000 | .0000 | .0000 | .0000 | .0000 |
| CEMT P056 | TO | CBAKER | | DFHEMTP | 67 | 11:18:12 | 95.0977 | .0042 | .0035 | 95.0935 | .0000 | .0000 | .0000 | .0000 | .0000 |
| CEMT P056 | TO | CBAKER | | DFHEMTP | 52 | 11:14:53 | 81.3172 | .0043 | .0031 | 81.3129 | .0000 | .0000 | .0000 | .0000 | .0000 |
| STAT R11 | TO | CBAKER | | DFH0STAT | 349 | 11:22:38 | 66.7720 | .5048 | .4620 | 66.2672 | .0007 | .0000 | .0000 | 65.7887 | .0000 |
| CEMT P056 | TO | CBAKER | | DFHEMTP | 67 | 11:24:16 | 66.3943 | .0033 | .0031 | 66.3909 | .0000 | .0000 | .0000 | .0000 | .0000 |
| CEMT P056 | TO | CBAKER | | DFHEMTP | 270 | 11:33:25 | 62.1072 | .0049 | .0041 | 62.1022 | .0000 | .0000 | .0000 | .0000 | .0000 |
| CEMT P056 | TO | CBAKER | | DFHEMTP | 235 | 11:29:00 | 61.0066 | .0015 | .0010 | 61.0051 | .0001 | .0000 | .0000 | .0000 | .0000 |

Figure 198. Performance List Extended report (using BY, LIMIT, FIELDS)

Example 3: Exclude CICS-supplied system transactions

Note that in the Performance List Extended report shown in Figure 198 on page 415 some of the worst response times are for the CICS-supplied long running system transactions. So the following command can be used to create a more useful Performance List Extended report as shown in Figure 199 by excluding those types of transactions.

```
CICSPA LISTX(SELECT(PERFORMANCE(
EXCLUDE(TRAN(CSHQ,CSNC,CSNE,CSSY,CWXN))),
BY(RESPONSE(DESCEND)),
LIMIT(RESPONSE(20)),
FIELDS(TRAN,           Transaction ID
        TERM,           Terminal ID
        STYPE,          Start type of transaction
        USERID,         User ID
        RSYSID,         Remote System ID
        PROGRAM,        Initial program name
        TASKNO,         Transaction number
        STOP(TIMES),    Stop time (hh:mm:ss)
        RESPONSE,       Response time
        DISPATCH,       Dispatch time
        CPU,            CPU time
        SUSPEND,        Suspend time
        DISPWAIT,       Dispatch wait time
        FCWAIT,         File Control I/O wait time
        IRWAIT))       Inter-Region (MRO) I/O wait time
```

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| Tran | Term | SC | Userid | RSID | Program | TaskNo | Stop | Response | Dispatch | User | CPU | Suspend | DispWait | FC Wait | IR Wait |
|------|------|----|---------|------|----------|--------|----------|----------|----------|-------|---------|---------|----------|---------|---------|
| | | | | | | | Time | Time | Time | Time | Time | Time | Time | Time | Time |
| CEMT | P052 | TO | CBAKER | | DFHEMTP | 61 | 11:23:34 | 592.514 | .1550 | .1244 | 592.359 | .0026 | .0000 | .0000 | .0000 |
| CEMT | S208 | TO | BRENNER | | DFHEMTP | 66 | 11:20:31 | 308.883 | .0021 | .0012 | 308.881 | .0000 | .0000 | .0000 | .0000 |
| CEMT | TC32 | TO | GBURGES | | DFHEMTP | 597 | 11:32:06 | 187.648 | .0999 | .0741 | 187.548 | .0003 | .0000 | .0000 | .0000 |
| STAT | P012 | TO | CBAKER | | DFH0STAT | 263 | 11:33:38 | 158.917 | .2575 | .2219 | 158.659 | .0016 | .0000 | .0000 | .0000 |
| CEMT | P015 | TO | CBAKER | | DFHEMTP | 64 | 11:16:46 | 144.153 | .0131 | .0078 | 144.140 | .0001 | .0000 | .0000 | .0000 |
| CEMT | P056 | TO | CBAKER | | DFHEMTP | 67 | 11:20:33 | 141.000 | .0045 | .0032 | 140.996 | .0000 | .0000 | .0000 | .0000 |
| CEMT | P056 | TO | CBAKER | | DFHEMTP | 67 | 11:22:57 | 102.494 | .0034 | .0027 | 102.490 | .0000 | .0000 | .0000 | .0000 |
| CEMT | P056 | TO | CBAKER | | DFHEMTP | 67 | 11:18:12 | 95.0977 | .0042 | .0035 | 95.0935 | .0000 | .0000 | .0000 | .0000 |
| CEMT | P056 | TO | CBAKER | | DFHEMTP | 52 | 11:14:53 | 81.3172 | .0043 | .0031 | 81.3129 | .0000 | .0000 | .0000 | .0000 |
| STAT | R11 | TO | CBAKER | | DFH0STAT | 349 | 11:22:38 | 66.7720 | .5048 | .4620 | 66.2672 | .0007 | .0000 | 65.7887 | .0000 |
| CEMT | P056 | TO | CBAKER | | DFHEMTP | 67 | 11:24:16 | 66.3943 | .0033 | .0031 | 66.3909 | .0000 | .0000 | .0000 | .0000 |
| CEMT | P056 | TO | CBAKER | | DFHEMTP | 270 | 11:33:25 | 62.1072 | .0049 | .0041 | 62.1022 | .0000 | .0000 | .0000 | .0000 |
| CEMT | P056 | TO | CBAKER | | DFHEMTP | 235 | 11:29:00 | 61.0066 | .0015 | .0010 | 61.0051 | .0001 | .0000 | .0000 | .0000 |
| STAT | P012 | TO | CBAKER | | DFH0STAT | 248 | 11:30:42 | 52.1363 | .0021 | .0016 | 52.1341 | .0000 | .0000 | .0000 | .0000 |
| CEDA | S23C | TO | BRENNER | | DFHEDAP | 137 | 11:17:27 | 51.4018 | 1.1760 | .2138 | 50.2257 | .0281 | .3115 | .0000 | .0000 |
| CBAM | S23C | TO | BRENNER | | DFHECBAM | 43 | 11:12:50 | 51.3803 | .0607 | .0229 | 51.3196 | .0003 | .0000 | .0000 | .0000 |
| CEMT | S23D | TO | BRENNER | | DFHEMTP | 140 | 11:21:24 | 51.3442 | .0013 | .0010 | 51.3429 | .0000 | .0000 | .0000 | .0000 |
| CEMT | P056 | TO | CBAKER | | DFHEMTP | 52 | 11:12:58 | 50.6951 | .0029 | .0027 | 50.6922 | .0000 | .0000 | .0000 | .0000 |
| RMST | S23D | TO | BRENNER | CJB3 | | 178 | 11:22:38 | 48.9210 | .0136 | .0012 | 48.9074 | .0000 | .0000 | .0000 | .0024 |

Figure 199. Performance List Extended report (filtering using SELECT)

Example 4: Worst internal response time

But now the report is heavily influenced by some of the conversational transactions such as CBAM, CEDA, and CEMT. However, CICS PA provides a solution to this by using a special field name called IRESP (internal response time) which can be used to more easily interpret the actual response time by subtracting the terminal I/O wait time. So the following command will provide a Performance List Extended report sorted in descending order by Internal Response Time as shown in Figure 200 on page 417.

```
CICSPA LISTX(SELECT(PERFORMANCE(
EXCLUDE(TRAN(CSHQ,CSNC,CSNE,CSSY,CWXN))),
BY(IRESP(DESCEND)),
LIMIT(IRESP(20)),
FIELDS(
TRAN,           Transaction ID
TERM,           Terminal ID
```

STYPE, Start type of transaction
 USERID, User ID
 RSYSID, Remote System ID
 PROGRAM, Initial program name
 TASKNO, Transaction number
 STOP(TIMES), Stop time (hh:mm:ss)
 RESPONSE, Response time
 IRESP, Transaction internal response time
 DISPATCH, Dispatch time
 CPU, CPU time
 SUSPEND, Suspend time
 DISPWAIT, Dispatch wait time
 TCWAIT, Terminal Control I/O wait time
 IRWAIT)) Inter-Region (MRO) I/O wait time

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| Tran | Term | SC | Userid | RSID | Program | TaskNo | Stop Time | Response Time | Int Resp Time | Dispatch Time | User CPU Time | Suspend Time | DispWait Time | TC Wait Time | IR Wait Time |
|------|------|--------|--------|----------|---------|--------|-----------|---------------|---------------|---------------|---------------|--------------|---------------|--------------|--------------|
| STAT | R11 | TO | CBAKER | DFH0STAT | | 349 | 11:22:38 | 66.7720 | 66.7720 | .5048 | .4620 | 66.2672 | .0007 | .0000 | 65.7887 |
| CEDA | P0AJ | TO | CBAKER | DFHEDAP | | 627 | 11:31:48 | 43.9778 | 43.9778 | .6774 | .1411 | 43.3004 | .0179 | .0000 | .0000 |
| CEMT | P0AH | TO | CBAKER | DFHEMTP | | 603 | 11:30:16 | 38.5110 | 38.5110 | .0981 | .0190 | 38.4129 | .0113 | .0000 | .0000 |
| STAT | R11 | TO | CBAKER | DFH0STAT | | 132 | 11:16:47 | 33.4829 | 33.4829 | 1.4544 | 1.3336 | 32.0285 | .0050 | .0000 | 30.3768 |
| STAT | P0AF | TO | CBAKER | DFH0STAT | | 330 | 11:21:32 | 22.9057 | 22.9057 | .0508 | .0106 | 22.8549 | .0007 | .0000 | .0000 |
| CPLT | U | CBAKER | | DFHSIPLT | | 7 | 11:11:13 | 20.6297 | 20.6297 | .3608 | .0374 | 20.2689 | .0198 | .0000 | .0000 |
| CEMT | P0AC | TO | CBAKER | DFHEMTP | | 217 | 11:25:38 | 17.4997 | 17.4997 | .0688 | .0111 | 17.4309 | .0018 | .0000 | .0000 |
| CPLT | U | CBAKER | | DFHSIPLT | | 7 | 11:11:07 | 15.9915 | 15.9915 | .3383 | .0369 | 15.6532 | .0155 | .0000 | .0000 |
| CEMT | P0AG | TO | CBAKER | DFHEMTP | | 354 | 11:21:55 | 13.3797 | 13.3797 | .1218 | .0104 | 13.2580 | .0048 | .0000 | .0000 |
| STAT | P0AE | TO | CBAKER | DFH0STAT | | 292 | 11:20:12 | 10.5089 | 10.5089 | .5722 | .4729 | 9.9367 | .0031 | .0000 | .0000 |
| CEDA | P0AJ | TO | CBAKER | DFHEDAP | | 686 | 11:32:03 | 10.1006 | 10.1006 | .5349 | .0849 | 9.5657 | .0073 | .0000 | .0000 |
| CALL | P056 | TO | CBAKER | CALLJT1 | | 262 | 11:30:56 | 8.2455 | 8.2452 | .0155 | .0034 | 8.2300 | .0015 | .0003 | .0000 |
| CEMT | P0AB | TO | CBAKER | DFHEMTP | | 207 | 11:18:42 | 4.8000 | 4.8000 | .0885 | .0094 | 4.7115 | .0024 | .0000 | .0000 |
| TRUE | P012 | TO | CBAKER | CALLCB1 | | 261 | 11:30:52 | 4.5463 | 4.5463 | .0017 | .0014 | 4.5445 | .0012 | .0000 | .0000 |
| CLQ2 | U | CBAKER | | DFHLUP | | 28 | 11:11:13 | 3.8259 | 3.8259 | .0818 | .0068 | 3.7441 | .0035 | .0000 | 3.7344 |
| CSFU | S | CBAKER | | DFHFUCU | | 28 | 11:11:18 | 3.7417 | 3.7417 | 2.8745 | .2291 | .8672 | .0170 | .0000 | .0000 |
| CEMT | P0AG | TO | CBAKER | DFHEMTP | | 229 | 11:26:08 | 3.2382 | 3.2382 | .0470 | .0088 | 3.1912 | .0018 | .0000 | .0000 |
| CEMT | P0AA | TO | CBAKER | DFHEMTP | | 127 | 11:16:03 | 2.6854 | 2.6854 | .2655 | .0161 | 2.4200 | .0016 | .0000 | .0000 |
| CEMT | P0AC | TO | CBAKER | DFHEMTP | | 236 | 11:19:36 | 2.5078 | 2.5078 | .0712 | .0093 | 2.4365 | .0014 | .0000 | .0000 |

Figure 200. Performance List Extended report (sort by IRESP)

Example 5: Worst response times by transaction

Figure 201 on page 418 shows another example of using the BY, LIMIT, and FIELDS operands to generate a Performance List Extended report sorted in descending order by response time within ascending order by transaction ID. The LIMIT statement will limit the performance class records processed to the first 10 records for each unique transaction ID. The resulting report is in ascending order by transaction ID, with a limit of 10 records for each unique transaction ID. These records will represent the longest response times for each transaction ID.

```

CICSPA LISTX(
  BY(TRAN(ASCEND),
     RESPONSE(DESCEND)),
  LIMIT(RESPONSE(10)),
  FIELDS(TRAN, Transaction ID
         RESPONSE, Response time
         TERM, Terminal ID
         STYPE, Start type of transaction
         USERID, User ID
         RSYSID, Remote System ID
         PROGRAM, Initial program name
         TASKNO, Transaction number
         STOP(TIMES), Stop time (hh:mm:ss)
         DISPATCH, Dispatch time
         CPU, CPU time
         SUSPEND, Suspend time
         DISPWAIT, Dispatch wait time
         FCWAIT, File Control I/O wait time
         IRWAIT)) Inter-Region (MRO) I/O wait time

```

LSTX0001 Printed at 12:03:45 04/17/2013 Data from 11:10:51 2/14/2005 to 11:34:13 2/14/2005 Page 1

Response Times by Transaction ID *** 10 worst times ***

| Tran | Response Time | Term | SC | Userid | RSID | Program | TaskNo | Stop Time | Dispatch Time | User CPU Time | Suspend Time | DispWait Time | FC Wait Time | IR Wait Time |
|------|---------------|------|----|---------|----------|---------|----------|-----------|---------------|---------------|--------------|---------------|--------------|--------------|
| AINQ | .0020 | S23C | TO | BRENNER | DFHSAALL | 328 | 11:21:09 | .0019 | .0012 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AINQ | .0018 | S23C | TO | BRENNER | DFHSAALL | 580 | 11:27:34 | .0017 | .0014 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AINQ | .0018 | S23C | TO | BRENNER | DFHSAALL | 112 | 11:14:46 | .0017 | .0016 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AINQ | .0014 | R11 | TO | CBAKER | DFHSAALL | 232 | 11:26:30 | .0013 | .0012 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AINQ | .0013 | S23C | TO | BRENNER | DFHSAALL | 569 | 11:27:19 | .0013 | .0013 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AINQ | .0012 | TC26 | TO | GBURGES | DFHSAALL | 186 | 11:22:08 | .0011 | .0010 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AMNU | .1724 | S23D | TO | BRENNER | DFHSAMNU | 50 | 11:11:53 | .1720 | .0091 | .0004 | .0004 | .0000 | .0000 | .0000 |
| AMNU | .0713 | CAAD | TO | CBAKER | DFHSAMNU | 249 | 11:19:41 | .0519 | .0085 | .0194 | .0042 | .0000 | .0000 | .0000 |
| AMNU | .0327 | P015 | TO | CBAKER | DFHSAMNU | 138 | 11:16:47 | .0270 | .0048 | .0057 | .0056 | .0000 | .0000 | .0000 |
| AMNU | .0228 | R11 | TO | CBAKER | DFHSAMNU | 158 | 11:20:54 | .0227 | .0012 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AMNU | .0088 | R11 | TO | CBAKER | DFHSAMNU | 203 | 11:24:10 | .0088 | .0011 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AMNU | .0028 | S23C | TP | BRENNER | DFHSAMNU | 576 | 11:27:28 | .0012 | .0013 | .0017 | .0000 | .0000 | .0000 | .0000 |
| AMNU | .0027 | TC26 | TP | GBURGES | DFHSAMNU | 188 | 11:22:17 | .0026 | .0012 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AMNU | .0026 | S23C | TP | BRENNER | DFHSAMNU | 356 | 11:21:54 | .0025 | .0013 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AMNU | .0023 | TC26 | TP | GBURGES | DFHSAMNU | 108 | 11:19:33 | .0022 | .0011 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AMNU | .0018 | S23C | TP | BRENNER | DFHSAMNU | 566 | 11:27:14 | .0017 | .0012 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AUPD | .0665 | S208 | TP | BRENNER | DFHSAALL | 64 | 11:13:38 | .0160 | .0141 | .0505 | .0012 | .0000 | .0000 | .0056 |
| AUPD | .0488 | S208 | TO | BRENNER | DFHSAALL | 54 | 11:12:27 | .0335 | .0046 | .0154 | .0153 | .0000 | .0000 | .0000 |
| AUPD | .0321 | S208 | TO | BRENNER | DFHSAALL | 57 | 11:12:34 | .0301 | .0050 | .0019 | .0002 | .0000 | .0000 | .0016 |
| AUPD | .0046 | S23C | TO | BRENNER | DFHSAALL | 362 | 11:22:19 | .0046 | .0014 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AUPD | .0045 | TC26 | TO | GBURGES | DFHSAALL | 141 | 11:20:25 | .0024 | .0015 | .0021 | .0000 | .0000 | .0000 | .0020 |
| AUPD | .0041 | TC26 | TO | GBURGES | DFHSAALL | 181 | 11:21:42 | .0025 | .0016 | .0016 | .0000 | .0000 | .0000 | .0015 |
| AUPD | .0030 | R11 | TO | CBAKER | DFHSAALL | 205 | 11:24:20 | .0018 | .0017 | .0012 | .0000 | .0000 | .0000 | .0012 |
| AUPD | .0024 | TC26 | TP | GBURGES | DFHSAALL | 182 | 11:21:45 | .0023 | .0013 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AUPD | .0022 | TC32 | TP | GBURGES | DFHSAALL | 378 | 11:24:21 | .0022 | .0012 | .0001 | .0000 | .0000 | .0000 | .0000 |
| AUPD | .0020 | S23C | TO | BRENNER | DFHSAALL | 358 | 11:22:10 | .0019 | .0015 | .0001 | .0000 | .0000 | .0000 | .0000 |
| B | .0031 | TC26 | TO | GBURGES | ##### | 134 | 11:19:59 | .0031 | .0015 | .0001 | .0000 | .0000 | .0000 | .0000 |
| B | .0024 | TC26 | TO | GBURGES | ##### | 135 | 11:19:59 | .0024 | .0014 | .0001 | .0001 | .0000 | .0000 | .0000 |

Figure 201. Performance List Extended report (Top 10 Response Times by Transaction)

Example 6:

An example of a Cross-System Work Extended report is shown in Figure 202 on page 419.

The commands to request this report are shown in the following example:

```
CICSPA IN(SMFIN001),
LISTX(OUTPUT(CROS0001),
EXTERNAL(CPAXW001),
NOPRINTMULTIPLE,PRINTSINGLE,
BY(UOWID),
FIELDS(TRAN, Transaction ID
RESPONSE, Response time
USERID, User ID
TASKNO, Transaction number
STOP(TIMET), Stop time (hh:mm:ss.thm)
DISPATCH(TIME), Dispatch time
DISPATCH(COUNT), Dispatch count
CPU(TIME), CPU time
SUSPEND(TIME), Suspend time
SUSPEND(COUNT), Suspend count
DISPWAIT(TIME), Dispatch wait time
DISPWAIT(COUNT), Dispatch wait count
IRWAIT(TIME))) Inter-Region (MRO) I/O wait time
```

To use the CICS PA dialog to request this report, specify a LIST or LISTX Report Form for the Cross-System Work report.

| Tran | Response | Userid | TaskNo | Stop | Dispatch | Dispatch | User | CPU | Suspend | Suspend | DispWait | DispWait | IR | Wait |
|------|----------|----------|--------|--------------|----------|----------|---------|---------|---------|---------|----------|----------|-------|------|
| | Time | | Time | Time | Count | Time | Time | Time | Count | Time | Count | Time | Count | Time |
| CPLT | .3939 | CICSUSER | 6 | 15:41:19.419 | .0782 | 3 | .0325 | .3158 | 3 | .3149 | 2 | .0000 | | |
| CSSY | 71.4053 | CICSUSER | 111 | 15:42:30.828 | 46.9670 | 401 | 17.6543 | 24.4382 | 401 | 9.9254 | 400 | .0000 | | |
| CSSY | 4.9137 | CICSUSER | 12 | 15:41:24.346 | .4928 | 66 | .0476 | 4.4209 | 66 | 2.5618 | 65 | .0000 | | |
| CSSY | 5.3932 | CICSUSER | 10 | 15:41:24.822 | .8932 | 59 | .2172 | 4.4999 | 59 | 2.7531 | 58 | .0000 | | |
| CSSY | 5.6419 | CICSUSER | 9 | 15:41:25.069 | 1.6045 | 75 | .1472 | 4.0374 | 75 | 2.9273 | 74 | .0000 | | |
| CSSY | 5.9801 | CICSUSER | 13 | 15:41:25.434 | .7826 | 87 | .1627 | 5.1975 | 87 | 3.3042 | 86 | .0000 | | |
| CSSY | 2.9653 | CICSUSER | 14 | 15:41:22.420 | 1.2597 | 14 | .0555 | 1.7056 | 14 | .0393 | 13 | .0000 | | |
| CSSY | .4372 | CICSUSER | 15 | 15:41:19.898 | .0037 | 1 | .0034 | .4335 | 1 | .0000 | 0 | .0000 | | |
| CSSY | .5093 | CICSUSER | 16 | 15:41:19.977 | .0065 | 3 | .0084 | .5028 | 3 | .0103 | 2 | .0000 | | |
| CGRP | 5.4980 | CICSUSER | 11 | 15:41:24.928 | .7931 | 69 | .0613 | 4.7049 | 69 | 3.7141 | 68 | .0000 | | |
| CSSY | 3.3315 | CICSUSER | 17 | 15:41:22.805 | .0995 | 37 | .0269 | 3.2321 | 37 | 1.3057 | 36 | .0000 | | |
| CPLT | .5196 | CICSUSER | 6 | 15:41:29.169 | .1771 | 3 | .0316 | .3425 | 3 | .3422 | 2 | .0000 | | |

Figure 202. Cross-System Work Extended report

SUMMARY - Performance Summary report

The **SUMMARY** operand requests the Performance Summary report or an Extract file (see “Performance Data extract” on page 255).

The command format for the Performance Summary report is:

```
CICSPA SUMMARY(
  [OUTPUT(ddname),]
  [EXTERNAL(ddname),]
  [NOTOTALS|TOTALS(n),]
  [INTERVAL(hh:mm:ss),]
  [ALERTDEF(alertname),]
  [SEVERITY(ELIGIBLE|ALL),]
  [FIELDS(field1[(options[,SEV(CRITICAL|WARNING|INFO,COUNT|PERCENT)])),...],]
  [LINECount(nnn),]
  [TITLE1('...1st 64 characters of title...'),]
  [TITLE2('...2nd 64 characters of title...'),]
  [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
  [SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))])
```

The command format for the Summary Extract is:

```
CICSPA SUMMARY(
  [OUTPUT(ddname),]
  DDNAME(ddname),
  [DELIMIT('field-delimiter'),]
  [LABELS|NOLABELS,]
  [FLOAT,]
  [EXTERNAL(ddname),]
  [INTERVAL(hh:mm:ss),]
  [ALERTDEF(alertname),]
  [SEVERITY(ELIGIBLE|ALL),]
  [FIELDS(field1[(options[,SEV(CRITICAL|WARNING|INFO,COUNT|PERCENT)])),...],]
  [TITLE1('...1st 64 characters of title.of Recap...'),]
  [TITLE2('...2nd 64 characters of title.of Recap...'),]
  [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
  [SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))])
```

The options are:

OUTPUT

Controls the report output DDname. See “OUTPUT” on page 384 for further information. If not specified, CICS PA assigns a DDname in the format **xxxxnnnn** where **nnnn** is the report sequence number **0001-9999** to uniquely identify the output, and **xxxx** is:

- **SUMM** for the Performance Summary report
- **EXPT** for the Recap report for the Summary Extract

DDNAME

Specifies the DDname of the extract data set where the extracted performance data is written. When this operand is specified, instead of producing the Summary report, CICS PA writes the Performance Summary data to the extract file and a Recap of the extract process is written to the OUTPUT operand report file.

The DDname can be up to 8 alphanumeric characters, with the first non-numeric. The CICS PA dialog assigns DDnames in the format **CPAOEXnn** where nn is the extract sequence number **01-99**. (See the sample JCL in Figure 188 on page 361).

DELIMIT

Specifies the field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set. The default is a semicolon **DELIMIT(';')**.

LABELS | NOLABELS

LABELS indicates that the first record to be written to the extract data set is to be a field labels record. This is the default.

NOLABELS indicates that CICS PA is not to write a field labels record to the extract data set.

FLOAT

Write numeric fields in the extract in S390 FLOAT format. This only applies to the Summary Extract when the FIELDS operand is specified.

Specify FLOAT format if you plan to import the extract into a DB2 table. When the DB2 Load Utility is used, it will interpret all numerical fields reliably and consistently in FLOAT format.

If FLOAT is not specified, the numeric fields are written in a mixture of integer, real and exponential using character digits. This is the default and is suitable when importing the extract data into a PC spreadsheet tool.

EXTERNAL

Specifies the DDname for the work data set used by the external SORT facility. This is optional for the Summary report and Extract. If specified, CICS PA performs an external sort. If not specified, CICS PA performs an internal sort where the records are sorted in storage by CICS PA. The CICS PA dialog always generates the EXTERNAL operand with a DDname in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See "EXTERNAL" on page 385 for further information.

NOTOTALS | TOTALS(n)

The totals level applies only to the Summary report.

Specify TOTALS(1) to TOTALS(8) to accumulate subtotals for up to 8 sort fields, print the subtotals when the sort field changes, and print a grand total at the end of the report. Default: **TOTALS(8)**

Specify TOTALS(0) for no subtotals, but print only the grand total.

Specify NOTOTALS for neither subtotals nor grand total.

INTERVAL

Specifies a time interval when the report summarizes transaction activity over time. The interval is in the range 1 second to 24 hours in the format *hh:mm:ss* for hours, minutes, and seconds.

This operand applies only when any of START, STOP, or OSTART is specified in the FIELDS operand. For reporting, data is accumulated for each interval in the report period and a report line or extract record is written for each interval. If INTERVAL is not specified, the default is 00:01:00 (1 minute).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

1 becomes 00:01:00

1.1 becomes 00:01:00 (rounded down from 00:01:01)

1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

ALERTDEF

The name of a Performance Alert Definition for alert reporting.

SEVERITY(ELIGIBLE)

Only include alert eligible transactions.

FIELDS

Specifies which fields are reported, the order in which they appear in the report or extract, and their summarization presentation. See "SUMMARY(FIELDS" for further information and the complete list of fields and their options by field type.

SEV Specifies the field alert column.

CRITICAL | WARNING | INFORMATIONAL

Alert severity level for the column.

COUNT | PERCENT

Specifies whether the alert data should be reported as the total count or as a percentage of the total transactions for the summary key.

LINECount

Controls the number of lines per page in the Summary report. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line) for the Performance Summary report or the Extract Recap. See "TITLE1 and TITLE2" on page 386 for further information.

SELECT | SELECT2(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what data to include or exclude from the report or extract based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

SUMMARY(FIELDS

The Performance Summary report can be tailored by specifying which fields and Application Groups are reported, the order in which they appear in the report, and

the statistical functions used to summarize the data. This is done with the **FIELDS** operand followed by the field names, and for numeric fields, the function(s), and ordering sequence.

Up to 8 sort key fields can be specified, and at least one must be specified. The order of the key fields in the list defines the sort precedence, with the first key field being the major sort field. For each key field, the report can be ordered in ascending (**ASCEND**) or descending (**DESCEND**) sequence. The default is ascending. Sort key fields identify the grouping required for summarization, and can be any time stamp field, such as **START** and **STOP** time, any Application Group, or any character field, including character user fields.

The sort key fields must be specified first in the list ahead of the numeric fields. The only fields that can appear ahead of a key field are **TASKCNT** or **TASKTCNT**.

In addition to the sort key fields, one numeric field can be selected as ascending or descending to activate **Alternate Sequencing**. This will change the order of report lines from sort key to numeric field sequence. For example, specify **RESPONSE(DESCEND)** to see the transactions with the highest response time at the top of the report. Note that grouping by sort key remains unaffected by alternate sequencing.

The format of the command is:

- For Application Groups (see “Application Groups” on page 425):

```
CICSPA SUMMARY(
    FIELDS(application-group-name(APG,ASCEND|DESCEND),...))
```
- For CICS-defined character fields (see “Character fields” on page 425):

```
CICSPA SUMMARY(
    FIELDS(field1,field2,...))
```
- For CICS-defined count fields (see “Count fields” on page 426):

```
CICSPA SUMMARY(
    FIELDS(field1(AVE|DEV|MAX|MIN|TOT|SEV|nn
                |RNGCOUNT(range)|RNGPERCENT(range)
                |SEV(CRITICAL|WARNING|INFO,COUNT|PERCENT)),
                ASCEND|DESCEND,K|M|KB|MB,...),...))
```
- For CICS-defined clock fields (see “Clock (Time-Count) fields” on page 426):

```
CICSPA SUMMARY(
    FIELDS(field1(TIME|COUNT(AVE|DEV|MAX|MIN|TOT|SEV|nn
                |RNGCOUNT(range)|RNGPERCENT(range)
                |SEV(CRITICAL|WARNING|INFO,COUNT|PERCENT)),
                ASCEND|DESCEND,...),...))
```
- For character type user fields (see “User fields” on page 428):

```
CICSPA SUMMARY(
    FIELDS(CHARACTER(OWNER(owner)[,SUBSTR(offset,length)]),...))
```
- For count and clock type user fields (see “User fields” on page 428):

```
CICSPA SUMMARY(
    FIELDS(COUNT|CLOCKTIME|CLOCKCOUNT(
                OWNER(owner),NUMBER(nnn),AVE|DEV|MAX|MIN|TOT|nn,
                ASCEND|DESCEND),...))
```

TASKCNT and **TASKTCNT** are special fields that are computed by CICS PA.

- **TASKCNT** reports the number of performance records that are included in each summary line. **TASKCNT** can be reported anywhere on the print line by including it in the **FIELDS** specification.
- **TASKTCNT** gives the total number of CMF task termination records processed.

Specify whether to use TASKCNT or TASKCNT for the summary statistical calculations. If both are specified, the first one is used in the calculations.

If character type fields are specified in the FIELDS list, they must be specified first (except for TASKCNT or TASKCNT which can be ahead or amongst them).

All numeric fields (except TASKCNT and TASKCNT) are summarized using any number of the following statistical functions:

AVE Average (this is the default if a field is specified without a function).

DEV Standard deviation.

MAX Maximum value.

MIN Minimum value.

TOT Totals.

SEV Severity level totals.

nn nn% peak percentile, for example, 95%. To calculate peak percentiles, CICS PA accumulates the summarized data and then provides a statistical estimate that assumes the data is normally distributed. If the data is not normally distributed, then the peak percentiles will not be accurate: consider using the Range (RNGCOUNT or RNGPERCENT) function to show the exact number or percentage of records that fall within a specified range of values. The Range function provides exact figures that do not assume that the data is normally distributed.

RNGCOUNT(range) or RNGPERCENT(range)

Range. These functions calculate the number of tasks where the value of a field falls within a specified range or matches a single value. RNGCOUNT displays the result as a count; RNGPERCENT displays the result as a percentage of tasks.

The range can be one of:

- *lower limit - upper limit*

For example, RNGCOUNT(0.1-0.2)

To fall within the range, a field value must be greater than or equal to the lower limit, and less than the upper limit:

lower limit <= field value < upper limit

- *operator value*

That is, one of the following comparison operators followed by a value:

= > >= < <=

For example, RNGPERCENT(<50)

For time fields, values with a decimal place (such as 1.0) are interpreted as seconds; integers (such as 1000) are interpreted as milliseconds.

You cannot use RNGCOUNT or RNGPERCENT to report from an HDB.

Tip: RNGCOUNT and RNGPERCENT generate identical column headings. To distinguish between columns for percentages and counts, check the column values under the headings: percentages appear with a decimal point, whereas counts are integers, and hence have no decimal point.

Here are some example uses of RNGCOUNT and RNGPERCENT:

RESPONSE(RNGCOUNT(<0.9))

Count of tasks with response time less than 0.9 seconds.

RESPONSE(RNGPERCENT(0.5-1.0))

Percentage of tasks with response time ≥ 0.5 and < 1 seconds.

FCAMCT(RNGCOUNT(≥ 10))

Count of tasks with 10 or more file access-method requests.

CPU(TIME(RNGCOUNT(>0.5)))

Count of tasks with CPU time greater than 0.5 CPU seconds.

SUSPEND(TIME(RNGCOUNT(>800)))

Count of tasks with suspend time greater than 800 milliseconds (0.8 seconds).

SUSPEND(COUNT(RNGPERCENT(>5)))

Percentage of tasks suspended more than 5 times.

EJBTOTAL(RNGCOUNT($=0$))

Count of tasks with no EJB activity.

EJBTOTAL(RNGCOUNT(>0))

Count of tasks with EJB activity.

For performance alert reporting, specify

SEV(CRITICAL | WARNING | INFO,COUNT | PERCENT).

Optionally, count values can be converted for reporting by specifying one of the following:

- K** Divide value by 1000, typically for count fields
- M** Divide value by 1000000, typically for count fields
- KB** Kilobytes (divide by 1024), typically for storage fields
- MB** Megabytes (divide by 1024x1024), typically for storage fields

If the FIELDS operand is omitted, the default is:

```
CICSPA SUMMARY(
    FIELDS(TRAN(ASCEND),           Transaction ID
           TASKCNT,                Number of CMF Records
           RESPONSE(AVE,MAX),      Avg/Max Response Time
           DISPATCH,               Avg Dispatch Time
           CPU,                    Avg CPU Time
           SUSPEND(AVE,MAX),       Avg/Max Suspend Time
           DISPWAIT,               Avg Dispatch Wait Time
           FCWAIT,                 Avg File Control I/O Wait Time
           FCAMCT,                 Avg FC Access Method Calls
           IRWAIT,                 Avg Inter-Region I/O Wait Time
           SC24UHWM,               Avg User Storage HWM below 16MB
           SC31UHWM))              Avg User Storage HWM above 16MB
```

Note:

1. CPU, DISPATCH, SUSPEND, DISPWAIT, IRWAIT, and FCWAIT are clock type fields. They are allowed to default to TIME(AVE), but equally you could specify CPU(TIME) or CPU(TIME(AVE)), DISPATCH(TIME) or DISPATCH(TIME(AVE)).
2. Two statistical functions are selected for the RESPONSE field. Specifying FIELDS(RESPONSE(AVE,MAX)) is the same as specifying FIELDS(RESPONSE,RESPONSE(MAX)) or FIELDS(RESPONSE(AVE),RESPONSE(MAX)).

Customizing or suppressing default fields

If you specify a FIELDS operand that contains only sort key fields with or without the special TASKCNT or TASKTCNT fields, then the report contains those explicitly specified fields instead of the default sort key field TRAN, followed by the remaining default fields. This enables you to customize the sort order of the default report without explicitly specifying all of the fields in the report.

To suppress the default fields, so that the report contains only the fields explicitly specified by the FIELDS operand, you must specify at least one field that is not a sort key, and that is not TASKCNT or TASKTCNT.

For example, if you specify FIELDS(APPLID,TRAN,ABCODEO,PROGRAM,TASKCNT), then the report contains those explicitly specified fields, followed by the default fields, except for the default sort key field TRAN. In this example, if you append to the FIELDS operand a numeric field such as RESPONSE, then the report contains only the fields explicitly specified by the FIELDS operand.

Application Groups

The command format is:

```
CICSPA SUMMARY(FIELDS(application-group-name(APG,ASCEND|DESCEND),...))
```

Character fields

Up to eight character fields are allowed in the FIELDS list. The format of the command is:

- For CICS-defined fields:

```
CICSPA SUMMARY(FIELDS(field1,field2,...))
```

The CICS-defined character fields that can be selected for the Performance Summary report are listed in Chapter 29, “Fields by forms, HDB templates,” on page 771. Refer to the **SUMMARY Report Form** column and the fields with data type C in their CMF Field ID.

- For character type user fields:

```
CICSPA SUMMARY(FIELDS(...,CHARACTER(OWNER(owner)[,SUBSTR(offset,length)]),...))
```

OWNER

The eight-character name of the owner of the user field. This is the entry name in the DFHMCT ID= macro specification for the user field, or the CICS-assigned default name of *USER*.

SUBSTR(offset,length)

This is used to report only part of the user field, up to 8 characters from the specified offset in the field. If SUBSTR is omitted, the entire field, limited to the first eight (8) characters, is reported.

Time Stamp fields

The format of the command is:

```
CICSPA SUMMARY(FIELDS([START(TIMES),][STOP(TIMES),][OSTART(TIMES),]...))
```

If specified, the Performance Summary report summarizes transaction activity over time, in specified intervals of time (default 1 minute).

The time stamp fields are:

START

Task start time

STOP

Task stop time

OSTART

Originating task start time

One or more of the following formats can be selected for the time stamp fields:

DATE Date in the format *mm/dd/yyyy*

DATEISO

Date in the format *yyyy-mm-dd*

DATEM

Date in the format *mm/dd*

DATEYR

Date in the format *mm/dd/yy*

TIMET

Time in the format *hh:mm:ss.thm*

TIMEM

Time in the format *hh:mm*

TIMES

Time in the format *hh:mm:ss*. This is the default if START or STOP is specified without a format.

DATETIM

Date and time in the format *yyyy-mm-dd hh:mm:ss*

For more information on specifying time stamp fields, see “Suboperands for Time Stamp fields” on page 387.

Count fields

The format of the command is:

```
CICSPA SUMMARY(  
    FIELDS(fieldname(AVE|DEV|MAX|MIN|TOT|SEV|nn,  
                    ASCEND|DESCEND,K|KB|M|MB,...),...))
```

The count fields that can be selected for the Performance Summary report are listed in Chapter 29, “Fields by forms, HDB templates,” on page 771. Refer to the **SUMMARY Report Form** column and the fields with data type A in their CMF Field ID.

Clock (Time-Count) fields

The format of the command is:

```
CICSPA SUMMARY(  
    FIELDS(field1(TIME|COUNT(AVE|DEV|MAX|MIN|TOT|SEV|nn,  
                    ASCEND|DESCEND,...)),...))
```

For clock type fields, you can report the first part of the field (elapsed TIME) or the second part (COUNT of the number of times the condition occurred).

The default is to present the average elapsed time (**TIME(AVE)**). If only COUNT is specified, the average (**AVE**) is the default. If another function (other than the average) is required for either TIME or COUNT parts, both parameters must be specified. For example:

```
CICSPA SUMMARY(FIELDS(...,  
    SUSPEND,                average elapsed suspend time  
    SUSPEND(COUNT),         average number of times the transaction was suspended  
    SUSPEND(TIME(DEV)))    standard deviation of the elapsed suspend time
```

For more information on using clock fields, see “Suboperands for Clock type fields” on page 387.

The clock fields that can be selected for the Performance Summary report are listed in Fields by forms, HDB templates. Refer to the **SUMMARY Report Form** column and the fields with data type **S** in their CMF Field ID.

Special fields

The command format is:

```
CICSPA SUMMARY[(FIELDS(fieldname))]
```

The special fields that can be selected for the Performance Summary report are:

CPUSU

The task USRCPUT (DFHTASK S008), converted to Service Units using a user-supplied conversion factor.

CPUIPCT

Task processor time as a percentage of the Summary report time interval:

$$\text{USRCPUT} / \text{Summary Report Time Interval} * 100$$

OFFLIPCT

Total task processor time that was eligible for offload to specialty processor as a percentage of the Summary report time interval:

$$\text{OFFLCPUT} / \text{Summary Report Time Interval} * 100$$

OFFLPCT

Total task processor time that was eligible for offload to specialty processor as a percentage of the total task processor time:

$$\text{OFFLCPUT} / \text{USRCPUT} * 100$$

OFLDIPCT

Task processor time that was offload eligible as a percentage of the Summary report time interval:

$$(\text{OFFLCPUT} + (\text{USRCPUT} - \text{CPUTONCP})) / \text{Summary Report Time Interval} * 100$$

OFLDPCT

Task processor time that was offload eligible as a percentage of the total task processor time:

$$((\text{OFFLCPUT} + (\text{USRCPUT} - \text{CPUTONCP})) / \text{USRCPUT}) * 100$$

SPEIPCT

Task processor time that was offloaded to specialty processor as a percentage of the Summary report time interval:

$$(\text{USRCPUT} - \text{CPUTONCP}) / \text{Summary Report Time Interval} * 100$$

SPEPCT

Task processor time that was offloaded to specialty processor as a percentage of the total task processor time:

$$((\text{USRCPUT} - \text{CPUTONCP}) / \text{USRCPUT}) * 100$$

STCPIPCT

Task processor time on standard CP that was not offload eligible as a percentage of the Summary report time interval:

$$(\text{CPUTONCP} - \text{OFFLCPUT}) / \text{Summary Report Time Interval} * 100$$

STCPPCT

Task processor time on standard CP that was not offload eligible as a percentage of the total task processor time:

$$((\text{CPUTONCP} - \text{OFFLCPUT}) / \text{USRCPUT}) * 100$$

Special (Time) Fields

The command format is:

```
CICSPA SUMMARY(
    FIELDS(fieldname(AVE|DEV|MAX|MIN|TOT|SEV|nn,ASCEND|DESCEND,...),...))
```

Special time fields are derived from several CMF time fields. Those that can be selected for the Performance Summary report are:

IRESP Transaction internal response time

JVMMTIME

JVM Method time:

JVMTIME - (JVMITIME + JVMRTIME)

RESPONSE

Transaction response time

RMIOTIME

Resource Manager Interface (RMI) Other time:

RMISUSP - (IMSWAIT + DB2RDYQW + DB2CONWT + DB2WAIT)

Before CICS Version 620, RMIOTIME was RMIOOTHER. In CICS Version 620 and later, RMIOOTHER is a CICS CMF Field in the DFHRMI class.

TOTCPU

Total task CPU time:

CPU + RLSCPU

User fields

User fields can be one of the following types:

CHARACTER

Character string

COUNT

Binary or packed counter

CLOCKTIME and CLOCKCOUNT

The two parts of clock type fields are:

CLOCKTIME

The elapsed time part

CLOCKCOUNT

The count of the number of times the condition occurred

All types of user fields can be specified in the Performance Summary report. The format of the command is:

- For character type user fields:

```
CICSPA SUMMARY(  
    FIELDS(CHARACTER(OWNER(owner)[,SUBSTR(offset,length)]),...))
```

- For count and clock type user fields:

```
CICSPA SUMMARY(  
    FIELDS(COUNT|CLOCKTIME|CLOCKCOUNT(  
        OWNER(owner),NUMBER(nnn),AVE|DEV|MAX|MIN|TOT|nn,  
        ASCEND|DESCEND,k|KB|M|MB),...))
```

The options are:

OWNER(owner)

Must be specified for all user field types. It is the 1-8 character owner of the user field, identified by the entry name in the ID= parameter of the TYPE=EMP entry in the MCT, or the CICS-assigned default name of *USER*.

SUBSTR(offset,length)

Optional. Applies to CHARACTER fields only. SUBSTR specifies that only part of the user field is to be reported. *Offset* is the starting position (from

1) in the character field, and *length* is the number of characters from that position to include. If SUBSTR is not specified, the default is the entire field up to a limit of 8 characters for this report.

NUMBER(nnn)

Must be specified for all numeric types (COUNT, CLOCKTIME, CLOCKCOUNT). It specifies the three-digit number that identifies a specific count or clock type field. For each owner, up to 256 count type and up to 256 clock type user fields can be defined to CICS, whereas only one character field can be defined for each owner.

AVE | DEV | MAX | MIN | TOT | nn | RNGCOUNT(range) | RNGPERCENT(range)

All count and clock type fields are summarized and can be presented using the same statistical functions available to CICS-defined fields.

However, unlike CICS-defined fields, you can specify only one function per user field. If more than one function is to be used, the entire specification must be repeated. For example, the following command generates a Performance Summary report summarized by transaction and terminal, and displaying the maximum, minimum, and average elapsed times.

```
CICSPA SUMMARY(  
    FIELDS (TRAN, TERM, TASKCNT,  
            CLOCKTIME (OWNER (USER), NUMBER (001), MAX),  
            CLOCKTIME (OWNER (USER), NUMBER (001), MIN),  
            CLOCKTIME (OWNER (USER), NUMBER (001))))
```

For more information on specifying user fields, see “Suboperands for User fields” on page 388.

DBCTL fields

The command format is:

```
CICSPA SUMMARY (FIELDS (DBCTL (field1 (func, order), field2 (func, order), ...)))
```

where *func* is one of the functions AVE, DEV, MAX, MIN, TOT, nn, and *order* is ASCEND or DESCEND. The default is (AVE,ASCEND).

If your MCT collects DBCTL User Data (using the DFH\$MCTD macro in SDFHSAMP), then the FIELDS operand can specify DBCTL fields. These are listed in Chapter 29, “Fields by forms, HDB templates,” on page 771. Refer to the **SUMMARY Report Form** column and the fields with owner **DBCTL** in the CMF Field ID.

Note: The IMS Performance Analyzer (IMS PA) can provide a comprehensive analysis of IMS DBCTL performance.

SUMMARY examples

A set of sample Report Forms is provided with CICS PA. See Table 6 on page 293 for the sample SUMMARY Report Forms. You can use these sample Report Forms with your Performance Summary reports and extracts. They provide a detailed picture of the many aspects affecting CICS system performance.

Example 1: Default report

```
CICSPA SUMMARY
```

Example 2: External sort

This example produces the default Performance Summary report using an external sort. CPAXW001 is the DDname of the External Work File.

```
CICSPA SUMMARY(EXTERNAL(CPAXW001))
```

Example 3: Summarize by user ID and terminal ID

This example shows how to request a Performance Summary report summarized by USERID and TERM. The IRESP field will default to AVE. The RESPONSE field is displayed in three formats: AVE, MAX, and MIN. The CPU field will default to TIME with AVE. The MAX value of user clock number 1 will also be displayed.

```
CICSPA SUMMARY(
    FIELDS(USERID,
           TERM,
           IRESP,
           RESPONSE(AVE,MAX,MIN),
           CPU,
           SUSPEND(COUNT(AVE,MAX)),
           CLOCKTIME(OWNER(USER),NUMBER(1),MAX)))
```

Example 4: Summarize by user ID

This example uses the FIELDS operand to generate a report summarized by USERID like that shown in Figure 203.

```
CICSPA SUMMARY(
    FIELDS(USERID,
           TASKCNT,
           RESPONSE(AVE,MAX),
           DISPATCH(TIME(AVE,MAX),COUNT),
           CPU(TIME(AVE,MAX,DEV)),
           SUSPEND(TIME(AVE,MAX)),
           DISPWAIT(TIME(AVE,MAX)))
```

V5R1M0 CICS Performance Analyzer
Performance Summary

SUMM0001 Printed at 12:03:45 04/17/2013 Data from 12:10:51 3/24/2004 to 12:34:13 3/24/2004 Page 1

| Userid | #Tasks | Response | | Dispatch | | Dispatch Count | User CPU | | S Dev | Suspend | | DispWait | |
|---------|--------|-------------|-------------|-------------|-------------|-------------------|-------------|-------------|----------|-------------|-------------|-------------|-------------|
| | | Avg Time | Max Time | Avg Time | Max Time | | Avg Time | Max Time | | Avg Time | Max Time | Avg Time | Max Time |
| BRENNER | 248 | 4.1091 | 308.883 | .0195 | 1.1760 | 16 | .0072 | .3537 | .0279 | 4.0896 | 308.881 | .0023 | .0742 |
| CBAKER | 583 | 15.2302 | 1386.70 | .0825 | 12.6769 | 48 | .0251 | 3.1676 | .1846 | 15.1477 | 1385.29 | .0151 | 1.1645 |
| GBURGES | 503 | .8682 | 187.648 | .0183 | 1.4042 | 40 | .0138 | 1.2888 | .0898 | .8499 | 187.548 | .0004 | .0991 |

Figure 203. Performance Summary report (by USERID)

Example 5: Summarize by transaction ID

Figure 204 on page 431 shows a Performance Summary report example that uses the FIELDS operand to generate a report summarized by transaction identifier.

```
CICSPA SUMMARY(
    FIELDS(TRAN, TASKCNT, IRESP, RESPONSE(AVE,MAX),
           DISPATCH, CPU, SUSPEND, DISPWAIT, RMISUSP, IRWAIT,
           QRCPU, QRMODDLY))
```

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| Tran | #Tasks | Avg Int Time | Avg Resp Time | Max Response | Avg Dispatch Time | Avg User CPU | Avg Suspend | Avg DispWait | RMI | Avg Susp | IR | Avg Wait | QR CPU | Avg QrModDly | Avg ChngMode |
|------|--------|--------------|---------------|--------------|-------------------|--------------|-------------|--------------|-------|----------|-------|----------|--------|--------------|--------------|
| CECI | 60 | .0199 | .5371 | 5.1445 | .0195 | .0042 | .5176 | .0004 | .0000 | .0000 | .0000 | .0035 | .0002 | 0 | |
| CEDA | 98 | .6086 | 1.9304 | 51.4018 | .0602 | .0218 | 1.8702 | .0008 | .0000 | .0000 | .0000 | .0185 | .0006 | 2 | |
| CENT | 135 | .6350 | 19.2961 | 592.514 | .0155 | .0062 | 19.2806 | .0044 | .0000 | .0000 | .0000 | .0057 | .0043 | 1 | |
| CESD | 12 | .1128 | .1128 | 1.2902 | .0211 | .0021 | .0917 | .0916 | .0000 | .0000 | .0000 | .0018 | .0913 | 0 | |
| CESF | 6 | .0180 | .0180 | .0468 | .0175 | .0042 | .0004 | .0004 | .0000 | .0000 | .0000 | .0024 | .0003 | 3 | |
| CESN | 21 | .0334 | .0334 | .2046 | .0324 | .0090 | .0010 | .0009 | .0000 | .0000 | .0000 | .0021 | .0006 | 2 | |

Figure 204. Performance Summary report (by TRAN)

Example 6: Summarize by transaction ID, terminal ID and user ID

Figure 205 shows a Performance Summary report example using the FIELDS operand with three sort fields. To create a similar report, use the following command:

```
CICSPA SUMMARY(
    FIELDS(TRAN,TERM,USERID,
           TASKCNT,
           RESPONSE(AVE,MAX),
           DISPATCH(TIME(AVE,MAX),COUNT),
           CPU(TIME(AVE,MAX)),
           SUSPEND(TIME(AVE,MAX)),
           DISPWAIT))
```

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| Tran | Term | Userid | #Tasks | Avg Response Time | Max Response | Avg Dispatch Time | Max Dispatch | Avg Dispatch Count | Avg User CPU | Max User CPU | Avg Suspend | Max Suspend | Avg DispWait |
|------|------|---------|--------|-------------------|--------------|-------------------|--------------|--------------------|--------------|--------------|-------------|-------------|--------------|
| AADD | S23C | BRENNER | 5 | .0330 | .0945 | .0303 | .0831 | 3 | .0035 | .0084 | .0028 | .0114 | .0027 |
| AADD | S23C | | 5 | .0330 | .0945 | .0303 | .0831 | 3 | .0035 | .0084 | .0028 | .0114 | .0027 |
| AADD | TC26 | GBURGES | 5 | .0020 | .0023 | .0019 | .0022 | 1 | .0012 | .0013 | .0001 | .0001 | .0000 |
| AADD | TC26 | | 5 | .0020 | .0023 | .0019 | .0022 | 1 | .0012 | .0013 | .0001 | .0001 | .0000 |
| AADD | | | 10 | .0175 | .0945 | .0161 | .0831 | 2 | .0024 | .0084 | .0014 | .0114 | .0013 |
| ABRW | P015 | CBAKER | 10 | .0717 | .6982 | .0690 | .6717 | 3 | .0051 | .0385 | .0027 | .0264 | .0011 |
| ABRW | P015 | | 10 | .0717 | .6982 | .0690 | .6717 | 3 | .0051 | .0385 | .0027 | .0264 | .0011 |
| ABRW | R11 | CBAKER | 1 | .0052 | .0052 | .0021 | .0021 | 7 | .0021 | .0021 | .0031 | .0031 | .0000 |
| ABRW | R11 | | 1 | .0052 | .0052 | .0021 | .0021 | 7 | .0021 | .0021 | .0031 | .0031 | .0000 |
| ABRW | S23D | BRENNER | 5 | .1210 | .5819 | .0178 | .0783 | 7 | .0042 | .0121 | .1032 | .5037 | .0026 |
| ABRW | S23D | | 5 | .1210 | .5819 | .0178 | .0783 | 7 | .0042 | .0121 | .1032 | .5037 | .0026 |
| ABRW | TC26 | GBURGES | 57 | .0070 | .0156 | .0033 | .0059 | 7 | .0022 | .0028 | .0037 | .0128 | .0000 |
| ABRW | TC26 | | 57 | .0070 | .0156 | .0033 | .0059 | 7 | .0022 | .0028 | .0037 | .0128 | .0000 |
| ABRW | TC32 | GBURGES | 61 | .0030 | .0120 | .0029 | .0120 | 1 | .0016 | .0019 | .0001 | .0002 | .0000 |
| ABRW | TC32 | | 61 | .0030 | .0120 | .0029 | .0120 | 1 | .0016 | .0019 | .0001 | .0002 | .0000 |
| ABRW | | | 134 | .0142 | .6982 | .0085 | .6717 | 4 | .0022 | .0385 | .0057 | .5037 | .0002 |

Figure 205. Performance Summary report (by TRAN, TERM, USERID)

Example 7: Summarize by transaction ID and APPLID

Figure 206 on page 432 shows a Performance Summary report example using the FIELDS operand to generate a report summarized by APPLID within transaction identifier. To create a similar report, use the following command:

```
CICSPA SUMMARY(
    FIELDS(TRAN,APPLID,TASKCNT,IRESP,RESPONSE(AVE,MAX),
           DISPATCH,CPU,SUSPEND,DISPWAIT,
           RMISUSP,FCWAIT,IRWAIT,TCWAIT))
```

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| Tran | APPLID | #Tasks | Avg Int Resp Time | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg Dispwait Time | Avg RMI Time | Avg Susp Time | Avg FC Wait Time | Avg IR Wait Time | Avg TC Wait Time |
|------|----------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|--------------|---------------|------------------|------------------|------------------|
| AADD | IYK2Z1V1 | 5 | .0020 | .0020 | .0023 | .0019 | .0012 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AADD | IYK2Z1V3 | 5 | .0330 | .0330 | .0945 | .0303 | .0035 | .0028 | .0027 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AADD | | 10 | .0175 | .0175 | .0945 | .0161 | .0024 | .0014 | .0013 | .0000 | .0000 | .0000 | .0000 | .0000 |
| ABRW | IYK2Z1V1 | 63 | .0160 | .0160 | .5819 | .0044 | .0023 | .0116 | .0002 | .0000 | .0000 | .0000 | .0113 | .0000 |
| ABRW | IYK2Z1V3 | 71 | .0127 | .0127 | .6982 | .0122 | .0021 | .0004 | .0002 | .0000 | .0000 | .0001 | .0000 | .0000 |
| ABRW | | 134 | .0142 | .0142 | .6982 | .0085 | .0022 | .0057 | .0002 | .0000 | .0000 | .0000 | .0053 | .0000 |
| AINQ | IYK2Z1V1 | 3 | .0022 | .0022 | .0040 | .0017 | .0013 | .0005 | .0000 | .0000 | .0000 | .0000 | .0004 | .0000 |
| AINQ | IYK2Z1V3 | 7 | .0019 | .0019 | .0024 | .0018 | .0014 | .0002 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AINQ | | 10 | .0020 | .0020 | .0040 | .0017 | .0014 | .0003 | .0000 | .0000 | .0000 | .0000 | .0001 | .0000 |
| AMNU | IYK2Z1V1 | 5 | .0418 | .0418 | .1724 | .0417 | .0027 | .0001 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AMNU | IYK2Z1V3 | 7 | .0164 | .0164 | .0713 | .0125 | .0028 | .0039 | .0014 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AMNU | | 12 | .0270 | .0270 | .1724 | .0246 | .0028 | .0023 | .0008 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AUPD | IYK2Z1V1 | 8 | .0203 | .0203 | .0665 | .0112 | .0039 | .0091 | .0021 | .0000 | .0000 | .0000 | .0015 | .0000 |
| AUPD | IYK2Z1V3 | 4 | .0026 | .0026 | .0046 | .0025 | .0013 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| AUPD | | 12 | .0144 | .0144 | .0665 | .0083 | .0030 | .0061 | .0014 | .0000 | .0000 | .0000 | .0010 | .0000 |
| B | IYK2Z1V1 | 2 | .0028 | .0028 | .0031 | .0027 | .0015 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| B | | 2 | .0028 | .0028 | .0031 | .0027 | .0015 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| BING | IYK2Z1V1 | 1 | .0024 | .0024 | .0024 | .0023 | .0016 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| BING | | 1 | .0024 | .0024 | .0024 | .0023 | .0016 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| BINQ | IYK2Z1V1 | 1 | .0027 | .0027 | .0027 | .0027 | .0015 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| BINQ | | 1 | .0027 | .0027 | .0027 | .0027 | .0015 | .0001 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 |
| CALL | IYK2Z1V1 | 16 | 2.5156 | 2.5159 | 8.2455 | .0059 | .0021 | 2.5100 | .0015 | 2.1244 | .0000 | .0000 | .0000 | .0003 |
| CALL | IYK2Z1V3 | 9 | 2.0918 | 2.0920 | 2.1935 | .0101 | .0021 | 2.0819 | .0009 | 2.0812 | .0000 | .0000 | .0000 | .0002 |
| CALL | | 25 | 2.3630 | 2.3633 | 8.2455 | .0074 | .0021 | 2.3559 | .0013 | 2.1088 | .0000 | .0000 | .0000 | .0003 |

Figure 206. Performance Summary report (by TRAN and APPLID)

Example 8: Summarize by user ID and transaction ID

Figure 207 on page 433 shows an example of using the FIELDS operand to generate a Performance Summary report summarized by USERID and TRAN. To create a similar report, use the following command:

```
CICSPA SUMMARY(
    FIELDS(USERID,TRAN,
            TASKCNT,
            RESPONSE(AVE,MAX),
            DISPATCH(TIME(AVE,MAX),COUNT),
            CPU(TIME(AVE,MAX)),
            SUSPEND(TIME(AVE,MAX)),
            DISPWAIT(TIME(AVE,MAX))))
```

| Userid | Tran | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Max Dispatch Time | Avg Dispatch Count | Avg User CPU Time | Max User CPU Time | Avg Suspend Time | Max Suspend Time | Avg DispWait Time | Max DispWait Time |
|---------|------|--------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|------------------|------------------|-------------------|-------------------|
| BRENNER | AADD | 5 | .0330 | .0945 | .0303 | .0831 | 3 | .0035 | .0084 | .0028 | .0114 | .0027 | .0113 |
| BRENNER | ABRW | 5 | .1210 | .5819 | .0178 | .0783 | 7 | .0042 | .0121 | .1032 | .5037 | .0026 | .0127 |
| BRENNER | AINQ | 7 | .0019 | .0024 | .0018 | .0022 | 1 | .0014 | .0016 | .0002 | .0008 | .0000 | .0000 |
| BRENNER | AMNU | 6 | .0305 | .1724 | .0301 | .1720 | 2 | .0025 | .0091 | .0004 | .0017 | .0001 | .0004 |
| BRENNER | AUPD | 5 | .0308 | .0665 | .0172 | .0335 | 6 | .0053 | .0141 | .0136 | .0505 | .0034 | .0153 |
| BRENNER | CALL | 6 | 2.1395 | 2.2128 | .0024 | .0031 | 9 | .0018 | .0028 | 2.1370 | 2.2103 | .0006 | .0010 |
| BRENNER | CBAM | 8 | 14.4793 | 51.3803 | .0198 | .0607 | 6 | .0071 | .0229 | 14.4595 | 51.3196 | .0022 | .0167 |
| BRENNER | CEDA | 23 | 5.3006 | 51.4018 | .1142 | 1.1760 | 8 | .0255 | .2138 | 5.1864 | 50.2257 | .0018 | .0281 |
| BRENNER | CEMT | 41 | 12.8879 | 308.883 | .0038 | .0104 | 2 | .0025 | .0046 | 12.8841 | 308.881 | .0026 | .0742 |
| BRENNER | CESF | 4 | .0250 | .0468 | .0245 | .0462 | 4 | .0049 | .0067 | .0006 | .0009 | .0005 | .0009 |
| ... | | | | | | | | | | | | | |
| BRENNER | SAL1 | 8 | .0601 | .1835 | .0040 | .0083 | 7 | .0032 | .0065 | .0562 | .1751 | .0018 | .0074 |
| BRENNER | STAT | 16 | 7.9208 | 48.7524 | .0427 | .3774 | 154 | .0286 | .3537 | 7.8781 | 48.7509 | .0006 | .0068 |
| BRENNER | STOC | 3 | .6400 | .7984 | .0036 | .0052 | 4 | .0027 | .0030 | .6364 | .7931 | .0015 | .0039 |
| BRENNER | TRUE | 24 | 1.1053 | 2.1009 | .0010 | .0022 | 5 | .0007 | .0014 | 1.1043 | 2.0987 | .0004 | .0016 |
| BRENNER | 1111 | 1 | .0021 | .0021 | .0020 | .0020 | 2 | .0016 | .0016 | .0001 | .0001 | .0000 | .0000 |
| BRENNER | 3333 | 1 | .0028 | .0028 | .0020 | .0020 | 2 | .0017 | .0017 | .0008 | .0008 | .0000 | .0000 |
| BRENNER | | 248 | 4.1091 | 308.883 | .0195 | 1.1760 | 16 | .0072 | .3537 | 4.0896 | 308.881 | .0023 | .0742 |
| CBAKER | ABRW | 11 | .0657 | .6982 | .0629 | .6717 | 3 | .0048 | .0385 | .0028 | .0264 | .0010 | .0111 |
| CBAKER | AINQ | 1 | .0014 | .0014 | .0013 | .0013 | 1 | .0012 | .0012 | .0000 | .0000 | .0000 | .0000 |
| CBAKER | AMNU | 4 | .0339 | .0713 | .0276 | .0519 | 4 | .0039 | .0085 | .0063 | .0194 | .0024 | .0056 |
| CBAKER | AUPD | 3 | .0019 | .0030 | .0015 | .0018 | 1 | .0014 | .0017 | .0005 | .0012 | .0000 | .0000 |
| CBAKER | CALL | 5 | 3.3511 | 8.2455 | .0183 | .0687 | 10 | .0031 | .0067 | 3.3328 | 8.2300 | .0012 | .0022 |
| CBAKER | CATA | 10 | .0280 | .0537 | .0151 | .0438 | 4 | .0062 | .0122 | .0129 | .0281 | .0002 | .0003 |
| CBAKER | CATD | 6 | .0372 | .0590 | .0159 | .0437 | 6 | .0056 | .0091 | .0213 | .0306 | .0024 | .0123 |
| CBAKER | CATR | 2 | .0290 | .0296 | .0283 | .0287 | 3 | .0047 | .0047 | .0006 | .0009 | .0006 | .0008 |
| CBAKER | CBAM | 3 | 2.4702 | 5.0107 | .0012 | .0013 | 2 | .0010 | .0011 | 2.4690 | 5.0094 | .0000 | .0000 |
| CBAKER | CECI | 1 | 3.3215 | 3.3215 | .5039 | .5039 | 9 | .0254 | .0254 | 2.8175 | 2.8175 | .0043 | .0043 |
| CBAKER | CEDA | 2 | 27.0392 | 43.9778 | .6062 | .6774 | 55 | .1130 | .1411 | 26.4331 | 43.3004 | .0126 | .0179 |
| CBAKER | CEMT | 77 | 24.2383 | 592.514 | .0229 | .2655 | 5 | .0078 | .1244 | 24.2154 | 592.359 | .0062 | .2938 |
| CBAKER | CESD | 12 | .1128 | 1.2902 | .0211 | .2044 | 2 | .0021 | .0065 | .0917 | 1.0858 | .0916 | 1.0858 |
| CBAKER | CESN | 21 | .0334 | .2046 | .0324 | .2043 | 3 | .0090 | .0406 | .0010 | .0060 | .0009 | .0059 |
| CBAKER | CETR | 1 | .8982 | .8982 | .1132 | .1132 | 8 | .0132 | .0132 | .7850 | .7850 | .0068 | .0068 |
| CBAKER | CGRP | 2 | .5862 | .7601 | .0571 | .0721 | 18 | .0076 | .0078 | .5291 | .6880 | .4134 | .5044 |
| CBAKER | CITS | 5 | .0111 | .0153 | .0058 | .0096 | 4 | .0035 | .0041 | .0053 | .0091 | .0001 | .0002 |

Figure 207. Performance Summary report (by USERID and TRAN)

Example 9: File Control activity

This example shows a Performance Summary report tailored to present File Control information.

```

CICSPA IN(SMFIN001),
APPLID(applid1),
SELECT(PERFORMANCE(INCLUDE(FCTOTAL(1-99999999))),
SUMMARY(
OUTPUT(SUMM0001),
FIELDS(
TRAN,                               Summarize by Transaction ID
TASKCNT,                             Total Task count
RESPONSE(AVE),                       Transaction response time
DISPATCH(TIME(AVE)),                 Dispatch time
CPU(TIME(AVE)),                       CPU time
SUSPEND(TIME(AVE)),                   Suspend time
FCWAIT(TIME(AVE)),                     File I/O wait time
FCAMCT(AVE),                           File access-method requests
FCADD(AVE),                             File ADD requests
FCBROWSE(AVE),                         File Browse requests
FCDELETE(AVE),                         File DELETE requests
FCGET(AVE),                             File GET requests
FCPUT(AVE),                             File PUT requests
FCTOTAL(AVE)))                         File Control requests

```

Example 10: Program Control activity

This example shows a Performance Summary report tailored to present Program Control information.

```

CICSPA IN(SMFIN002),
        APPLID(applid2),
        SELECT(PERFORMANCE(INCLUDE(PCLOADTM(TIME(1-99999999))))),
        SUMMARY(OUTPUT(SUMM0002),
                FIELDS(
                    TRAN,                Summarize by Transaction ID
                    TASKCNT,             Total Task count
                    PCLINK(AVE),         Program LINK requests
                    PCLOAD(AVE),         Program LOAD requests
                    PCLOADTM(TIME(AVE)), Program Library wait time
                    PCSTGHWM(AVE),       Program Storage HWM above and below 16MB
                    PCXCTL(AVE),         Program XCTL requests
                    PC24BHWM(AVE),       Program Storage HWM below 16MB
                    PC24CHWM(AVE),       Program Storage (CDSA) HWM below 16MB
                    PC24RHWM(AVE),       Program Storage (RDSA) HWM below 16MB
                    PC24SHWM(AVE),       Program Storage (SDSA) HWM below 16MB
                    PC31AHWM(AVE),       Program Storage HWM above 16MB
                    PC31CHWM(AVE),       Program Storage (ECDSA) HWM above 16MB
                    PC31RHWM(AVE),       Program Storage (ERDSA) HWM above 16MB
                    PC31SHWM(AVE)))      Program Storage (ESDSA) HWM above 16MB

```

Example 11: Transaction activity each 30 seconds

In this example, each Transaction ID's activity is broken down into 30 second time intervals. This allows you to measure transaction performance variations over time.

```

CICSPA SUMMARY(
        INTERVAL(00:30),              Time Interval is 30 seconds
        FIELDS(                        Sort by Tran ID and Start Interval
            TRAN,                       Transaction ID
            START,                       Transaction Start Time
            TASKCNT,                     Total Task count
            RESPONSE(AVE,MAX),           Transaction response time
            DISPATCH(TIME(AVE)),         Dispatch time
            CPU(TIME(AVE)),              CPU time
            SUSPEND(TIME(AVE)),          Suspend time
            DISPWAIT(TIME(AVE)),         Redispatch wait time
            FCWAIT(TIME(AVE)),           File I/O wait time
            FCAMCT(AVE),                 File access-method requests
            IRWAIT(TIME(AVE)),           MRO link wait time
            SC24UHWM(AVE),               UDSA HWM below 16MB
            SC31UHWM(AVE)))              EUDSA HWM above 16MB

```

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| Tran | Start Interval | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User Time | Avg CPU Time | Avg Suspend Time | Avg DispWait Time | FC Wait Time | Avg FCAMRq | IR Wait Time | Avg SC24UHWM | Avg SC31UHWM |
|------|----------------|--------|-------------------|-------------------|-------------------|---------------|--------------|------------------|-------------------|--------------|------------|--------------|--------------|--------------|
| TR01 | 15:04:00 | 89 | .0584 | .1233 | .0012 | .0011 | .0572 | .0015 | .0025 | 3 | .0000 | 0 | 88363 | |
| TR01 | 15:04:30 | 109 | .0562 | .1220 | .0011 | .0011 | .0550 | .0016 | .0026 | 3 | .0000 | 0 | 88360 | |
| TR01 | 15:05:00 | 104 | .0551 | .1328 | .0013 | .0012 | .0538 | .0017 | .0027 | 3 | .0000 | 0 | 88356 | |
| TR01 | 15:05:30 | 106 | .0550 | .1041 | .0011 | .0011 | .0539 | .0018 | .0028 | 3 | .0000 | 0 | 88355 | |
| TR01 | 15:06:00 | 86 | .0588 | .1354 | .0012 | .0011 | .0576 | .0016 | .0026 | 3 | .0000 | 0 | 88362 | |
| TR01 | 15:06:30 | 99 | .0557 | .0823 | .0012 | .0011 | .0545 | .0018 | .0029 | 3 | .0000 | 0 | 88352 | |
| TR01 | 15:07:00 | 117 | .0549 | .0912 | .0012 | .0011 | .0537 | .0016 | .0024 | 3 | .0000 | 0 | 88353 | |
| TR01 | | 710 | .0562 | .1354 | .0012 | .0011 | .0550 | .0016 | .0026 | 3 | .0000 | 0 | 88357 | |
| TR02 | 15:04:00 | 101 | .1719 | .3674 | .0030 | .0029 | .1689 | .0055 | .0134 | 18 | .0000 | 0 | 88358 | |
| TR02 | 15:04:30 | 98 | .1612 | .3661 | .0029 | .0028 | .1583 | .0056 | .0134 | 18 | .0000 | 0 | 88353 | |
| TR02 | 15:05:00 | 105 | .1548 | .3683 | .0029 | .0029 | .1519 | .0045 | .0116 | 18 | .0000 | 0 | 88356 | |
| TR02 | 15:05:30 | 104 | .1693 | .4151 | .0030 | .0029 | .1663 | .0048 | .0122 | 19 | .0000 | 0 | 88363 | |
| TR02 | 15:06:00 | 105 | .1631 | .4046 | .0030 | .0029 | .1601 | .0043 | .0122 | 18 | .0000 | 0 | 88359 | |
| TR02 | 15:06:30 | 89 | .1572 | .3499 | .0030 | .0028 | .1541 | .0049 | .0125 | 18 | .0000 | 0 | 88357 | |
| TR02 | 15:07:00 | 88 | .1541 | .3164 | .0031 | .0028 | .1511 | .0050 | .0123 | 18 | .0000 | 0 | 88354 | |
| TR02 | | 690 | .1619 | .4151 | .0030 | .0029 | .1589 | .0049 | .0125 | 18 | .0000 | 0 | 88357 | |

Figure 208. Performance Summary report (by START Interval within TRAN)

Example 12: Transaction activity per minute

In this example, transaction activity is broken down into 1 minute intervals. Every transaction that completed processing during the interval is reported. This allows you to look at periods of time during which performance might be degraded and examine each Transaction ID's usage.

```
CICSPA SUMMARY(
    INTERVAL(01:00),           Time Interval is 1 minute
    FIELDS(                   Sort by Stop Interval and Tran ID
        STOP,                 Transaction Stop Time
        TRAN,                 Transaction ID
        TASKCNT,              Total Task count
        RESPONSE(AVE,MAX),    Transaction response time
        DISPATCH(TIME(AVE)),  Dispatch time
        CPU(TIME(AVE)),        CPU time
        SUSPEND(TIME(AVE)),   Suspend time
        DISPWAIT(TIME(AVE)),  Redispatch wait time
        FCWAIT(TIME(AVE)),    File I/O wait time
        FCAMCT(AVE),          File access-method requests
        IRWAIT(TIME(AVE)),    MRO link wait time
        SC24UHWM(AVE),        UDSA HWM below 16MB
        SC31UHWM(AVE))       EUDSA HWM above 16MB
```

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Performance Summary

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| Stop Interval | Tran | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | FC Wait Time | Avg FCAMRq | IR Wait Time | Avg SC24UHWM | Avg SC31UHWM |
|---------------|------|--------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|--------------|------------|--------------|--------------|--------------|
| 15:04:00 | TR01 | 198 | .0572 | .1233 | .0012 | .0011 | .0560 | .0016 | .0026 | 3 | .0000 | 0 | 88361 |
| 15:04:00 | TR02 | 199 | .0569 | .2220 | .0012 | .0011 | .0557 | .0016 | .0024 | 3 | .0000 | 0 | 88359 |
| 15:04:00 | TR03 | 201 | .1743 | .3789 | .0030 | .0029 | .1713 | .0053 | .0125 | 18 | .0000 | 0 | 88360 |
| 15:04:00 | TR04 | 199 | .1666 | .3674 | .0029 | .0028 | .1637 | .0056 | .0134 | 18 | .0000 | 0 | 88356 |
| 15:04:00 | TR10 | 215 | .0069 | .0133 | .0038 | .0037 | .0031 | .0004 | .0026 | 34 | .0000 | 0 | 88352 |
| 15:04:00 | TR11 | 130 | .3033 | .5730 | .0033 | .0032 | .3000 | .0090 | .0193 | 21 | .0000 | 0 | 88391 |
| 15:04:00 | TR12 | 216 | .0901 | .1345 | .0014 | .0013 | .0887 | .0021 | .0049 | 5 | .0000 | 0 | 88359 |
| 15:04:00 | TR13 | 225 | .0888 | .1234 | .0014 | .0013 | .0874 | .0024 | .0050 | 5 | .0000 | 0 | 88357 |
| 15:04:00 | | 8903 | .0473 | .6318 | .0013 | .0013 | .0460 | .0015 | .0035 | 7 | .0000 | 0 | 69261 |
| 15:05:00 | TR01 | 210 | .0551 | .1328 | .0012 | .0011 | .0538 | .0017 | .0027 | 3 | .0000 | 0 | 88355 |
| 15:05:00 | TR02 | 207 | .1609 | .4151 | .0030 | .0029 | .1579 | .0046 | .0119 | 18 | .0000 | 0 | 88359 |
| 15:05:00 | TR03 | 211 | .0062 | .0125 | .0026 | .0025 | .0036 | .0005 | .0031 | 18 | .0000 | 0 | 88352 |
| 15:05:00 | TR04 | 246 | .0069 | .0148 | .0038 | .0037 | .0031 | .0003 | .0026 | 34 | .0000 | 0 | 88352 |
| 15:05:00 | TR10 | 230 | .0062 | .0119 | .0026 | .0025 | .0036 | .0005 | .0031 | 18 | .0000 | 0 | 88352 |
| 15:05:00 | TR11 | 234 | .0070 | .0173 | .0039 | .0038 | .0031 | .0004 | .0027 | 34 | .0000 | 0 | 88352 |
| 15:05:00 | TR12 | 244 | .0874 | .1227 | .0014 | .0013 | .0860 | .0026 | .0052 | 5 | .0000 | 0 | 88354 |
| 15:05:00 | TR13 | 283 | .0887 | .1924 | .0014 | .0013 | .0873 | .0024 | .0051 | 5 | .0000 | 0 | 88360 |
| 15:05:00 | | 9275 | .0476 | .7551 | .0014 | .0013 | .0462 | .0014 | .0035 | 7 | .0000 | 0 | 70591 |

Figure 209. Performance Summary report (by TRAN within STOP Interval)

Example 13: DBCTL activity

The following Summary report summarizes DBCTL activity by Transaction ID and PSB name.

```
CICSPA SUMMARY(
    FIELDS(                   Sort by Transaction ID and PSB name
        TRAN,                 Transaction identifier
        DBCTL(P SBNAME),      PSB name
        TASKCNT,              Total Task count
        RESPONSE(AVE),        Average Response time
        DISPATCH(TIME(AVE)),  Average Dispatch time
        CPU(TIME(AVE)),        Average CPU time
        SUSPEND(TIME(AVE)),   Average Suspend time
        DBCTL(DLICALLS(AVE)), Total DL/I Database calls
        POOLWAIT(AVE),        Elapsed wait time for Pool Space
        INTCWAIT(AVE),        Elapsed wait time for Intent Conflict
        SCHTELAP(AVE),        Elapsed time for Schedule Process
```

```

DBIOELAP(AVE), Elapsed time for Database I/O
PILOCKEL(AVE), Elapsed time for PI Locking
THREDCPU(AVE))) Thread TCB CPU time

```

Example 14: DBCTL activity with filtering

This DBCTL example produces a Performance Summary report like that shown in Figure 210.

```

CICSPA IN(SMFIN004),
SELECT(PERFORMANCE(EXCLUDE(
    CHARACTER(OWNER(DBCTL), Exclude transactions
    SUBSTR(1,1,VALUE(' '))))), without a PSB name
SUMMARY(FIELDS(
    TRAN, Transaction identifier
    DBCTL(PSBNAME), PSB name
    TASKCNT, Total Task count
    RESPONSE, Transaction response time
    CPU, CPU time
    DISPATCH, Dispatch time
    SUSPEND, Suspend time
    DBCTL(
        POOLWAIT, Elapsed wait time for Pool Space
        INTCWAIT, Elapsed wait time for Intent Conflict
        SCHTELAP, Elapsed time for Schedule Process
        DBIOELAP, Elapsed time for Database I/O
        PILOCKEL, Elapsed time for PI Locking
        DBIOCALL, Number of Database I/Os
        DLICALLS))) Total DL/I Database calls

```

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Performance Summary

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*** All DBCTL transactions ***

| Tran | PSB | #Tasks | Avg Response Time | Avg User CPU Time | Avg Dispatch Time | Avg Suspend Time | Avg PoolWait Time | Avg ICwait Time | Avg SchedElp Time | Avg DBIOElap Time | Avg PILockEl Time | Avg DBIOcall Count | Avg DLICalls Count |
|------|----------|--------|-------------------|-------------------|-------------------|------------------|-------------------|-----------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| DLI0 | DDLPSB51 | 16 | 9.3221 | .0255 | .5016 | 8.8205 | .0000 | .0000 | .0104 | .0000 | .0000 | 0 | 0 |
| DLI0 | PSB99 | 13 | 1.4249 | .5201 | .7799 | .6450 | .0000 | .0000 | .0780 | .0000 | .0000 | 0 | 1 |
| DLI0 | | 29 | 5.7820 | .2472 | .6264 | 5.1556 | .0000 | .0000 | .0407 | .0000 | .0000 | 0 | 1 |
| DLI1 | DDLPSB51 | 4 | 26.4267 | .0125 | .8290 | 25.5977 | .0000 | .0000 | .0041 | .0000 | .0000 | 0 | 0 |
| DLI1 | PSB99 | 1 | 95.2870 | 1.9511 | 16.4508 | 78.8363 | .0000 | .0000 | .0050 | .0000 | .0000 | 0 | 1 |
| DLI1 | | 5 | 40.1988 | .4003 | 3.9534 | 36.2454 | .0000 | .0000 | .0043 | .0000 | .0000 | 0 | 0 |
| DLI2 | DDLPSB51 | 4 | 19.3463 | .0125 | .2029 | 19.1433 | .0000 | .0000 | .0040 | .0000 | .0000 | 0 | 0 |
| DLI2 | PSB99 | 1 | 91.8213 | 1.8717 | 2.0128 | 89.8085 | .0000 | .0000 | .0010 | .0000 | .0000 | 0 | 1 |
| DLI2 | | 5 | 33.8413 | .3843 | .5649 | 33.2764 | .0000 | .0000 | .0034 | .0000 | .0000 | 0 | 0 |
| DLI3 | DDLPSB51 | 4 | 21.6261 | .0124 | .9275 | 20.6986 | .0000 | .0000 | .0047 | .0000 | .0000 | 0 | 0 |
| DLI3 | PSB99 | 1 | 156.501 | 1.9866 | 24.4980 | 132.003 | .0000 | .0000 | .0055 | .0000 | .0000 | 0 | 1 |
| DLI3 | | 5 | 48.6011 | .4073 | 5.6416 | 42.9595 | .0000 | .0000 | .0049 | .0000 | .0000 | 0 | 0 |

Figure 210. Performance Summary report (DBCTL activity)

Note: The IMS Performance Analyzer (IMS PA) can provide a more comprehensive analysis of IMS DBCTL performance.

Example 15: Summarize by transaction ID

This example produces a Performance Summary report like that shown in Figure 211 on page 437, summarized by transaction identifier.

Note: This example only applies to the CMF performance class data from CICS Transaction Server Version 1.3 or later.

```

CICSPA SUMMARY(FIELDS(TRAN,TASKCNT,RESPONSE(AVE,MAX),
    DISPATCH,CPU,SUSPEND,DISPWAIT,
    QRDISPT,QRCPU,QRMODDLY,MSDISPT,
    MSCPU))

```

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| Tran | #Tasks | Avg Reponse Time | Max Response Time | Avg Dispatch Time | Avg User Time | Avg CPU Time | Avg Suspend Time | Avg DispWait Time | Avg QR Time | Avg Disp Time | Avg QR Time | Avg CPU Time | Avg QRModDly Time | Avg ChngMode | Avg MS Time | Avg Disp Time | Avg MS Time | Avg CPU Time |
|------|--------|------------------------|-------------------------|-------------------------|---------------------|--------------------|------------------------|-------------------------|-------------------|---------------------|-------------------|--------------------|-------------------------|-----------------|-------------------|---------------------|-------------------|--------------------|
| AADD | 13 | .0152 | .0945 | .0129 | .0023 | .0023 | .0011 | .0021 | .0015 | .0010 | 1 | .0108 | .0008 | | | | | |
| ABRW | 970 | .0830 | 36.6088 | .0026 | .0015 | .0804 | .0000 | .0020 | .0015 | .0000 | 0 | .0005 | .0000 | | | | | |
| ADD | 1 | .0482 | .0482 | .0350 | .0049 | .0132 | .0125 | .0024 | .0017 | .0124 | 2 | .0326 | .0032 | | | | | |
| AINQ | 8 | .0021 | .0033 | .0017 | .0014 | .0004 | .0000 | .0017 | .0014 | .0000 | 0 | .0000 | .0000 | | | | | |
| AMNU | 10 | .0158 | .0713 | .0125 | .0027 | .0032 | .0015 | .0037 | .0018 | .0014 | 1 | .0088 | .0010 | | | | | |
| AUPD | 9 | .0165 | .0623 | .0124 | .0025 | .0041 | .0001 | .0024 | .0017 | .0000 | 0 | .0100 | .0008 | | | | | |
| CALL | 9 | 2.0920 | 2.1935 | .0101 | .0021 | 2.0819 | .0009 | .0026 | .0015 | .0002 | 6 | .0073 | .0004 | | | | | |
| CATA | 11 | .0282 | .0882 | .0110 | .0054 | .0171 | .0002 | .0080 | .0048 | .0002 | 0 | .0030 | .0006 | | | | | |
| CATD | 2 | .0344 | .0570 | .0184 | .0065 | .0160 | .0062 | .0043 | .0042 | .0062 | 1 | .0141 | .0023 | | | | | |
| CATR | 1 | .0296 | .0296 | .0287 | .0047 | .0009 | .0008 | .0017 | .0014 | .0008 | 2 | .0270 | .0033 | | | | | |
| CBAM | 5 | 22.4438 | 51.3803 | .0211 | .0100 | 22.4227 | .0002 | .0095 | .0058 | .0001 | 1 | .0116 | .0042 | | | | | |
| CBTR | 1 | .0024 | .0024 | .0023 | .0014 | .0001 | .0000 | .0023 | .0014 | .0000 | 0 | .0000 | .0000 | | | | | |
| CEBR | 1 | 575.916 | 575.916 | .0061 | .0046 | 575.910 | .0003 | .0059 | .0044 | .0001 | 2 | .0002 | .0002 | | | | | |

Figure 211. Performance Summary report (by TRAN)

Example 16: Application naming

The example in Figure 212 is a Performance Summary report produced from CMF performance class data with application naming enabled. This report can be produced from the following command:

```
CICSPA IN(SMFIN001),
      SUMMARY(EXTERNAL(CPAXW001),
              FIELDS(TRAN,           Transaction identifier
                    APPLTRAN,       Application naming Transaction ID
                    APPLPROG,       Application naming Program name
                    TASKCNT,        Total Task count
                    RESPONSE,       Transaction response time
                    DISPATCH,       Dispatch time
                    CPU,            CPU time
                    SUSPEND,       Suspend time
                    DISPWAIT))      Redispatch wait time
```

SUMM0001 Printed at 12:03:45 04/17/2013 Data from 07:30:47 5/29/2004 to 08:35:48 5/29/2004 Page 4

| Tran | Tran | Program | #Tasks | Avg Response Time | Avg Dispatch Time | Avg User Time | Avg CPU Time | Avg Suspend Time | Avg DispWait Time |
|------|------|----------|--------|-------------------------|-------------------------|---------------------|--------------------|------------------------|-------------------------|
| MENU | TOP1 | PROGOPT1 | 5 | .0152 | .0934 | .0196 | 684.379 | .0064 | |
| | TOP2 | PROGOPT2 | 48 | .0183 | .7688 | .2039 | 1.1260 | .1046 | |
| | TOP3 | PROGOPT3 | 1 | .0482 | .0002 | .0002 | .0029 | .0000 | |
| | TOP4 | PROGOPT4 | 49 | .0021 | .7531 | .1997 | 1.1030 | .1025 | |
| | TOP5 | PROGOPT5 | 4 | .0165 | .0695 | .0088 | .0191 | .0191 | |

Figure 212. Example of a Performance Summary report (Application Naming)

Example 17:

This example produces a Performance Summary extract data set with a Recap report like that in Figure 213 on page 438. See "Performance Data extract" on page 255 for more information on the Performance Data Extract facility.

```
CICSPA SUMMARY(
      OUTPUT(EXPT0003),
      DDNAME(CPAOEX03),
      DELIMIT(', '),
      LABELS,
      TITLE1('SUMMARY Performance Data Extract'),
      EXTERNAL(CPAXW003),
      INTERVAL(00:05:00),
      FIELDS(START(TIMES),STOP(TIMES),TRAN,
            TASKCNT,
```

```
RESPONSE(AVE,MAX),
DISPATCH(TIME(AVE)),
CPU(TIME(AVE)),
SC31UHWM(AVE)))
```

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CICS Performance Analyzer
Performance Summary

EXPT0003 Printed at 12:03:45 04/17/2013 Data from 15:41:19 6/12/2004 to 16:15:40 6/16/2004
SUMMARY Performance Data Extract

Page 1

CPAOEX03 Extract has completed successfully
Data Set Name CICSPA.SUMMARY.EXTRACT
Record count 65

Figure 213. Performance Summary extract (Recap report)

Example 18: Summarize response times by range

Figure 214 shows a Performance Summary report that uses the RNGCOUNT and RNGPERCENT functions to show the distribution of transaction response times in ranges of 0.2 seconds. You can use this report to answer questions such as: How many transactions had a response time between 0.4 and 0.6 seconds? What percentage of transactions had a response time of 1 second or longer?

```
CICSPA SUMMARY(
  FIELDS(TRAN(ASCEND),
    TASKCNT,
    RESPONSE(AVE,MAX),
    RESPONSE(RNGCOUNT(<0.2)),
    RESPONSE(RNGPERCENT(<0.2)),
    RESPONSE(RNGCOUNT(0.2-0.4)),
    RESPONSE(RNGPERCENT(0.2-0.4)),
    RESPONSE(RNGCOUNT(0.4-0.6)),
    RESPONSE(RNGPERCENT(0.4-0.6)),
    RESPONSE(RNGCOUNT(0.6-0.8)),
    RESPONSE(RNGPERCENT(0.6-0.8)),
    RESPONSE(RNGCOUNT(0.8-1.0)),
    RESPONSE(RNGPERCENT(0.8-1.0)),
    RESPONSE(RNGCOUNT(>=1.0)),
    RESPONSE(RNGPERCENT(>=1.0))))
```

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CICS Performance Analyzer
Performance Summary

SUMM0001 Printed at 12:03:45 04/17/2013 Data from 16:20:08 12/15/2004 to 11:28:14 12/16/2004

Page 1

| Tran | #Tasks | Avg Response Time | Max Response Time | <0.2 | <0.2 | 0.2-0.4 | 0.2-0.4 | 0.4-0.6 | 0.4-0.6 | 0.6-0.8 | 0.6-0.8 | 0.8-1.0 | 0.8-1.0 | >=1.0 | >=1.0 |
|------|--------|-------------------|-------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | | | Response Time |
| AP01 | 5 | .822835 | 1.539306 | 0 | .0 | 0 | .0 | 0 | .0 | 4 | 79.9 | 0 | .0 | 1 | 19.9 |
| AP02 | 5 | .005847 | .007620 | 5 | 100.0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 |
| AP03 | 5 | .003338 | .003827 | 5 | 100.0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 |
| CATA | 28 | .098631 | .866135 | 25 | 89.2 | 0 | .0 | 2 | 7.1 | 0 | .0 | 1 | 3.5 | 0 | .0 |
| CATD | 2 | .310097 | .594725 | 1 | 50.0 | 0 | .0 | 1 | 50.0 | 0 | .0 | 0 | .0 | 0 | .0 |
| CATR | 33 | .014969 | .047388 | 33 | 100.0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 |
| CDBC | 5 | 2.329661 | 3.600855 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 5 | 100.0 |
| CDBI | 5 | 2.227452 | 4.431367 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 5 | 100.0 |
| CDBQ | 9 | .217337 | .399723 | 5 | 55.5 | 4 | 44.4 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 |
| CDS | 21 | .004606 | .006927 | 21 | 100.0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 |
| CEBR | 11 | 193.7346 | 936.1108 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 0 | .0 | 11 | 100.0 |
| CECI | 22 | 65.44253 | 1087.786 | 0 | .0 | 0 | .0 | 0 | .0 | 1 | 4.5 | 0 | .0 | 21 | 95.4 |

Figure 214. Performance Summary report (response time distributions)

Notice that the column headings for counts and percentages are identical. To distinguish between these columns, check the values under the headings: percentages appear with a decimal point, whereas counts are integers, and hence have no decimal point.

Example 19: Application Grouping by transaction ID

This Application Grouping example produces a Performance Summary report like that shown in Figure 215. This report uses the BUSFUNC Application Group shown in Figure 175 on page 335.

```
CICSPA SUMMARY(OUTPUT(SUMM0001),
                TOTALS(8),
                INTERVAL(00:01:00),
                FIELDS(BUSFUNC(APG,ASCEND),
                      TRAN(ASCEND),
                      TASKCNT,
                      RESPONSE(AVE),
                      RESPONSE(MAX),
                      DISPATCH(TIME(AVE)),
                      CPU(TIME(AVE)),
                      SUSPEND(TIME(AVE)),
                      SUSPEND(TIME(MAX)),
                      DISPWAIT(TIME(AVE)),
                      FCWAIT(TIME(AVE))))
```

| BUSFUNC Group | | Tran | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Max Suspend Time | Avg DispWait Time | Avg FC Wait Time |
|----------------------------|--|-------|--------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|-------------------|------------------|
| Accounting | | ADJQ | 9 | .3912 | .8376 | .0030 | .0022 | .3881 | .8312 | .0034 | .0000 |
| Accounting | | ADUS | 9 | .3343 | .7729 | .2517 | .0485 | .0825 | .1783 | .0243 | .0000 |
| Accounting | | AEVS | 39 | .0281 | .3362 | .0015 | .0012 | .0266 | .3344 | .0010 | .0000 |
| Accounting | | | 76 | 1.2924 | 74.6819 | .3350 | .0808 | .9574 | 64.9890 | .0382 | .0000 |
| CICS-supplied transactions | | CSKP | 16 | .0090 | .0232 | .0016 | .0011 | .0074 | .0213 | .0017 | .0000 |
| CICS-supplied transactions | | CSMI | 34193 | .2999 | 31.9736 | .0013 | .0009 | .2986 | 31.9695 | .0005 | .0041 |
| CICS-supplied transactions | | CSM2 | 2 | .0010 | .0015 | .0004 | .0004 | .0005 | .0008 | .0000 | .0000 |
| CICS-supplied transactions | | | 34340 | .3002 | 31.9736 | .0026 | .0009 | .2976 | 31.9695 | .0007 | .0041 |
| Delivery | | DBEC | 99 | .0196 | .1998 | .0015 | .0012 | .0180 | .1981 | .0031 | .0175 |
| Delivery | | DBUS | 23 | .6747 | 2.5609 | .5730 | .1066 | .1017 | .2060 | .0220 | .0000 |
| Delivery | | DI12 | 148 | .0284 | .1486 | .0012 | .0009 | .0272 | .1467 | .0017 | .0000 |
| Delivery | | | 326 | .2626 | 2.5609 | .0473 | .0114 | .2152 | 2.3320 | .0047 | .0053 |
| Finance | | FJD3 | 46 | .0024 | .0185 | .0019 | .0015 | .0005 | .0165 | .0000 | .0000 |
| Finance | | FTB2 | 2 | 9.4656 | 10.4636 | .0059 | .0045 | 9.4597 | 10.4562 | .0018 | .0000 |
| Finance | | FTB3 | 8 | 2.0977 | 2.1966 | .0019 | .0014 | 2.0958 | 2.1951 | .0030 | .0000 |
| Finance | | | 102 | 1.3056 | 10.4636 | .0019 | .0015 | 1.3036 | 10.4562 | .0006 | .0000 |
| Statistics collection | | \$SFR | 9 | .0264 | .0359 | .0221 | .0054 | .0043 | .0096 | .0012 | .0000 |
| Statistics collection | | #BEK | 3 | .0020 | .0022 | .0008 | .0007 | .0012 | .0013 | .0002 | .0000 |
| Statistics collection | | #DDS | 927 | 4.9054 | 20.0135 | 2.4500 | .0376 | 2.4554 | 15.8274 | .0254 | .0000 |
| Statistics collection | | | 3497 | 1.8609 | 24.1543 | .8081 | .0335 | 1.0528 | 24.0906 | .0146 | .0000 |
| Unassigned transactions | | IFB4 | 4 | .8400 | 2.7034 | .6737 | .0057 | .1663 | .2678 | .0067 | .0000 |
| Unassigned transactions | | MD15 | 1 | .0199 | .0199 | .0016 | .0012 | .0182 | .0182 | .0002 | .0000 |
| Unassigned transactions | | MD16 | 6 | .0003 | .0005 | .0002 | .0002 | .0001 | .0003 | .0000 | .0000 |
| Unassigned transactions | | | 21599 | .2013 | 8.2288 | .1256 | .0239 | .0756 | 6.6346 | .0235 | .0000 |
| Total | | | 59940 | .3584 | 74.6819 | .0946 | .0113 | .2638 | 64.9890 | .0098 | .0024 |

Figure 215. Performance Summary report (Application Grouping)

Example 20: Performance Alerts Summary report and extract.

```
CICSPA PRECISION(4),
SUMMARY(OUTPUT(SUMM0001),
        ALERTDEF(ALERT01),SEVERITY(ELIGIBLE),
        TOTALS(8),INTERVAL(00:01:00),
        FIELDS(TRAN(ASCEND),
              TASKCNT,
              ALERT(SEV(CRITICAL,PERCENT)),
              ALERT(SEV(CRITICAL,COUNT)),
              ALERT(SEV(WARNING,COUNT))),
```

```

ALERT(SEV(INFO,COUNT)),
RESPONSE(SEV(CRITICAL,COUNT)),
RESPONSE(SEV(WARNING,COUNT)),
RESPONSE(SEV(INFO,COUNT)),
RESPONSE(AVE),
CPU(TIME(SEV(CRITICAL,COUNT))),
CPU(TIME(SEV(WARNING,COUNT))),
CPU(TIME(SEV(INFO,COUNT))),
CPU(TIME(AVE))

```

V5R1M0

CICS Performance Analyzer
Performance Summary

SUMM0001 Printed at 17:00:22 4/20/2010 Data from 07:50:50 3/26/2009 to 07:54:28 3/26/2009

| Tran | #Tasks | Critical ALERT | Critical ALERT | Warning ALERT | Info ALERT | Critical Response Time | Warning Response Time | Info Response Time | Avg Response Time | Critical User CPU Time | Warning User CPU Time | Info User CPU Time | Avg User CPU Time |
|-------|--------|-------------------|-------------------|------------------|---------------|------------------------------|-----------------------------|--------------------------|-------------------------|------------------------------|-----------------------------|--------------------------|-------------------------|
| CEDA | 1 | 100.00 | 1 | 0 | 0 | 1 | 0 | 0 | 163.3748 | 1 | 0 | 0 | .3450 |
| CEJR | 8 | 12.50 | 1 | 2 | 2 | 1 | 1 | 2 | .4349 | 1 | 2 | 1 | .2348 |
| CEMT | 4 | 25.00 | 1 | 1 | 1 | 1 | 0 | 1 | 4.9471 | 0 | 1 | 1 | .0198 |
| CESD | 1 | .00 | 0 | 0 | 0 | 0 | 0 | 0 | .0037 | 0 | 0 | 0 | .0007 |
| CESN | 2 | .00 | 0 | 0 | 2 | 0 | 0 | 1 | .0261 | 0 | 0 | 2 | .0032 |
| CSAC | 1 | .00 | 0 | 1 | 0 | 0 | 1 | 0 | .5235 | 0 | 0 | 0 | .0003 |
| CSFU | 1 | .00 | 0 | 1 | 0 | 0 | 1 | 0 | .8119 | 0 | 1 | 0 | .0415 |
| CSHQ | 1 | 100.00 | 1 | 0 | 1 | 1 | 0 | 0 | 192.6462 | 0 | 0 | 1 | .0091 |
| CSKL | 1 | 100.00 | 1 | 1 | 0 | 1 | 0 | 0 | 191.6213 | 0 | 1 | 0 | .0134 |
| CSNC | 1 | 100.00 | 1 | 0 | 1 | 1 | 0 | 0 | 205.4532 | 0 | 0 | 1 | .0022 |
| CSNE | 2 | 50.00 | 1 | 0 | 1 | 1 | 0 | 0 | 99.8076 | 0 | 0 | 1 | .0020 |
| CSSY | 13 | 15.38 | 2 | 6 | 9 | 2 | 6 | 3 | 1.3247 | 1 | 0 | 8 | .0457 |
| CSTE | 1 | .00 | 0 | 0 | 1 | 0 | 0 | 1 | .0490 | 0 | 0 | 1 | .0032 |
| CSZI | 1 | 100.00 | 1 | 0 | 1 | 1 | 0 | 0 | 209.1438 | 0 | 0 | 1 | .0077 |
| Total | 38 | 26.32 | 10 | 12 | 19 | 10 | 9 | 8 | 31.6785 | 3 | 5 | 17 | .0786 |

Figure 216. Performance Alerts Summary report

See the sample jobs CPAPASUM and CPAPAXTS in the SCPASAMP library.

TOTAL - Performance Totals report

The **TOTAL** operand requests the Performance Totals report.

The command format is:

```

CICSPA TOTAL(
    [OUTPUT(ddname),]
    [LINECount(nnn),]
    [TITLE1('...up to 64 characters...'),]
    [TITLE2('...up to 64 characters...'),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
        ...))])

```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **TOTLnnnn** where nnnn is the report sequence number **0001-9999**. See "OUTPUT" on page 384 for further information.

LINECOUNT

Controls the number of lines per page. See "LINECOUNT" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See “Using SELECT statements” on page 516 for an explanation and examples.

TOTAL examples

Example 1: Default report

```
CICSPA TOTAL
```

Example 2: Report interval

This example shows the TOTAL operand combined with SELECT(PERFORMANCE. The SELECT statement will restrict the input data to be that of the specified day, January 12, 2005.

```
CICSPA TOTAL(SELECT(PERFORMANCE(INCLUDE(  
                                START(FROM(2005/01/12,),TO(2005/01/13,))))))
```

Example 3: Exclude CICS-supplied transactions

The following command generates a Performance Totals report for the data from September 25, 2004.

```
CICSPA APPLID(IYK2Z1V3),  
      TOTAL(OUTPUT(TOTL0002),  
           SELECT(PERFORMANCE(  
                 EXCLUDE(TRAN(CSHQ,CSNC,CSNE,CSOL,CSSY,CWXN)),  
                 INCLUDE(ACTIVE(FROM(2004/09/25,))))))
```

Figure 217 on page 442 shows an example of the output.

The Performance Totals report has four parts:

1. **CICS System Statistics.** Statistics about the CICS system as a whole, including:
 - CPU and Dispatch times
 - Performance Record and Task counts
2. **CPU and Dispatch Statistics.** Breakdown of CPU, Dispatch, and Suspend counts and elapsed time.
3. **Resource Utilization Statistics.** Each field in the performance record is summarized:
 - For Clock fields, the count and time components are broken down.
 - For Count fields, the count values are reported.
4. **User Field Statistics.** Statistics for the User Fields defined in the CMF performance class records.

TOTL0001 Printed at 12:03:45 04/17/2013 Data from 15:05:46 2/15/2009 to 15:17:57 2/15/2009

| | Dispatched Time | | CPU Time | | | |
|--|-------------------------|----------|---------------------------|---------------------|----------|----------|
| | DD HH:MM:SS | Secs | DD HH:MM:SS | Secs | | |
| Total Elapsed Run Time | 00:12:11 | 731 | | | | |
| From Selected Performance Records | | | | | | |
| QR Dispatch/CPU Time | 00:00:04 | 4 | 00:00:02 | 2 | | |
| MS Dispatch/CPU Time | 00:00:12 | 12 | 00:00:01 | 1 | | |
| TOTAL (QR + MS) | 00:00:16 | 16 | 00:00:03 | 3 | | |
| L8 CPU Time | | | 00:00:00 | 0 | | |
| J8 CPU Time | | | 00:00:02 | 2 | | |
| S8 CPU Time | | | 00:00:00 | 0 | | |
| T8 CPU Time | | | 00:00:00 | 0 | | |
| X8 CPU Time | | | 00:00:00 | 0 | | |
| TOTAL (L8 + J8 + S8 + T8 + X8) | 00:00:10 | 10 | 00:00:02 | 2 | | |
| L9 CPU Time | | | 00:00:00 | 0 | | |
| J9 CPU Time | | | 00:00:00 | 0 | | |
| X9 CPU Time | | | 00:00:00 | 0 | | |
| TOTAL (L9 + J9 + X9) | 00:00:00 | 0 | 00:00:00 | 0 | | |
| Total CICS TCB Time | 00:00:26 | 26 | 00:00:04 | 4 | | |
| Total Performance Records (Type C) 0 | | | | | | |
| Total Performance Records (Type D) 0 | | | | | | |
| Total Performance Records (Type F) 0 | | | | | | |
| Total Performance Records (Type S) 0 | | | | | | |
| Total Performance Records (Type T) 183 | | | | | | |
| Total Performance Records (Selected) | | 183 | Total Performance Records | 183 | | |
| From Selected Performance Records | | | | | | |
| | C O U N T S | | | T I M E | | |
| | Total | Avg/Task | Max/Task | Total | Avg/Task | Max/Task |
| Dispatch Time | 17803 | 97.3 | 6670 | 26 | .141 | 8.540 |
| CPU Time | | | | 4 | .023 | 1.680 |
| RLS CPU (SRB) Time | | | | 0 | .000 | .000 |
| : | | | | | | |
| From Selected User Records | | | | | | |
| | C O U N T S | | | T I M E | | |
| | Total | Avg/Task | Max/Task | Total | Avg/Task | Max/Task |
| INIT EZA01 S001 | 0 | .0 | 0 | 0 | .000 | .000 |
| READ EZA01 S002 | 0 | .0 | 0 | 0 | .000 | .000 |
| WRITE EZA01 S003 | 0 | .0 | 0 | 0 | .000 | .000 |
| : | | | | | | |

Figure 217. Performance Totals report

WAITANALYSIS - Wait Analysis report

The WAITANALYSIS or WAIT operand requests the Wait Analysis report.

The command format is:

```
CICSPA WAITANALYSIS(
    [OUTPUT(ddname),]
    [BY(by1[,by2] [,by3]),]
    [INTERVAL(hh:mm:ss),]
    [LINECount(nnn),]
    [TITLE1('...sub-heading left ...'),]
    [TITLE2('...sub-heading right...'),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
        ...))])
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **WAITnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

INTERVAL

Specifies a time interval when the report summarizes transaction activity over time. The interval is in the range 1 second to 24 hours in the format *hh:mm:ss* for hours, minutes, and seconds.

This operand applies only when the report or extract is sorted by transaction Start or Stop time; that is, when the BY operand specifies START or STOP. For reporting, data is accumulated for each interval in the report period and a report line or extract record is written for each interval. If INTERVAL is not specified, the default is **00:01:00** (1 minute).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

1 becomes 00:01:00

1.1 becomes 00:01:00 (rounded down from 00:01:01)

1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

BY Controls the summarization order of the report. Up to three fields can be specified, and the order in which they are specified dictates the sort precedence. Only fields of type T (Time Stamp) and C (Character) can be sort fields. See “WAITANALYSIS(BY)” for further information and the list of fields which are sort candidates.

LINECOUNT

Controls the number of lines per page. See “LINECount” on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See “TITLE1 and TITLE2” on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See “Using SELECT statements” on page 516 for an explanation and examples.

WAITANALYSIS(BY

The summarization order of the Wait Analysis report can be modified. This is done with the BY operand followed by one to three field names specified in the order of the intended sort precedence. The data is collated in ascending sequence.

If BY is omitted, the default is **BY(TRAN)**.

The format of the command is:

CICSPA WAITANALYSIS(BY(by1[,by2][,by3]))

The CICS-defined character fields that can be selected for the Wait Analysis report are:

TRAN Transaction identifier

APPLID

CICS Generic APPLID

PROGRAM

Program name

TERM Terminal identifier

USERID

User ID

APPLPROG

Application naming Program name

APPLTRAN

Application naming Transaction ID

FCTY Transaction Facility name

LUNAME

VTAM[®] logical unit name

RLUNAME

VTAM LUALIAS logical unit name

RPTCLASS

Workload Manager (WLM) Report Class

SRVCLASS

Workload Manager (WLM) Service Class

TCLASSNM

Transaction Class name

TCPSRVCE

TCP/IP Service Name

TERMCNNM

Terminal session Connection name

ISIPICNM

Name of IPCONN definition that attached the task

WBATMSNM

Web ATOMSERVICE resource definition

WBPIPLNM

Web PIPELINE resource definition

WBPROGNM

Web program in URIMAP resource definition

WBSVCENM

Web WEBSERVICE resource definition

WBSVOPNM

Web WEBSERVICE operation name

WBURIMNM

Web URIMAP resource definition

To summarize wait activity over time, select one or both of the time stamp fields:

START

Task start time

STOP Task stop time

WAITANALYSIS examples

Example 1: Default report

CICSPA WAITANAL

The report is sorted by TRAN.

V5R1M0

CICS Performance Analyzer
Wait Analysis Report

WAIT0001 Printed at 12:03:45 04/17/2013

Data from 15:05:46 2/15/2009 to 15:17:57 2/15/2009

Page 1

```
-----
```

| Tran=CATA | | Time | | Count | | Ratio | |
|---|--|--------|---------|-------|---------|-------------------|--|
| Summary Data | | Total | Average | Total | Average | | |
| # Tasks | | | | 3 | | | |
| Response Time | | 0.0331 | 0.0110 | | | | |
| Dispatch Time | | 0.0276 | 0.0092 | 18 | 6.0 | 83.2% of Response | |
| CPU Time | | 0.0082 | 0.0027 | 18 | 6.0 | 29.8% of Dispatch | |
| Suspend Wait Time | | 0.0056 | 0.0019 | 18 | 6.0 | 16.8% of Response | |
| Dispatch Wait Time | | 0.0021 | 0.0007 | 15 | 5.0 | 37.7% of Suspend | |
| QR TCB Redispach Wait Time | | 0.0021 | 0.0007 | 12 | 4.0 | 98.3% of Suspend | |
| Resource Manager Interface (RMI) elapsed time | | 0.0000 | 0.0000 | 0 | 0.0 | 0.0% of Response | |
| Resource Manager Interface (RMI) suspend time | | 0.0000 | 0.0000 | 0 | 0.0 | 0.0% of Suspend | |

```
-----
```

| Suspend Detail | | Suspend Time | | | Count | | |
|----------------|---|--------------|---------|-------|-------|-------|---------|
| | | Total | Average | %age | Graph | Total | Average |
| N/A | Other Wait Time | 0.0025 | 0.0008 | 45.0% | ***** | 3 | 1.0 |
| DSCHMDLY | Redispach wait time caused by change-TCB mode | 0.0015 | 0.0005 | 27.6% | ***** | 6 | 2.0 |
| JCIOWTT | Journal I/O wait time | 0.0015 | 0.0005 | 26.1% | ***** | 3 | 1.0 |
| DSPDELAY | First dispatch wait time | 0.0001 | 0.0000 | 1.3% | | 3 | 1.0 |
| GVUPWAIT | Give up control wait time | 0.0000 | 0.0000 | 0.0% | | 3 | 1.0 |

Figure 218. Wait Analysis report

Example 2: Report interval

This example shows the WAITANALYSIS operand combined with SELECT(PERFORMANCE. The SELECT statement will restrict the input data to be that of the specified day, January 12, 2005.

```
CICSPA WAITANAL(SELECT(PERFORMANCE(INCLUDE(
START(FROM(2005/01/12,) ,TO(2005/01/13,))))))
```

PROFILING - Transaction Profiling report

The PROFILING operand requests the Transaction Profiling report.

The command format for the Transaction Profiling report is:

```
CICSPA PROFILING([ID(profile#)],REPORT(SMF|hdbname),
[SUFACTOR(ddname|hdbname(nnnnn.nnn)),]
[SMFSTART(date,time),]
[SMFSTOP(date,time),]
[SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
[SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
[FIELDS(field1[(options)],...),]
[INTERVAL(hh:mm:ss),]
[PRINT(REPORT,BASELINE,DELTA,CHANGE,
FULL|EXCEPTIONSONLY,NOBLANKLINES|BLANKLINES),]
[THRESHOLD(%abovebaseline,%belowbaseline),]
[OUTPUT(ddname),]
[EXTERNAL(ddname),]
[NOTOTALS|TOTALS(n),]
[LINECount(nnn),]
[TITLE1('...1st 64 characters of title... '),]
[TITLE2('...2nd 64 characters of title... '),])

PROFILING([ID(profile#)],BASELINE(SMF|hdbname),
[SUFACTOR(ddname|hdbname(nnnnn.nnn)),]
[SMFSTART(date,time),]
[SMFSTOP(date,time),]
[SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
[SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
[FIELDS(field1[(options)],...),]
[INTERVAL(hh:mm:ss)])
```

You must specify two PROFILING operands for each Transaction Profiling report:

- One with a REPORT suboperand that defines the source of the report data
- One with a BASELINE suboperand that defines the source of the baseline data

You can specify CICSPA control operands between the two PROFILING operands, allowing you to specify different control operand values for processing the report data and the baseline data. However, only the following control operands affect the processing of the baseline data: APPLID|NOAPPLID, INPUT, SELECT, SELECT2, SMFSTART, SMFSTOP, and ZONE. For other control operands, if you specify different values for the report data and the baseline data, the Transaction Profiling report uses the values in effect for the report data; that is, the PROFILING(REPORT(...)) operand.

For details on how the APPLID|NOAPPLID, INPUT, and ZONE control operands affect the processing of the baseline data, see the description of the BASELINE operand.

The following options apply to both PROFILING operands:

ID(profile#)

Explicitly matches the two PROFILING operands for each Transaction Profiling report by an integer value, profile#.

If you only request a single Transaction Profiling report in a batch job, so you have only one PROFILING(REPORT(...)) operand and one PROFILING(BASELINE(...)) operand, then an ID is unnecessary, and you can specify the two PROFILING operands in either order.

The ID operand is always optional, even when you request more than one Transaction Profiling report in the same batch job.

If you omit IDs, the order of the PROFILING operands is significant: CICSPA counts the PROFILING(REPORT(...)) operands and the PROFILING(BASELINE(...)) operands, and then matches the first PROFILING(REPORT(...)) operand with the first PROFILING(BASELINE(...)) operand, the second with the second, and so on.

If you specify IDs, the order of PROFILING operands is not significant:

```
CICSPA ...  
      PROFILING(ID(1),REPORT(...)),  
      ...  
      PROFILING(ID(2),REPORT(...)),  
      ...  
      PROFILING(ID(2),BASELINE(...))  
      ...  
      PROFILING(ID(1),BASELINE(...))
```

Never specify a mix of PROFILING operands with and without IDs. To improve the readability of your batch commands, specify IDs and keep each REPORT and BASELINE pair together.

REPORT|BASELINE(SMF|hdbname)

REPORT indicates that this PROFILING operand defines the report data and other Transaction Profiling report options.

BASELINE indicates that this PROFILING operand defines the baseline data.

The values of BASELINE and REPORT define the source of the baseline data and the report data. For example:

- REPORT(SMF) defines the source of the report data as the SMF files identified by either the most recent INPUT operand, if specified, or the DDname SMFIN, if no INPUT operand is specified.
- BASELINE(PROD) defines the source of the baseline data as the HDB named PROD that is defined in the Repository identified by the DDname CPAHDBRG.

Note: Do not name a performance HDB "SMF" if you plan to use it for a Transaction Profiling report.

If the report data and the baseline data both reside in HDBs, then the HDBs must exist in the same Repository.

If the report data and the baseline data both reside in the same set of SMF files, then you only need to specify a single INPUT operand or the DDname SMFIN:

```
CICSPA ...
      INPUT(SMFIN001),
      PROFILING(REPORT(SMF), ...),
      PROFILING(BASELINE(SMF), ...)
```

If the report data and the baseline data reside in different sets of SMF files, then you need to specify an INPUT operand before the PROFILING operand for the baseline data. In the following example, the report data resides in the SMF files identified by the DDname SMFIN001, and the baseline data resides in the SMF files identified by the DDname SMFIN002:

```
CICSPA ...
      INPUT(SMFIN001),
      PROFILING(REPORT(SMF), ...),
      INPUT(SMFIN002),
      PROFILING(BASELINE(SMF), ...)
```

SUFACTOR

Specifies a CPU SU conversion factor to apply to the SMF file or HDB. The SUFACTOR value is used to convert the transaction CPU time to service units in the CPUSU field. The SUFACTOR operand includes two keywords to identify the SMF file or HDB name and its associated conversion factor. The conversion factor must be a decimal number or integer in the range 1 - 999999999 (nine 9s).

A different SUFACTOR can be applied to the BASELINE and REPORT data. The following example shows how to specify the PROFILING operand where the REPORT and the BASELINE are both sourced from an SMF file:

```
CICSPA IN(ddname1),
      SUFACTOR(ddname1(nnnnn.nnn)),
      PROFILING(ID(nnn),REPORT(SMF),
      ...
CICSPA IN(ddname2),
      PROFILING(ID(nnn),BASELINE(SMF),
      ...
      SUFACTOR(ddname2(nnnnn.nnn))]
```

This example shows how to specify the PROFILING operand where the REPORT is sourced from an SMF file and the BASELINE is sourced from an HDB:

```

CICSPA IN(ddname),
        SUFACTOR(ddname(nnnnn.nnn)),
        PROFILING(ID(nnn),REPORT(SMF),
        ...
        PROFILING(ID(nnn),BASELINE(hdname),
        ...
        SUFACTOR(hdbname(nnnnn.nnn))])

```

SMFSTART, SMFSTOP

Filter the input records of the report data or the baseline data according to the specified time period. For input records in SMF files, SMFSTART and SMFSTOP refer to SMF record time stamps. For input records in HDBs, SMFSTART and SMFSTOP refer to transaction start times. (HDBs do not contain SMF record time stamps.)

For details on specifying values for SMFSTART and SMFSTOP, see “SMFSTART and SMFSTOP” on page 394.

When specified as control operands of the CICSPA command, rather than as suboperands of the PROFILING operand, SMFSTART and SMFSTOP apply to all of the reports that follow them, including the Transaction Profiling report. When specified “locally”, as suboperands of the PROFILING operand, SMFSTART and SMFSTOP override the “global” control operands, but only for that PROFILING operand.

Typically, when running the Transaction Profiling report in a Report Set with other reports, you only specify local SMFSTART and SMFSTOP values for the baseline data (in the PROFILING operand that contains the BASELINE suboperand). The report data uses the global values specified by the SMFSTART and SMFSTOP CICSPA control operands:

```

CICSPA ...
        SMFSTART(...),SMFSTOP(...), 1
        PROFILING(
                BASELINE(PROD),
                SMFSTART(...),SMFSTOP(...), 2
                ...),
        PROFILING(REPORT(SMF), ...)

```

1 “Global” control operands whose values apply to all reports that follow.

2 “Local” values that apply only to this PROFILING operand for the baseline data, overriding the global values.

INTERVAL

Specifies a time interval for summarizing transaction activity over time. The interval is in the range 1 second to 24 hours in the format *hh:mm:ss* for hours, minutes, and seconds.

This operand applies only when the FIELDS operand specifies a time stamp key field, such as START or STOP (transaction start or stop time). For each time interval covered by the report period, CICS PA accumulates input records, and creates a line of summarized data. If INTERVAL is not specified, the default is 00:01:00 (1 minute).

Summary HDBs only: Data in a Summary HDB is already summarized by the interval that was used to load the data into the HDB. To further summarize the data, specify a multiple of the interval that was used to load the data. If you specify an interval that is equal to or less than the interval used to load the data, the report uses the data as-is, without further summarization.

Typically, you specify the same time interval for the report data, in PROFILING(REPORT(...)), and for the baseline data, in PROFILING(BASELINE(...)), so that the Transaction Profiling report compares data summarized over time intervals of the same length. In this case, you must explicitly specify INTERVAL in both PROFILING operands; the baseline data will not default to the same interval value as the report data.

Time intervals begin at the start of the day (00:00:00), not from the start of the report period. This ensures that the time stamp key field values in the summarized report data and the summarized baseline data are synchronized.

If you want to summarize report data at time intervals, and compare each time interval with a single, common set of summarized baseline data, then omit the time stamp key field from the FIELDS operand for the baseline data. For example, you could compare hourly performance data with a single set of performance data for the entire day.

In rare cases, you might want to specify different time intervals for the report data and the baseline data. The Transaction Profiling report matches each report data interval with the baseline data interval that covers the start of the report data interval. For example, suppose you summarize report data using an interval of 15 minutes and baseline data using an interval of 30 minutes. The Transaction Profiling report matches each consecutive pair of 15-minute report data intervals with the same single 30-minute baseline data interval, because the 30-minute baseline data interval covers the start of both 15-minute report data intervals. That is, the Transaction Profiling report matches 15 minutes of report data with 30 minutes of baseline data, and then matches the next 15 minutes of report data with the same 30 minutes of baseline data. The time interval you specify for the baseline data should be greater than or equal to the time interval for the report data. Otherwise, some baseline data intervals will not match the start of any report data intervals, and so that baseline data will not appear in the report.

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

- 1 becomes 00:01:00
- 1.1 becomes 00:01:00 (rounded down from 00:01:01)
- 1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

FIELDS

Specifies the key fields that you want report data and baseline data records to be grouped and sorted by, the “non-key” fields whose values you want to compare, and the functions for summarizing the non-key field values (for example, as an average or a total).

To understand how the Transaction Profiling report uses the FIELDS operand, it is useful to think of it as a comparison of two Performance Summary reports:

- One for the report data, as specified by the PROFILING(REPORT(...), FIELDS(...)) operand
- One for the baseline data, as specified by the PROFILING(BASELINE(...), FIELDS(...)) operand

See “Transaction Profiling report compares two Performance Summary reports” on page 194.

For details on specifying the FIELDS operand, see the description of the FIELDS operand for the Performance Summary report, “SUMMARY(FIELDS” on page 421. The values that you can specify for the FIELDS operand in the Transaction Profiling report and the Performance Summary report are identical.

The FIELDS operand in the Transaction Profiling report involves the following additional considerations:

- In the PROFILING(REPORT(...)) operand, FIELDS defines the Report Form. The Report Form specifies how the Transaction Profiling report summarizes the report data, and also which fields appear on the Transaction Profiling report. The following FIELDS operand defines a Report Form with two key fields, transaction start time and transaction ID, and two non-key fields, task count and response time:
FIELDS (START, TRAN, TASKCNT, RESPONSE)
- If you do not specify a Report Form, the Transaction Profiling report creates one:
 - If the report data resides in SMF files, the Transaction Profiling report uses a default form.
 - If the report data resides in an HDB, the Transaction Profiling report uses the HDB Template as the Report Form.
For a List HDB Template, the Transaction Profiling report treats all character and date fields as key fields, and uses the average function to summarize the other, non-key, fields. The key fields must precede the non-key fields in the Template: otherwise, CICS PA reports an error.
- In the PROFILING(BASELINE(...)) operand, FIELDS defines the Baseline Form. The Baseline Form and the Report Form together specify how the Transaction Profiling report summarizes the baseline data:
 - The Transaction Profiling report ignores any fields in the Baseline Form that are not in the Report Form. For example, if the Baseline Form contains key fields that are not in the Report Form, then these key fields are ignored when summarizing the baseline data. Similarly, any non-key fields that appear in the Baseline Form but not the Report Form are ignored.
 - The Transaction Profiling report ignores the order of the fields in the Baseline Form. For example, when summarizing the baseline data, the Transaction Profiling report uses the key fields in the Baseline Form that also appear in the Report Form, but according to the order of those key fields in the Report Form.
 - If you do not specify a Baseline Form, the Transaction Profiling report creates one:
 - If the baseline data resides in an HDB, the Transaction Profiling report uses the HDB Template as the Baseline Form. As for any Baseline Form, the Transaction Profiling report ignores any fields in the HDB Template that are not in the Report Form, and also ignores the order of the fields in the HDB Template.

For a List HDB Template, the Transaction Profiling report treats character and date fields as key fields, and uses the average function to summarize the other, non-key, fields.

- If the baseline data resides in SMF files, the Transaction Profiling report uses the Report Form as the Baseline Form.
- When summarizing baseline data, the Transaction Profiling report uses only the time-of-day part of any START or STOP key field (transaction start or stop), ignoring the date part. The summarized baseline data for a time-of-day interval matches the summarized report data for that time-of-day interval on any date. For example, if you specify a report data interval of five days and a baseline data interval of five days, then the Transaction Profiling report summarizes each day of report data separately, but summarizes the five days of baseline data together. The Transaction Profiling report compares each daily set of summarized report data with the same set of summarized baseline data. To compare each weekday of the previous week with the same weekday from a week one year ago (compare Monday with another Monday, Tuesday with another Tuesday, etc.), you must run five separate Transaction Profiling reports.
- In a Performance Summary report, in addition to key fields, you can select one numeric field as Ascending or Descending to activate **Alternate Sequencing**. This changes the order of report lines from Sort Key to numeric field sequence. The Transaction Profiling report ignores any Alternate Sequencing.

Typically, you only need to specify a Report Form, not a Baseline Form: this ensures matching fields in the two sets of summarized data (assuming that the report data and the baseline data actually contain the fields specified in the form). However, a different Baseline Form is useful in the following cases:

- To specify selection criteria that apply only to the baseline data (you can specify selection criteria inside a form).
- To group the baseline data using fewer key fields than the Report Form uses to group the report data.

If you omit key fields from the Baseline Form that appear in the Report Form, then the Transaction Profiling report matches rows in the two sets of summarized data based on their common key fields. The typical effect is that several rows of summarized report data (with more key fields) match one row of baseline data.

- To limit which non-key fields show values in the Baseline, Delta, and Change lines.

If the Baseline Form omits some of the non-key fields specified by the Report Form, then the Transaction Profiling report shows blanks for these missing fields in the Baseline, Delta, and Change lines.

SELECT | SELECT2(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what data to include or exclude from the report or extract based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

The following options apply only to the PROFILING operand that contains the REPORT suboperand (if you specify these options in the PROFILING operand that contains the BASELINE suboperand, they are ignored):

LINECount

Controls the number of lines per page in the Transaction Profiling report. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line) for the Transaction Profiling report. See "TITLE1 and TITLE2" on page 386 for further information.

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **PROFnnnn** where nnnn is the report sequence number **0001-9999** to uniquely identify the output. See "OUTPUT" on page 384 for further information.

EXTERNAL

Specifies the optional DDname for the work data set used by the external SORT facility. If specified, CICS PA performs an external sort. If not specified, CICS PA performs an internal sort where the records are sorted in storage by CICS PA. The CICS PA dialog always generates the EXTERNAL operand with a DDname in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See "EXTERNAL" on page 385 for further information.

NOTOTALS | TOTALS(n)

The totals level applies only to the Summary report.

Specify TOTALS(1) to TOTALS(8) to accumulate subtotals for up to 8 sort fields, print the subtotals when the sort field changes, and print a grand total at the end of the report. Default: **TOTALS(8)**

Specify TOTALS(0) for no subtotals, but print only the grand total.

Specify NOTOTALS for neither subtotals nor grand total.

THRESHOLD(%abovebaseline,%belowbaseline)

Specifies minimum thresholds for the Change values that you want the report to include. Change values are the percentage difference between the report data and the baseline data (for details, see the PRINT operand):

- If a Change value is within the thresholds, the report excludes the Change value and its corresponding Delta value (shows them as blanks).
- If all values on a Change line are within the thresholds, and you have also specified the NOWITHINTHRESHOLD operand, then the report excludes that entire Change line, its corresponding Report, Baseline, and Delta lines, and its key field values.

You can specify either or both of the following thresholds:

%abovebaseline

This threshold applies only to positive Change values; that is, where the Report value is greater than the Baseline value. The allowed values for this threshold are integers in the range 0-999.

For example, a threshold of 150 excludes Change values smaller than +150%.

%belowbaseline

This threshold applies only to negative Change values. The allowed values for this threshold are integers in the range 0-100.

For example, a threshold of 80 excludes Change values smaller than -80%.

For example, THRESHOLD(150,80) excludes Change values within +150% and -80%.

If you omit both thresholds or you specify both thresholds as 0, the report includes all Change values.

If you specify a value for %**abovebaseline** but you omit %**belowbaseline**, then the report:

- Applies the threshold to positive Change values
- Excludes all negative Change values

If you specify a value for %**belowbaseline** but you leave %**abovebaseline** blank, then the report:

- Applies the threshold to negative Change values
- Excludes all positive Change values

**PRINT(REPORT,BASELINE,DELTA,CHANGE,
FULL | EXCEPTIONSONLY,NOBLANKLINES | BLANKLINES)**

The values REPORT, BASELINE, DELTA, and CHANGE specify the lines of data that you want the Transaction Profiling report to show for each non-key field in the Report Form:

Report

Summarized report data value. This line is always implicitly specified.

Baseline

Summarized baseline data value.

Delta Report minus Baseline.

Change

Percentage difference between **Report** and **Baseline**. For example:

| | | |
|----------|---------|--------|
| Report | 1.0 | 0.1 |
| Baseline | 0.4 | 0.5 |
| Change% | +150.00 | -80.00 |

This option generates the REPORT, BASELINE, DELTA, and CHANGE values of the PRINT operand.

If you do not specify any lines, the Transaction Profiling report shows all lines. Otherwise, the Transaction Profiling report shows only the specified lines, except for the Report line, which is always implicitly specified, regardless of whether the value REPORT is explicitly specified in the PRINT operand. For example, to show only the Report line, specify PRINT(REPORT). To show the Report line and the Change line, specify either of these equivalent operands: PRINT(REPORT,CHANGE) or PRINT(CHANGE).

The remaining values of the PRINT operand specify conditions for including or excluding lines:

FULL | EXCEPTIONSONLY

FULL includes lines in the report even when the difference between the report data and the baseline data is within the thresholds specified by the THRESHOLDS operand. This is the default. Specifying FULL ensures that the Report line is always included, regardless of thresholds. However, specifying FULL does not necessarily mean that the report always includes all lines specified by the PRINT operand. If you also specify NOBLANKLINES, the report excludes any blank Baseline, Delta, or Change lines.

EXCEPTIONSONLY excludes all lines, including the Report line, where the difference between every non-key field in a row of summarized baseline data and the same fields in the matching row of summarized report data are all within the thresholds.

The Baseline Form can specify a subset of the non-key fields in the Report Form, leaving the summarized baseline data with fewer non-key fields than the summarized report data. Specifying EXCEPTIONSONLY, together with a Baseline Form that contains only one non-key field, enables you to produce a Transaction Profiling report that only shows data where that field is not within thresholds. For example, if you specify a Baseline Form where the only non-key field is average response time, then you can produce a Transaction Profiling report that shows only the transactions that are not within an acceptable percentage difference of a baseline average response time.

NOBLANKLINES | BLANKLINES

NOBLANKLINES excludes any Baseline, Delta, or Change lines whose data consists entirely of blank values. Blank values on these lines indicate either fields with no baseline data or, on the Delta and Change lines, fields where the difference between the report data and the baseline data is within the thresholds specified by the THRESHOLDS operand. NOBLANKLINES has no effect on the Report line, which shows the summarized report data even when NOBLANKLINES excludes all other lines. To exclude all lines, including the Report line, when the difference between the report data and the baseline data is within the thresholds, specify EXCEPTIONSONLY.

BLANKLINES includes all specified lines, even when their data consists entirely of blank values.

Omitting the PRINT operand or specifying PRINT() is equivalent to specifying PRINT(REPORT,BASELINE,DELTA,CHANGE,FULL,NOBLANKLINES).

PROFILING examples

A set of sample Report Forms is provided with CICS PA. See Table 6 on page 293 for the sample SUMMARY Report Forms. You can use these sample Report Forms with your Transaction Profiling reports to provide detailed comparisons of the many aspects affecting CICS system performance.

The following examples show progressively more complex uses for the Transaction Profiling report.

Example 1: Comparing data using the default form

This example compares data from two sets of SMF files. The report data resides in the SMF files identified by the DDname SMFIN001, and the baseline data resides in the SMF files identified by SMFIN002. This example contains no FIELDS operands, so, to summarize the data, the report uses the default SUMMARY Report Form shown in Figure 164 on page 303.

```
CICSPA IN(SMFIN001),  
        PROFILING(REPORT(SMF)),  
        IN(SMFIN002),  
        PROFILING(BASELINE(SMF),  
                  NOTOTALS)
```

| Tran | | #Tasks | Avg Response Time | Avg Dispatch Time | Avg User Time | Avg CPU Time | Avg Suspend Time | Avg DispWait Time | Avg FC Wait Time | Avg FCAMRq Count | Avg IR Wait Time | Avg SC24UHW M Count | Avg SC31UHW M Count |
|------|----------|--------|-------------------|-------------------|---------------|--------------|------------------|-------------------|------------------|------------------|------------------|---------------------|---------------------|
| DB2D | Report | 560 | .0504 | .0057 | .0017 | .0446 | .0028 | .0000 | 0 | .0000 | 1040 | 1296 | |
| | Baseline | 448 | .0369 | .0047 | .0018 | .0322 | .0015 | .0000 | 0 | .0000 | 1040 | 1296 | |
| | Delta | +112 | +.0134 | +.0010 | -.0000 | +.0125 | +.0012 | +.0000 | +0 | +.0000 | +0 | +0 | |
| | Change% | +25.00 | +36.43 | +20.59 | -2.41 | +38.77 | +79.51 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 | |
| DC01 | Report | 560 | .0598 | .0011 | .0005 | .0587 | .0059 | .0000 | 0 | .0000 | 976 | 1296 | |
| GLCT | Report | 560 | .0543 | .0005 | .0004 | .0538 | .0023 | .0000 | 0 | .0000 | 0 | 0 | |
| GLCT | Baseline | 448 | .0432 | .0005 | .0003 | .0427 | .0012 | .0000 | 0 | .0000 | 0 | 0 | |
| | Delta | +112 | +.0111 | +.0000 | +.0000 | +.0111 | +.0011 | +.0000 | +0 | +.0000 | +0 | +0 | |
| | Change% | +25.00 | +25.82 | +7.37 | +10.61 | +26.03 | +92.24 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 | |

Figure 219. Transaction Profiling report (comparing data using the default form)

The row headings Report, Baseline, Delta, and Change% appear between the column for the last key field (in this case, there is only one), TRAN, represented by the column heading Tran, and the first non-key field, TASKCNT, represented by the column heading #Tasks. For a cross-reference between field names and column headings, see CMF Field IDs by CICS version .

For each line of summarized report data, the report contains a block of lines followed by a blank line. This example report contains three blocks of lines, one for each unique key field value (transaction ID) in the report data. The NOTOTALS operand suppresses the block of lines for the grand total that would otherwise appear at the bottom of the report (with the heading "Total" instead a key field value).

Notice that, in the blocks for transaction IDs DB2D and GLCT, the key field value appears twice. The top value is the key field from the report data; this always appears on the top line of each block, next to the Report line heading. The bottom value is the key field from the matching baseline data; this only appears if there is matching baseline data, and then only if the block would normally contain at least one other line in addition to the Report line. The block for transaction ID DC01 shows no baseline key field value, for two reasons:

- There is no matching baseline data for DC01
- The block contains only the Report line; the other lines have been suppressed by the default NOBLANKLINES option (for the same reason: no matching baseline data). If this example had specified BLANKLINES, then the block of lines for DC01 would have looked like this:

```
DC01  Report      560 .0598 .0011 .0005 .0587 .0059 .0000 0 .0000 976 1296
      Baseline
      Delta
      Change%
```

That is, with blank lines, but still no key field value for baseline data.

Example 2: Comparing data using a specified form

This example compares data using a Report Form specified by the FIELDS operand. In this example, the Report Form is the sample form CPUSUM1 provided with CICS PA.

```
CICSPA INPUT(SMFIN001),
        PROFILING(REPORT(SMF),
                  FIELDS(TRAN(ASCEND),
                        TASKCNT,
                        RESPONSE(AVE),
```

```

RESPONSE(MAX),
DISPATCH(TIME(AVE)),
CPU(TIME(AVE)),
SUSPEND(TIME(AVE)),
DISPWAIT(TIME(AVE)),
QRCPU(TIME(AVE)),
MSCPU(TIME(AVE)),
ROCPU(TIME(AVE)),
KY8CPU(TIME(AVE)),
KY9CPU(TIME(AVE))),
INPUT(SMFIN002),
PROFILING(BASELINE(SMF))

```

V5R1M0

CICS Performance Analyzer
Transaction Profiling

PROF0001 Printed at 12:03:45 04/17/2013 Report Data from 17:24:50 5/02/2006 to 17:27:15 5/02/2006 Page 1
Baseline Data from 16:21:47 5/02/2006 to 16:23:42 5/02/2006

| Tran | | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | Avg QR CPU Time | Avg MS CPU Time | Avg RO CPU Time | Avg KY8 CPU Time | Avg KY9 CPU Time |
|-------|----------|--------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|-----------------|-----------------|-----------------|------------------|------------------|
| DB2D | Report | 560 | .0504 | 1.1744 | .0057 | .0017 | .0446 | .0028 | .0007 | .0000 | .0000 | .0010 | .0001 |
| DB2D | Baseline | 448 | .0369 | .3085 | .0047 | .0018 | .0322 | .0015 | .0006 | .0000 | .0000 | .0010 | .0001 |
| | Delta | +112 | +.0134 | +.8660 | +.0010 | -.0000 | +.0125 | +.0012 | +.0000 | -.0000 | -.0000 | -.0001 | -.0000 |
| | Change% | +25.00 | +36.43 | +280.73 | +20.59 | -2.41 | +38.77 | +79.51 | +3.89 | -32.17 | -32.17 | -5.82 | -5.22 |
| DC01 | Report | 560 | .0598 | 1.4905 | .0011 | .0005 | .0587 | .0059 | .0005 | .0000 | .0000 | .0000 | .0000 |
| DC01 | Baseline | 448 | .0472 | .7251 | .0010 | .0005 | .0463 | .0031 | .0005 | .0000 | .0000 | .0000 | .0000 |
| | Delta | +112 | +.0126 | +.7654 | +.0001 | +.0000 | +.0125 | +.0028 | +.0000 | -.0000 | -.0000 | +.0000 | +.0000 |
| | Change% | +25.00 | +26.67 | +105.56 | +12.78 | +7.70 | +26.97 | +90.89 | +8.50 | -23.68 | -23.68 | +.00 | +.00 |
| GLCT | Report | 560 | .0543 | 1.3972 | .0005 | .0004 | .0538 | .0023 | .0004 | .0000 | .0000 | .0000 | .0000 |
| GLCT | Baseline | 448 | .0432 | .6345 | .0005 | .0003 | .0427 | .0012 | .0003 | .0000 | .0000 | .0000 | .0000 |
| | Delta | +112 | +.0111 | +.7627 | +.0000 | +.0000 | +.0111 | +.0011 | +.0000 | -.0000 | -.0000 | +.0000 | +.0000 |
| | Change% | +25.00 | +25.82 | +120.21 | +7.37 | +10.61 | +26.03 | +92.24 | +11.59 | -16.24 | -16.24 | +.00 | +.00 |
| Total | Report | 1680 | .0548 | 1.4905 | .0024 | .0009 | .0524 | .0037 | .0005 | .0000 | .0000 | .0003 | .0000 |
| | Baseline | 1344 | .0424 | .7251 | .0021 | .0009 | .0404 | .0019 | .0005 | .0000 | .0000 | .0003 | .0000 |
| | Delta | +336 | +.0124 | +.7654 | +.0004 | +.0000 | +.0120 | +.0017 | +.0000 | -.0000 | -.0000 | -.0000 | -.0000 |
| | Change% | +25.00 | +29.21 | +105.56 | +18.34 | +1.22 | +29.77 | +88.17 | +7.16 | -23.77 | -23.77 | -5.82 | -5.22 |

Figure 220. Transaction Profiling report (comparing data using a specified form)

Example 3: Comparing a subset of fields in the report data

Suppose that you are interested in the values of several fields of report data, but you are only interested in comparing one, or a few, of these fields with baseline data. To do this, you specify a Baseline Form with the same key fields as the Report Form, but fewer non-key fields, as shown in this example.

```

CICSPA INPUT(SMFIN001),
        PROFILING(REPORT(SMF),
                   FIELDS(TRAN(ASCEND),
                          TASKCNT,
                          RESPONSE(AVE),
                          RESPONSE(MAX),
                          DISPATCH(TIME(AVE)),
                          CPU(TIME(AVE)),
                          SUSPEND(TIME(AVE)),
                          DISPWAIT(TIME(AVE)),
                          QRCPU(TIME(AVE)),
                          MSCPU(TIME(AVE)),
                          ROCPU(TIME(AVE)),
                          KY8CPU(TIME(AVE)),
                          KY9CPU(TIME(AVE)))),
        INPUT(SMFIN002),
        PROFILING(BASELINE(SMF),
                   FIELDS(TRAN(ASCEND),
                          RESPONSE(AVE)))

```

In this example, the Transaction Profiling report groups and summarizes the report data and the baseline data using the same single key field, TRAN, but only includes baseline data values for the average response times.

| Tran | | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User Time | Avg CPU Suspend Time | Avg CPU DispWait Time | Avg QR CPU Time | Avg MS CPU Time | Avg RO CPU Time | Avg KY8 CPU Time | Avg KY9 CPU Time |
|-------|----------|--------|-------------------|-------------------|-------------------|---------------|----------------------|-----------------------|-----------------|-----------------|-----------------|------------------|------------------|
| DB2D | Report | 560 | .0504 | 1.1744 | .0057 | .0017 | .0446 | .0028 | .0007 | .0000 | .0000 | .0010 | .0001 |
| DB2D | Baseline | | .0369 | | | | | | | | | | |
| | Delta | | +.0134 | | | | | | | | | | |
| | Change% | | +36.43 | | | | | | | | | | |
| DC01 | Report | 560 | .0598 | 1.4905 | .0011 | .0005 | .0587 | .0059 | .0005 | .0000 | .0000 | .0000 | .0000 |
| DC01 | Baseline | | .0472 | | | | | | | | | | |
| | Delta | | +.0126 | | | | | | | | | | |
| | Change% | | +26.67 | | | | | | | | | | |
| GLCT | Report | 560 | .0543 | 1.3972 | .0005 | .0004 | .0538 | .0023 | .0004 | .0000 | .0000 | .0000 | .0000 |
| GLCT | Baseline | | .0432 | | | | | | | | | | |
| | Delta | | +.0111 | | | | | | | | | | |
| | Change% | | +25.82 | | | | | | | | | | |
| Total | Report | 1680 | .0548 | 1.4905 | .0024 | .0009 | .0524 | .0037 | .0005 | .0000 | .0000 | .0003 | .0000 |
| | Baseline | | .0424 | | | | | | | | | | |
| | Delta | | +.0124 | | | | | | | | | | |
| | Change% | | +29.21 | | | | | | | | | | |

Figure 221. Transaction Profiling report (comparing a subset of fields in the report data)

Example 4: Excluding changes that are insignificant to you

This is identical to the previous example, except that this example introduces the operands THRESHOLD(30) and PRINT(EXCEPTIONSONLY).

THRESHOLD(30) sets the minimum threshold for changes (report data values greater than baseline data values) at +30%. PRINT(EXCEPTIONSONLY) excludes from the report any blocks of report data where all of the change values are within the threshold. THRESHOLD(30) does not contain a second value, for negative changes, so any negative change values are also considered to be within this specified threshold, and would be excluded.

```

CICSPA INPUT(SMFIN001),
        PROFILING(REPORT(SMF),
                  THRESHOLD(30),
                  PRINT(EXCEPTIONSONLY),
                  FIELDS(TRAN(ASCEND),
                        TASKCNT,
                        RESPONSE(AVE),
                        RESPONSE(MAX),
                        DISPATCH(TIME(AVE)),
                        CPU(TIME(AVE)),
                        SUSPEND(TIME(AVE)),
                        DISPWAIT(TIME(AVE)),
                        QRCPU(TIME(AVE)),
                        MSCPU(TIME(AVE)),
                        ROCPU(TIME(AVE)),
                        KY8CPU(TIME(AVE)),
                        KY9CPU(TIME(AVE))))),
        INPUT(SMFIN002),
        PROFILING(BASELINE(SMF),
                  FIELDS(TRAN(ASCEND),
                        RESPONSE(AVE)))

```

Notice that, in addition to excluding blocks of summarized data for unique key field value, leaving only the block for transaction ID DB2D), the PRINT(EXCEPTIONSONLY) operand has also excluded the Total block. If the

overall change value for average response time had been +30% or greater, then the report would have shown the Total.

| Tran | | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | Avg QR CPU Time | Avg MS CPU Time | Avg RO CPU Time | Avg KY8 CPU Time | Avg KY9 CPU Time |
|------|----------|--------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|-----------------|-----------------|-----------------|------------------|------------------|
| DB2D | Report | 560 | .0504 | 1.1744 | .0057 | .0017 | .0446 | .0028 | .0007 | .0000 | .0000 | .0010 | .0001 |
| DB2D | Baseline | | .0369 | | | | | | | | | | |
| | Delta | | +.0134 | | | | | | | | | | |
| | Change% | | +36.43 | | | | | | | | | | |

Figure 222. Transaction Profiling report (excluding changes that are insignificant to you)

Example 5: Comparing data summarized by time interval

This example uses a Report Form, sample form TRTODSUM, that includes a time stamp key field, transaction stop time (STOP). When a form includes a time stamp key field, the INTERVAL operand specifies a time interval for summarizing input records based on their time stamp values. In this example, the INTERVAL(00:05:00) operand summarizes input records, based on their transaction stop times, at intervals of five minutes.

The TOTALS(2) operand instructs the report to print subtotals for each group of values for sort key field 2 that share the same higher-level key field values. In this example, the effect is to show subtotals for each five-minute time interval.

```

CICSPA INPUT(SMFIN001),
        PROFILING(REPORT(SMF),
                  INTERVAL(00:05:00),
                  TOTALS(2),
                  FIELDS(STOP(TIMES,ASCEND),
                        TRAN(ASCEND),
                        TASKCNT,
                        RESPONSE(AVE),
                        RESPONSE(MAX),
                        DISPATCH(TIME(AVE)),
                        CPU(TIME(AVE)),
                        SUSPEND(TIME(AVE)),
                        DISPWAIT(TIME(AVE)),
                        FCWAIT(TIME(AVE)),
                        FCAMCT(AVE),
                        IRWAIT(TIME(AVE)),
                        SC24UHWM(AVE),
                        SC31UHWM(AVE))),
        INPUT(SMFIN002),
        PROFILING(BASELINE(SMF),
                  INTERVAL(00:05:00))

```

For brevity, this example report shows only a single time interval. Typically, such a report would cover more time intervals: 17:30:00, 17:35:00, etc.

| Stop Interval | Tran | | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | Avg FC Wait Time | Avg FCAMRq Count | Avg IR Wait Time | Avg SC24UHMW Count | Avg SC31UHMM Count |
|---------------|------|----------|--------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|------------------|------------------|------------------|--------------------|--------------------|
| 17:25:00 | DB2D | Report | 520 | .0344 | .0848 | .0018 | .0016 | .0326 | .0015 | .0000 | 0 | .0000 | 1040 | 1296 |
| 17:25:00 | DB2D | Baseline | 456 | .0344 | .0848 | .0018 | .0016 | .0326 | .0014 | .0000 | 0 | .0000 | 1040 | 1296 |
| | | Delta | +64 | -.0000 | +.0000 | -.0000 | -.0000 | -.0000 | +.0000 | +.0000 | +0 | +.0000 | +0 | +0 |
| | | Change% | +14.04 | -.08 | +.00 | -.71 | -.32 | -.04 | +2.02 | +.00 | +.00 | +.00 | +.00 | +.00 |
| 17:25:00 | DC01 | Report | 520 | .0391 | .1164 | .0008 | .0005 | .0383 | .0034 | .0000 | 0 | .0000 | 976 | 1296 |
| 17:25:00 | DC01 | Baseline | 456 | .0392 | .1164 | .0008 | .0005 | .0383 | .0034 | .0000 | 0 | .0000 | 976 | 1296 |
| | | Delta | +64 | -.0000 | +.0000 | -.0000 | +.0000 | -.0000 | +.0000 | +.0000 | +0 | +.0000 | +0 | +0 |
| | | Change% | +14.04 | -.06 | +.00 | -.20 | +.42 | -.05 | +2.22 | +.00 | +.00 | +.00 | +.00 | +.00 |
| 17:25:00 | GLCT | Report | 520 | .0349 | .0856 | .0003 | .0004 | .0345 | .0000 | .0000 | 0 | .0000 | 0 | 0 |
| 17:25:00 | | Report | 1560 | .0361 | .1164 | .0010 | .0008 | .0351 | .0016 | .0000 | 0 | .0000 | 672 | 864 |
| 17:25:00 | | Baseline | 1368 | .0353 | .1164 | .0011 | .0009 | .0343 | .0016 | .0000 | 0 | .0000 | 672 | 1888 |
| | | Delta | +192 | +.0008 | +.0000 | -.0001 | -.0001 | +.0009 | +.0000 | +.0000 | +0 | +.0000 | +0 | -1024 |
| | | Change% | +14.04 | +2.24 | +.00 | -8.67 | -5.77 | +2.59 | +7.75 | +.00 | +.00 | +.00 | +.00 | -54.24 |
| Total | | Report | 1560 | .0361 | .1164 | .0010 | .0008 | .0351 | .0016 | .0000 | 0 | .0000 | 672 | 864 |
| | | Baseline | 1488 | .0547 | 1.4905 | .0027 | .0009 | .0520 | .0037 | .0000 | 0 | .0000 | 672 | 1888 |
| | | Delta | +72 | -.0186 | -1.3741 | -.0017 | -.0001 | -.0168 | -.0021 | +.0000 | +0 | +.0000 | +0 | -1024 |
| | | Change% | +4.84 | -33.93 | -92.19 | -63.80 | -12.08 | -32.37 | -55.80 | +.00 | +.00 | +.00 | +.00 | -54.24 |

Figure 223. Transaction Profiling report (comparing data summarized by time interval)

As shown in this example, the subtotals and grand total in the Transaction Profiling report might appear to be inconsistent with each other, and also with the blocks of data for each unique key value. This is because the subtotals and grand totals in the Transaction Profiling report are based on the subtotals and grand totals of the separately summarized report data and the baseline data, not just the consolidated data with matching key field values printed in the Transaction Profiling report. So the subtotals and grand totals for the baseline data represent all rows of summarized baseline data, not just those rows whose key field values match rows of report data.

Example 6: Comparing several time intervals of report data with a single set of baseline data

This example uses a Report Form with a time stamp key field summarized over intervals of five minutes, and a Baseline Form without a time stamp key field, so that the baseline data is summarized without time intervals.

You can use this technique to compare time intervals within a day with a single set of data representing the average for an entire day. As shown in this example, the report data and the baseline data can have the same source (notice that there is only one INPUT operand), so you can compare time intervals within a day with the average across the same day.

```
CICSPA INPUT(SMFIN001),
        PROFILING(REPORT(SMF),
                  INTERVAL(00:05:00),
                  TOTALS(2),
                  FIELDS(STOP(TIMES,ASCEND),
                        TRAN(ASCEND),
                        TASKCNT,
                        RESPONSE(AVE),
                        RESPONSE(MAX),
                        DISPATCH(TIME(AVE)),
                        CPU(TIME(AVE)),
                        SUSPEND(TIME(AVE)),
                        DISPWAIT(TIME(AVE)),
                        FCWAIT(TIME(AVE)),
                        FCAMCT(AVE),
                        IRWAIT(TIME(AVE))),
```

```

SC24UHW(M(AVE),
SC31UHW(M(AVE))),
PROFILING(BASELINE(SMF),
FIELDS(TRAN(ASCEND),
TASKCNT,
RESPONSE(AVE),
RESPONSE(MAX),
DISPATCH(TIME(AVE)),
CPU(TIME(AVE)),
SUSPEND(TIME(AVE)),
DISPWAIT(TIME(AVE)),
FCWAIT(TIME(AVE)),
FCAMCT(AVE),
IRWAIT(TIME(AVE)),
SC24UHW(M(AVE),
SC31UHW(M(AVE)))

```

V5R1M0

CICS Performance Analyzer

Transaction Profiling

PROF0001 Printed at 12:03:45 04/17/2013

| Report | Data from 17:25:01 | 5/02/2006 to 17:27:15 | 5/02/2006 | Page | 1 | | | | | | | | |
|---------------|--------------------|-----------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|---------|------------------|------------------|-------------------|-------------------|
| Baseline | Data from 10:00:00 | 5/02/2006 to 17:30:00 | 5/02/2006 | | | | | | | | | | |
| Stop Interval | Tran | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | FC Wait | Avg FCAMRq Count | Avg IR Wait Time | Avg SC24UHW Count | Avg SC31UHW Count |
| 17:25:00 | DB2D | Report 520 | .0344 | .0848 | .0018 | .0016 | .0326 | .0015 | .0000 | 0 | .0000 | 1040 | 1296 |
| | DB2D | Baseline 41600 | .0504 | 1.1744 | .0057 | .0017 | .0446 | .0028 | .0000 | 0 | .0000 | 1040 | 1296 |
| | | Delta -41080 | -.0159 | -1.0896 | -.0039 | -.0001 | -.0121 | -.0013 | +.0000 | +0 | +.0000 | +0 | +0 |
| | | Change% -98.75 | -31.65 | -92.78 | -68.13 | -7.17 | -27.00 | -46.52 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 |
| 17:25:00 | DC01 | Report 520 | .0391 | .1164 | .0008 | .0005 | .0383 | .0034 | .0000 | 0 | .0000 | 976 | 1296 |
| | DC01 | Baseline 41600 | .0598 | 1.4905 | .0011 | .0005 | .0587 | .0059 | .0000 | 0 | .0000 | 976 | 1296 |
| | | Delta -41080 | -.0207 | -1.3741 | -.0003 | -.0000 | -.0204 | -.0025 | +.0000 | +0 | +.0000 | +0 | +0 |
| | | Change% -98.75 | -34.57 | -92.19 | -24.57 | -4.68 | -34.76 | -42.01 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 |
| 17:25:00 | GLCT | Report 520 | .0349 | .0856 | .0003 | .0004 | .0345 | .0000 | .0000 | 0 | .0000 | 0 | 0 |
| | GLCT | Baseline 41600 | .0543 | 1.3972 | .0005 | .0004 | .0538 | .0023 | .0000 | 0 | .0000 | 0 | 0 |
| | | Delta -41080 | -.0194 | -1.3115 | -.0002 | -.0000 | -.0193 | -.0023 | +.0000 | +0 | +.0000 | +0 | +0 |
| | | Change% -98.75 | -35.81 | -93.87 | -38.40 | -2.44 | -35.79 | -100.00 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 |
| 17:25:00 | | Report 1560 | .0361 | .1164 | .0010 | .0008 | .0351 | .0016 | .0000 | 0 | .0000 | 672 | 864 |
| | | Baseline 124800 | .0548 | 1.4905 | .0024 | .0009 | .0524 | .0037 | .0000 | 0 | .0000 | 672 | 864 |
| | | Delta -123240 | -.0187 | -1.3741 | -.0014 | -.0001 | -.0172 | -.0020 | +.0000 | +0 | +.0000 | +0 | +0 |
| | | Change% -98.75 | -34.09 | -92.19 | -59.54 | -5.99 | -32.91 | -55.38 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 |
| Total | | Report 1560 | .0361 | .1164 | .0010 | .0008 | .0351 | .0016 | .0000 | 0 | .0000 | 672 | 864 |
| | | Baseline 124800 | .0548 | 1.4905 | .0024 | .0009 | .0524 | .0037 | .0000 | 0 | .0000 | 672 | 864 |
| | | Delta -123240 | -.0187 | -1.3741 | -.0014 | -.0001 | -.0172 | -.0020 | +.0000 | +0 | +.0000 | +0 | +0 |
| | | Change% -98.75 | -34.09 | -92.19 | -59.54 | -5.99 | -32.91 | -55.38 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 |

Figure 224. Transaction Profiling report (comparing several time intervals of report data with a single set of baseline data)

Example 7: Identifying poorly performing transactions by time of day

This example identifies poorly performing transactions by comparing report data from SMF files with baseline data in an HDB that contains ideal, or expected, response times for each transaction ID.

As in the previous example, this Transaction Profiling report summarizes report data over time intervals, but summarizes the baseline data without time intervals. For each time interval of summarized report data, the Transaction Profiling report compares the average response time of each transaction ID with an average response time for that transaction ID from the summarized baseline data. The summarized baseline data consists only of two fields: the transaction IDs and their corresponding average response times, independent of any time intervals.

In this example, the baseline data is stored in an HDB named EXAMPLE. This HDB was loaded with data selected from a "good" day; its only purpose is to provide the expected results for this Transaction Profiling report.

The REPORT and CHANGE values of the PRINT operand instruct the report to print only the Report and Change% lines. THRESHOLD(25) sets the minimum threshold for changes at +25%. The EXCEPTIONSONLY value of the PRINT operand excludes from the report any blocks of report data where all of the change values are within the threshold. The Baseline Form specifies only a single non-key field, average response time, so EXCEPTIONSONLY causes the report to show blocks of report data only where the average response time is at least 25% higher than the expected value.

```
CICSPA IN(SMFIN001),
  PROFILING(REPORT(SMF),
    PRINT(REPORT,CHANGE,EXCEPTIONSONLY),
    INTERVAL(00:15:00),
    THRESHOLD(25),
    TITLE('Performance exceptions against saved baseline'),
    FIELDS(STOP(TIMES,ASCEND),
      TRAN(ASCEND),
      TASKCNT,
      RESPONSE(AVE),
      RESPONSE(MAX),
      DISPATCH(TIME(AVE)),
      CPU(TIME(AVE)),
      SUSPEND(TIME(AVE)),
      DISPWAIT(TIME(AVE)),
      FCWAIT(TIME(AVE)),
      FCAMCT(AVE),
      IRWAIT(TIME(AVE)),
      SC24UHM(AVE),
      SC31UHM(AVE))),
  PROFILING(BASELINE(EXAMPLE),
    FIELDS(TRAN(ASCEND),
      RESPONSE(AVE)))
```

Comparing report data and baseline data using a single non-key field enables you to produce a Transaction Profiling report that identifies a particular symptom, such as excessive response time. You can then examine the values of other fields in the report data to begin diagnosing the cause of the problem.

V5R1M0

CICS Performance Analyzer

Transaction Profiling

PROF0001 Printed at 12:03:45 04/17/2013 Report Data from 15:18:27 5/02/2006 to 17:31:01 5/02/2006 Page 1

Baseline Data from 15:18:00 5/02/2006 to 17:31:00 5/02/2006

Performance exceptions against saved baseline

| Stop Interval | Tran | Report Change% | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | FC Wait Time | Avg FCAMRq Count | Avg IR Wait Time | Avg SC24UHM Count | Avg SC31UHM Count |
|---------------|------|----------------|--------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|--------------|------------------|------------------|-------------------|-------------------|
| 16:15:00 | CLS1 | Report Change% | 2 | .5281 | 1.0407 | .0052 | .0019 | .5228 | .0018 | .0000 | 0 | .0000 | 0 | 0 |
| | CLS1 | | | +221.42 | | | | | | | | | | |
| 17:15:00 | CLQ2 | Report Change% | 2 | 1.0209 | 1.0257 | .0034 | .0012 | 1.0175 | .0042 | .0000 | 0 | .0000 | 0 | 0 |
| | CLQ2 | | | +49.64 | | | | | | | | | | |
| 17:15:00 | CQPI | Report Change% | 1 | .0048 | .0048 | .0012 | .0007 | .0036 | .0004 | .0000 | 0 | .0000 | 0 | 0 |
| | CQPI | | | +72.82 | | | | | | | | | | |
| 17:15:00 | CQPO | Report Change% | 1 | 1.0137 | 1.0137 | .0209 | .0044 | .9928 | .0007 | .0000 | 0 | .0000 | 0 | 0 |
| | CQPO | | | +94.86 | | | | | | | | | | |

Figure 225. Transaction Profiling report (comparing exceptions with saved baseline data)

CROSSsystem - Cross-System Work report and extract

The **CROSSsystem** operand requests the Cross-System Work report, the Cross-System Work extract, or both.

If the Extract is requested, a Recap report containing processing statistics is always printed at the end of extract processing.

The command format is:

```
CICSPA CROSSsystem(  
  Report options:  
    [PRINTMULTIPLE,]  
    [NOPRINTMULTIPLE,]  
    [PRINTSINGLE,]  
    [NOWRITE,]  
    [LINECount(nnn),]  
    [TITLE1('...up to 64 characters...'),]  
    [TITLE2('...up to 64 characters...'),]  
    TASKORDER(START|STOP)  
  Extract options:  
    [DDNAME(ddname),]  
    [SYSID(applid,mvsid),]  
    [WRITEMultiple,]  
    [NOWRITEMultiple,]  
    [WRITESingle,]  
    [NOPRINT,]  
    [CHARACTER(OWNER(owner),LENGTH(nnn),HEADER(header)),]  
    [CLOCK(OWNER(owner),NUMBER(nnn),HEADER(header)),]  
    [COMPRESS|NOCOMPRESS,]  
    [COUNT(OWNER(owner),NUMBER(nnn),HEADER(header)),]  
  Report and Extract options:  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]  
    [SELUOW(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))])
```

The Cross-System Work report can be tailored using the **LISTX** operand. This produces the Cross-System Work Extended report. For more information, see "LISTX - Performance List Extended report" on page 408.

Report options

Options applicable to the Cross-System Work report (and not the extract) are:

PRINTMULTIPLE

Print only the transaction performance records consisting of units-of-work that include multiple CMF records. This is the default for the report.

NOPRINTMULTIPLE

Do not print the transaction performance records consisting of units-of-work that include multiple CMF records.

PRINTSINGLE

Print the transaction performance records consisting of units-of-work that include only a single CMF record. To get a listing containing these records only, you must suppress the default **PRINTMULTIPLE** option by specifying **NOPRINTMULTIPLE** as well.

NOWRITE

Do not produce an extract data set. This operand can be used to create the report without the extract.

LINECOUNT

Controls the number of lines per page for the Cross-System Work report. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the title (left and right half of subheading line) of the Cross-System Work report. See "TITLE1 and TITLE2" on page 386 for further information.

TASKORDER(START | STOP)

Sorts tasks within each UOW in either descending order of stop time (the default) or ascending order of start time.

Extract options

Options applicable to the Cross-System Work extract (and not the report) are:

DDNAME

This operand specifies the DDname of the output data set where the Cross-System Work extract is written. If not specified, CICS PA assigns the default DDname **CPAOXSYS**. The CICS PA dialog, however, assigns DDnames in the format **CPAOXSnn** where nn is the extract sequence number **01-99**. (See the sample JCL in Figure 188 on page 361).

SYSID

This operand specifies the APPLID and MVS ID to be written in each record of the extract data set. If not specified, CICS PA uses the default APPLID **MULTIPLE** and default MVS ID **CICS**.

WRITEMultiple

Write only the transaction performance records consisting of units-of-work that include multiple CMF records. This is the default for the extract.

NOWRITEMultiple

Do not write the transaction performance records consisting of units-of-work that include multiple CMF records.

WRITESingle

Write the transaction performance records consisting of units-of-work that include only a single CMF record. To get an extract containing these records only, you must suppress the default **WRITEMultiple** option by specifying **NOWRITEMultiple** as well.

NOPRINT

Do not print a Cross-System Work report. This operand can be used to create the Cross-System Work extract without the report.

COMPRESS | NOCOMPRESS

Determines whether CICS PA writes CICS SMF records to the extract file in compressed or uncompressed format. This option applies whether the records in the input SMF file are compressed or not.

If you specify **COMPRESS**, CICS PA writes compressed CICS SMF records, regardless of the CICS release level that created the input records. Although CICS only introduced support for writing compressed SMF records in CICS Transaction Server Version 3.2, you can use CICS PA to create an extract file of compressed CICS SMF records for any CICS release supported by CICS PA. You can use extract files containing compressed SMF records as input to CICS PA, just like any other SMF file, even though the CICS product level that originally created those SMF records cannot write them in compressed format.

CHARACTER(OWNER(owner), LENGTH(nnn), HEADER(ufldname))

CLOCK(OWNER(owner), NUMBER(nnn), HEADER(ufldname))

COUNT(OWNER(owner), NUMBER(nnn), HEADER(ufldname))

Each user field to be included in the extract must be specified separately.

CHARACTER

A character type user field to be included in the extract.

CLOCK

A clock type user field to be included in the extract.

Note: A clock type field in a CMF record consists of two parts: elapsed time and a count of the number of times the condition occurred. When creating the Cross-System Work extract, **CLOCK** applies to both parts of the field.

COUNT

A count type user field to be included in the extract.

OWNER

The 1-8 character owner of the user field. This is the entry name in the DFHMCT ID= macro specification for the user field, or the CICS-assigned default name of 'USER'. CICS PA does not have a default owner name. Even if the owner name is USER, the OWNER operand must be specified.

LENGTH

Required with the CHARACTER operand. It specifies the length of the character user field on the Cross-System Work extract. If LENGTH is missing, the character user field will not be written. If the specified cross-system length is shorter than the original length, the value is truncated. If the cross-system length is longer than the original length, the value is padded with binary zeros. The maximum length that can be specified is 256.

NUMBER

The clock or count to be included in the extract (of the 256 clocks and 256 counts that can be defined for this owner).

HEADER

The eight-character informal field name. If not specified, CICS PA uses the default value *USER*. This is placed in the CMF dictionary of the Cross-System Work extract and can be used in subsequent reporting. For example, if you produce the CICS PA Performance List, Performance List Extended and Performance Summary reports from the Cross-System Work extract data set, *ufldname* is used as the column heading for the user fields in the reports.

Report and extract options

Options that apply to both the Cross-System Work report and extract are:

OUTPUT

Controls the report output DDname. See "OUTPUT" on page 384 for further information. If not specified, CICS PA assigns a DDname in the format **xxxxnnnn** where nnnn is the report sequence number **0001-9999** to uniquely identify the output, and xxxx is:

- **CROS** for the Cross-System Work report
- **CROX** for the Recap report for the Cross-System Work extract

EXTERNAL

Specifies the DDname for the work data set used by the external SORT facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See "EXTERNAL" on page 385 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report or extract based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

If used in conjunction with SELUOW, it does not impact reporting but rather is a first-level pre-sort filter. The purpose of SELECT in this case is to exclude the records that you know are of no interest and thereby reduce the volume of records to be sorted for reporting. It is suitable, for example, for time range checking and selecting all possible transaction IDs of interest.

SELUOW(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what units-of-work to include or exclude from the report or extract based on data field values. If one task in a multi-task UOW matches the selection criteria, then all tasks for that UOW are selected.

It can be used in conjunction with SELECT to first filter out those tasks that you know are of no interest and thereby optimize the record sort process.

See "CROSSsystem examples" for an example using SELECT and SELUOW.

CROSSsystem examples

Example 1: Default report and extract

```
CICSPA CROSS
```

Example 2:

The report and extract data sets generated in this example contain all performance records, both from network units of work consisting of multiple CMF records and from units of work consisting of a single CMF record. The specified CHARACTER-type and CLOCK-type user fields are added to the output record.

The extract is written to DDname CPAOXSYS. The report is written to CROS0001, if this is the first Cross-System Work report, and the Recap is written to CROX0001.

```
CICSPA CROSS(PRINTM,PRINTS,WRITE,WRITES,  
             CHARACTER(OWNER(USER),LENGTH(8),HEADER(MINE)),  
             CLOCK(OWNER(USER),NUMBER(2),HEADER(CLOCK2)))
```

Example 3:

To print records from a network unit-of-work containing single and multiple records, use the following command:

```
CICSPA CROSS(PRINTM,PRINTS,NOWRITE,OUTPUT(CROS0001))
```

This produces a report containing information like that shown in Figure 226 on page 466.

| V5R1M0 | | CICS Performance Analyzer | | | | | | | | | | Page | | | | |
|--|---------|---------------------------|----------|------|---------|--------------|----------|-------------|-----------|------------------|---------|----------|--------|----------------|---------------|-----|
| | | Cross-System Work | | | | | | | | | | 7 | | | | |
| CROS0001 Printed at 12:03:45 04/17/2013 Data from 11:10:29 2/04/2005 to 11:33:51 2/04/2005 | | | | | | | | | | | | | | | | |
| Tran | Userid | SC | TranType | Term | LUName | Request Type | Program | Fcty T/Name | Conn Name | NETName | UOW Seq | APPLID | Task T | R Stop Time | Response Time | A B |
| PAY1 | BRENNER | TP | U | S23C | IGCS23C | AP: | DFH0PAY1 | T/S23C | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 197 | T 11:18:14.419 | .0861 | |
| SALE | BRENNER | U | U | R | | AP: | DFH0SAL2 | | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 198 | T 11:18:14.417 | .0821 | |
| ---- | | | | | | | | | | | | | | | | |
| CSAC | BRENNER | TO | U | S23C | IGCS23C | AP: | DFHACP | T/S23C | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 203 | T 11:18:22.466 | .0020 | |
| ---- | | | | | | | | | | | | | | | | |
| CBAM | BRENNER | TO | U | S23C | IGCS23C | AP: | DFHECBAM | T/S23C | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 204 | T 11:18:36.466 | 11.0373 | |
| ---- | | | | | | | | | | | | | | | | |
| MENU | BRENNER | TO | U | S23C | IGCS23C | AP: | DFH0SALO | T/S23C | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 208 | T 11:18:40.026 | .0023 | |
| ---- | | | | | | | | | | | | | | | | |
| SALE | BRENNER | U | U | R | | AP: | DFH0SAL2 | | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 212 | T 11:18:47.793 | .6282 | |
| STOC | BRENNER | U | U | R | | AP: | DFH0STOC | | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 214 | T 11:18:47.792 | .6072 | |
| RED1 | BRENNER | U | U | R | | AP: | DFH0RED1 | | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 213 | T 11:18:47.789 | .6162 | |
| SAL1 | BRENNER | TP | U | S23C | IGCS23C | AP: | DFH0SAL1 | T/S23C | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 211 | T 11:18:47.270 | .1222 | |
| ---- | | | | | | | | | | | | | | | | |
| SAL1 | BRENNER | TP | U | S23C | IGCS23C | AP: | DFH0SAL1 | T/S23C | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 218 | T 11:18:49.567 | .0022 | |
| ---- | | | | | | | | | | | | | | | | |
| CBAM | BRENNER | TO | U | S23C | IGCS23C | AP: | DFHECBAM | T/S23C | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 221 | T 11:19:30.467 | 38.9944 | |
| ---- | | | | | | | | | | | | | | | | |
| MENU | BRENNER | TO | U | S23C | IGCS23C | AP: | DFH0SALO | T/S23C | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 233 | T 11:19:33.364 | .0023 | |
| ---- | | | | | | | | | | | | | | | | |
| SALE | BRENNER | U | U | R | | AP: | DFH0SAL2 | | | GBIBMIYA.IGCS23C | 1 | IYK2Z1V3 | 240 | T 11:19:41.002 | .8246 | |
| ---- | | | | | | | | | | | | | | | | |

Figure 226. Cross-System Work report (UOWs with single and multiple records)

Example 4:

This command produces a report like that shown in Figure 227 which only shows the transaction performance records that are contained in a network unit-of-work that includes only a single record.

CICSPA CROSS(PRINTS,NOPRINTM,NOWRITE)

| V5R1M0 | | CICS Performance Analyzer | | | | | | | | | | Page | | | | |
|--|---------|---------------------------|----------|------|----------|--------------|----------|-------------|-----------|-------------------|---------|----------|--------|----------------|---------------|-----|
| | | Cross-System Work | | | | | | | | | | 8 | | | | |
| CROS0001 Printed at 12:03:45 04/17/2013 Data from 11:10:29 2/04/2005 TO 11:33:51 2/04/2005 | | | | | | | | | | | | | | | | |
| Tran | Userid | SC | TranType | Term | LUName | Request Type | Program | Fcty T/Name | Conn Name | NETName | UOW Seq | APPLID | Task T | R Stop Time | Response Time | A B |
| CALL | BRENNER | TO | U | S23D | IGCS23D | AP: | CALLJT1 | T/S23D | | GBIBMIYA.IGCS23D | 1 | IYK2Z1V1 | 196 | T 11:22:57.345 | 2.1853 | |
| ---- | | | | | | | | | | | | | | | | |
| CALL | BRENNER | TO | U | S23D | IGCS23D | AP: | CALLJT1 | T/S23D | | GBIBMIYA.IGCS23D | 1 | IYK2Z1V1 | 251 | T 11:30:08.310 | 2.1249 | |
| ---- | | | | | | | | | | | | | | | | |
| CESF | BRENNER | TO | U | S23D | IGCS23D | AP: | DFHSFP | T/S23D | | GBIBMIYA.IGCS23D | 1 | IYK2Z1V1 | 268 | T 11:32:03.467 | .0040 | |
| ---- | | | | | | | | | | | | | | | | |
| CESN | CBAKER | S | U | P012 | IG2ZP012 | AP: | DFHSNP | T/P012 | | GBIBMIYA.IG2ZP012 | 1 | IYK2Z1V1 | 58 | T 11:12:54.056 | .0034 | |
| ---- | | | | | | | | | | | | | | | | |
| CESN | CBAKER | TP | U | P012 | IG2ZP012 | AP: | DFHSNP | T/P012 | | GBIBMIYA.IG2ZP012 | 1 | IYK2Z1V1 | 60 | T 11:13:19.394 | .0166 | |
| ---- | | | | | | | | | | | | | | | | |
| CALL | CBAKER | TO | U | P012 | IG2ZP012 | AP: | CALLJT1 | T/P012 | | GBIBMIYA.IG2ZP012 | 1 | IYK2Z1V1 | 238 | T 11:28:57.007 | 2.1389 | |
| ---- | | | | | | | | | | | | | | | | |
| CALL | CBAKER | TO | U | P012 | IG2ZP012 | AP: | CALLJT1 | T/P012 | | GBIBMIYA.IG2ZP012 | 1 | IYK2Z1V1 | 246 | T 11:29:41.833 | 2.1265 | |
| ---- | | | | | | | | | | | | | | | | |
| CQR | CBAKER | S | U | P015 | IG2ZP015 | AP: | DFHQRY | T/P015 | | GBIBMIYA.IG2ZP015 | 1 | IYK2Z1V3 | 50 | T 11:12:53.875 | 18.3021 | |
| ---- | | | | | | | | | | | | | | | | |
| CESN | CBAKER | S | U | P015 | IG2ZP015 | AP: | DFHSNP | T/P015 | | GBIBMIYA.IG2ZP015 | 1 | IYK2Z1V3 | 53 | T 11:12:55.370 | .0021 | |
| ---- | | | | | | | | | | | | | | | | |
| CESN | CBAKER | TP | U | P015 | IG2ZP015 | AP: | DFHSNP | T/P015 | | GBIBMIYA.IG2ZP015 | 1 | IYK2Z1V3 | 62 | T 11:14:05.802 | .0273 | |
| ---- | | | | | | | | | | | | | | | | |
| CEMT | CBAKER | TO | U | P015 | IG2ZP015 | AP: | DFHEMTP | T/P015 | | GBIBMIYA.IG2ZP015 | 1 | IYK2Z1V3 | 64 | T 11:16:46.019 | 144.153 | |
| ---- | | | | | | | | | | | | | | | | |
| AMNU | CBAKER | TO | U | P015 | IG2ZP015 | AP: | DFHSAMNU | T/P015 | | GBIBMIYA.IG2ZP015 | 1 | IYK2Z1V3 | 138 | T 11:16:47.866 | .0327 | |
| ---- | | | | | | | | | | | | | | | | |
| ABRW | CBAKER | TO | U | P015 | IG2ZP015 | AP: | DFHSABRW | T/P015 | | GBIBMIYA.IG2ZP015 | 1 | IYK2Z1V3 | 139 | T 11:16:51.568 | .6982 | |
| ---- | | | | | | | | | | | | | | | | |
| ABRW | CBAKER | TP | U | P015 | IG2ZP015 | AP: | DFHSABRW | T/P015 | | GBIBMIYA.IG2ZP015 | 1 | IYK2Z1V3 | 140 | T 11:16:52.068 | .0018 | |
| ---- | | | | | | | | | | | | | | | | |

Figure 227. Cross-System Work report (UOWs with a single record)

Example 5:

The following command creates the Cross-System Work extract while the Cross-System Work report is suppressed. The extract is created using all the performance records. The performance records contained in a network

unit-of-work that includes only a single record, as well as multiple records, are written to the extract data set specified in the default DD statement **CPAOXSYS**.

```
CICSPA CROSS(NOPRINT,WRITEM,WRITES)
```

Example 6:

The following command is an example of how to include user fields from the input data set in the output extract data set.

```
CICSPA CROSS(  
    COUNT(OWNER(USER),NUMBER(001),HEADER(MYCOUNT1)),  
    CHARACTER(OWNER(USER),LENGTH(40)))
```

Example 7:

It can be very useful to analyze the performance data from the Cross-System Work extract. This data can provide an insight into the total resources used by a transaction and shows information such as the accumulated dispatch, CPU, and wait times as well as the five user fields added by CICS PA.

Figure 228 on page 468 shows a Performance List report created from a Cross-System Work extract data set. To create a similar report, use the following command:

```
CICSPA LIST(FIELDS(TRAN,TASKNO,STOP(TIMES),RESPONSE,  
    DISPATCH,CPU,SUSPEND,DISPWAIT,  
    IRWAIT(COUNT),RMISUSP(COUNT),  
    COUNT(OWNER(CICSPA),NUMBER(1)),  
    COUNT(OWNER(CICSPA),NUMBER(2)),  
    COUNT(OWNER(CICSPA),NUMBER(3)),  
    COUNT(OWNER(CICSPA),NUMBER(4)),  
    COUNT(OWNER(CICSPA),NUMBER(5))))
```

LIST0001 Printed at 12:03:45 04/17/2013 Data from 11:20:53 2/04/2004 APPLID MULTIPLE PAGE 1

| Tran | TaskNo | Stop | Response | Dispatch | User | CPU | Suspend | DispWait | IRWait | RMIsusp | TotRecs | ApplRecs | TranRout | FuncShip | DplRecs |
|------|--------|----------|----------|----------|--------|---------|---------|----------|--------|---------|---------|----------|----------|----------|---------|
| | | Time | Time | Time | Time | Time | Time | Time | Count | Count | | | | | |
| ABRW | 157 | 11:20:53 | .0079 | .0058 | .0042 | .0062 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 160 | 11:20:54 | .0074 | .0051 | .0038 | .0063 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 161 | 11:20:55 | .0060 | .0040 | .0037 | .0059 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 162 | 11:20:56 | .0069 | .0047 | .0036 | .0063 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 163 | 11:20:59 | .0028 | .0027 | .0015 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| ABRW | 164 | 11:21:05 | .0146 | .0044 | .0036 | .0146 | .0000 | .0000 | 11 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 165 | 11:21:07 | .0014 | .0012 | .0010 | .0002 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| ABRW | 166 | 11:21:11 | .0062 | .0045 | .0034 | .0050 | .0000 | .0000 | 11 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 167 | 11:21:13 | .0053 | .0037 | .0034 | .0053 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 168 | 11:21:15 | .0073 | .0051 | .0038 | .0065 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 169 | 11:21:17 | .0124 | .0084 | .0048 | .0112 | .0001 | .0001 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 170 | 11:21:19 | .0085 | .0054 | .0040 | .0083 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 171 | 11:21:22 | .0069 | .0047 | .0037 | .0061 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 172 | 11:21:23 | .0065 | .0048 | .0037 | .0053 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 173 | 11:21:25 | .0067 | .0046 | .0041 | .0066 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 175 | 11:21:27 | .0097 | .0078 | .0043 | .0062 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 176 | 11:21:29 | .0085 | .0060 | .0041 | .0071 | .0001 | .0001 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 177 | 11:21:30 | .0071 | .0052 | .0040 | .0059 | .0000 | .0000 | 13 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 179 | 11:21:33 | .0061 | .0043 | .0034 | .0046 | .0000 | .0000 | 7 | 0 | 2 | 1 | 0 | 1 | 0 |
| ABRW | 180 | 11:21:35 | .0022 | .0021 | .0012 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| AUPD | 181 | 11:21:42 | .0041 | .0033 | .0024 | .0016 | .0000 | .0000 | 1 | 0 | 2 | 1 | 0 | 1 | 0 |
| AUPD | 182 | 11:21:45 | .0024 | .0023 | .0013 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| AADD | 183 | 11:21:51 | .0022 | .0022 | .0012 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| AADD | 184 | 11:21:58 | .0023 | .0022 | .0013 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 7INQ | 185 | 11:22:06 | .0034 | .0026 | .0019 | .0008 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| AINQ | 186 | 11:22:08 | .0012 | .0011 | .0010 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| AINQ | 187 | 11:22:14 | .0040 | .0035 | .0026 | .0014 | .0000 | .0000 | 1 | 0 | 2 | 1 | 0 | 1 | 0 |
| AMNU | 188 | 11:22:17 | .0027 | .0026 | .0012 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| VINQ | 189 | 11:22:25 | .0025 | .0024 | .0015 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| BINQ | 190 | 11:22:26 | .0027 | .0027 | .0015 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| BING | 191 | 11:22:28 | .0024 | .0023 | .0016 | .0001 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| CEMT | 193 | 11:22:38 | 2.7279 | .0150 | .0094 | 2.7129 | .0000 | .0000 | 0 | 0 | 4 | 4 | 0 | 0 | 0 |
| CEMT | 194 | 11:22:59 | 19.8433 | .0617 | .0466 | 19.7816 | .0002 | .0002 | 0 | 0 | 12 | 12 | 0 | 0 | 0 |
| CECI | 199 | 11:23:12 | 8.5587 | .4264 | .0720 | 8.1323 | .0206 | .0206 | 0 | 0 | 10 | 10 | 0 | 0 | 0 |
| CECI | 200 | 11:23:21 | 6.7952 | .0159 | .0061 | 6.7792 | .0001 | .0001 | 0 | 0 | 6 | 6 | 0 | 0 | 0 |
| CECI | 201 | 11:23:37 | 13.5524 | .2257 | .1508 | 13.3267 | .0007 | .0007 | 0 | 0 | 43 | 43 | 0 | 0 | 0 |
| CEDA | 202 | 11:24:05 | 13.1845 | 2.0588 | 1.3244 | 11.1257 | .0107 | .0107 | 0 | 0 | 73 | 73 | 0 | 0 | 0 |
| CESF | 271 | 11:32:58 | .0039 | .0037 | .0029 | .0002 | .0001 | .0001 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| CQRY | 122 | 11:15:48 | .2205 | .0040 | .0015 | .2165 | .0000 | .0000 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |

Figure 228. Example of a Performance List report from a Cross-System Work extract data set

Example 8:

Consider that when investigating a problem you know that a transaction had poor response time. You then want to investigate all the activity for units-of-work that involve this poor performing transaction. By specifying selection criteria using SELUOW, the Cross-System Work report can give you all transactions associated with the UOWs that the particular transaction was a part of.

In this example, SELECT is used to provide first-level pre-sort filtering of records. Then SELUOW provides second-level post-sort filtering of units-of-work.

```
CICSPA IN(SMFIN001),
LINECOUNT(58),
SELECT(PERFORMANCE(INCL(
TRAN(STOK,CSMI),
START(FROM(09:30),TO(09:45))))),
CROSS(PRINTM,NOWRITEM,
SELUOW(PERFORMANCE(INCL(
RESP(>0.5),
TRAN(STOK))))))
```

SELECT will pre-filter the performance records (tasks). Only tasks with a transaction ID of STOK or CSMI that started between 9:30 and 9:45 are included. Note that this first SELECT does not impact reporting. Its purpose is to exclude records you know will never be required for reporting, ensuring that the record sort process is optimized.

SELUOW will post-filter the UOWs. Entire UOWs are reported only when one of the tasks in the UOW has a transaction ID of STOK and a response time greater than 0.5 seconds.

TRANGROUP - Transaction Group report

The **TRANGROUP** operand requests the Transaction Group report.

The command format is:

```
CICSPA TRANGROUP(
    [OUTPUT(ddname),]
    [EXTERNAL(ddname),]
    [PRINTMULTIPLE,]
    [NOPRINTMULTIPLE,]
    [PRINTSINGLE,]
    [LINECount(nnn),]
    [TITLE1('...up to 64 characters...'),]
    [TITLE2('...up to 64 characters...'),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
        ...))])
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **TRGPnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

EXTERNAL

Specifies the DDname for the work data set used by the external SORT facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See “EXTERNAL” on page 385 for further information.

PRINTMULTIPLE

Print only the transaction performance records consisting of units-of-work that include multiple CMF records. This is the default condition when creating the report.

NOPRINTMULTIPLE

Do not print the transaction performance records consisting of units-of-work that include multiple CMF records.

PRINTSINGLE

Print the transaction performance records consisting of units-of-work that include only a single CMF record. To get a listing containing these records only, you must suppress the default PRINTMULTIPLE option by specifying NOPRINTMULTIPLE as well.

LINECOUNT

Controls the number of lines per page. See “LINECOUNT” on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See “TITLE1 and TITLE2” on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

TRANGROUP examples

Example 1: Default report (PRINTM only)

The default is to report task performance records contained in a transaction group that includes multiple CMF records.

CICSPA TRANGROUP

Example 2: All (both PRINTM and PRINTS)

This example shows how to generate a Transaction Group report containing all performance class records, both from transaction groups consisting of multiple CMF records and from transaction groups consisting of a single CMF record.

CICSPA TRANGROUP(PRINTM,PRINTS)

This creates a report like that shown in Figure 229.

```
V5R1M0                                CICS Performance Analyzer
                                       Transaction Group

TRGP0001 Printed at 12:03:45 04/17/2013 Data from 11:10:29 2/04/2005 to 11:33:51 2/04/2005           Page 41
```

| Tran | Userid | SC | Origin | Brdg | Client | Request | Program | Term | LUName | Fcty | Conn | R | Task | Stop Time | Response |
|------|---------|----|----------|------|-------------|---------|----------|------|--------|--------|------|----------|------|---------------|----------|
| | | | | Tran | IP Address | Type | | | | T/Name | Name | APPLID | T | | Time |
| SALE | BRENNER | U | SCHEDULE | | | AP: | DFH0SAL2 | | | | | IYK2Z1V3 | 268 | T 11:19:52.38 | .0399 |
| SALE | BRENNER | U | SCHEDULE | | | AP: | DFH0SAL2 | | | | | IYK2Z1V3 | 279 | T 11:19:57.58 | .0683 |
| REM1 | BRENNER | U | SCHEDULE | | | AP: | DFH0REM1 | | | | | IYK2Z1V3 | 281 | T 11:19:57.60 | .0231 |
| SALE | BRENNER | U | SCHEDULE | | | AP: | DFH0SAL2 | | | | | IYK2Z1V3 | 282 | T 11:19:57.64 | .0405 |
| STAT | CBAKER | TO | BRIDGE | CWBA | | AP: | DFH0STAT | CAAE | CAAE | B/CAAE | | IYK2Z1V3 | 292 | T 11:20:12.04 | 10.5089 |
| CWBA | CBAKER | U | WEB | | 9.20.30.232 | AP: | DFHWBTTA | | | | | IYK2Z1V3 | 291 | T 11:20:01.65 | .1188 |
| CWXN | CBAKER | U | SOCKET | | 9.20.30.232 | AP: | DFHWBXN | | | | | IYK2Z1V3 | 290 | T 11:20:01.54 | .0169 |
| SALE | BRENNER | U | SCHEDULE | | | AP: | DFH0SAL2 | | | | | IYK2Z1V3 | 293 | T 11:20:02.81 | .0568 |
| SALE | BRENNER | U | SCHEDULE | | | AP: | DFH0SAL2 | | | | | IYK2Z1V3 | 296 | T 11:20:04.33 | .1340 |
| SALE | BRENNER | U | SCHEDULE | | | AP: | DFH0SAL2 | | | | | IYK2Z1V3 | 297 | T 11:20:04.33 | .1326 |
| CWBA | CBAKER | U | WEB | | 9.20.30.232 | AP: | DFHWBTTA | | | | | IYK2Z1V3 | 299 | T 11:20:07.37 | 1.0015 |
| CWXN | CBAKER | U | SOCKET | | 9.20.30.232 | AP: | DFHWBXN | | | | | IYK2Z1V3 | 298 | T 11:20:06.38 | .3103 |
| CWBA | CBAKER | U | WEB | | 9.20.30.232 | AP: | DFHWBTTA | | | | | IYK2Z1V3 | 302 | T 11:20:12.04 | .0423 |
| CWXN | CBAKER | U | SOCKET | | 9.20.30.232 | AP: | DFHWBXN | | | | | IYK2Z1V3 | 301 | T 11:20:12.01 | .2331 |
| CZUX | CBAKER | QD | TDQUEUE | | | AP: | DFH0VZUX | | | D/CSZX | | IYK2Z1V3 | 304 | T 11:20:19.36 | .0078 |
| SALE | BRENNER | U | SCHEDULE | | | AP: | DFH0SAL2 | | | | | IYK2Z1V3 | 307 | T 11:20:20.34 | .7041 |
| SALE | BRENNER | U | SCHEDULE | | | AP: | DFH0SAL2 | | | | | IYK2Z1V3 | 308 | T 11:20:20.43 | .7920 |
| CWXN | CBAKER | U | SOCKET | | 9.20.30.232 | AP: | DFHWBXN | | | | | IYK2Z1V3 | 331 | T 11:34:12.76 | 782.697 |
| CEMT | CBAKER | TO | BRIDGE | CWBA | | AP: | DFHEMTP | CAAG | CAAG | B/CAAG | | IYK2Z1V3 | 354 | T 11:21:55.38 | 13.3797 |
| CWBA | CBAKER | U | WEB | | 9.20.30.232 | AP: | DFHWBTTA | | | | | IYK2Z1V3 | 353 | T 11:21:42.10 | .0986 |
| CWBA | CBAKER | U | WEB | | 9.20.30.232 | AP: | DFHWBTTA | | | | | IYK2Z1V3 | 332 | T 11:21:10.12 | .0529 |
| CWXN | CBAKER | U | SOCKET | | 9.20.30.232 | AP: | DFHWBXN | | | | | IYK2Z1V3 | 333 | T 11:25:52.65 | 282.577 |
| CWBA | CBAKER | U | WEB | | 9.20.30.232 | AP: | DFHWBTTA | | | | | IYK2Z1V3 | 351 | T 11:21:32.85 | .0378 |
| CWBA | CBAKER | U | WEB | | 9.20.30.232 | AP: | DFHWBTTA | | | | | IYK2Z1V3 | 334 | T 11:21:10.12 | .0485 |
| CZUX | CBAKER | QD | TDQUEUE | | | AP: | DFH0VZUX | | | D/CSZX | | IYK2Z1V3 | 340 | T 11:21:19.48 | .0240 |
| CITS | CBAKER | U | NONE | | | AP: | DFHZATS | | | | | IYK2Z1V3 | 350 | T 11:21:31.67 | .0063 |

Figure 229. Transaction Group report (using PRINTS,PRINTM)

BTS - BTS report

The **BTS** operand requests the CICS Business Transaction Services report.

The command format is:

```
CICSPA BTS(  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [LINECount(nnn),]  
    [TITLE1('...up to 64 characters...'),]  
    [TITLE2('...up to 64 characters...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **CBTSnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

EXTERNAL

Specifies the DDname for the work data set used by the external SORT facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See “EXTERNAL” on page 385 for further information.

LINECOUNT

Controls the number of lines per page. See “LINECOUNT” on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See “TITLE1 and TITLE2” on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See “Using SELECT statements” on page 516 for a detailed explanation and examples.

BTS examples

Example 1: Default report

```
CICSPA BTS
```

| Tran | SC | TranType | Process Name | Process Type | Activity Name | Pro/Act Reqs | Cont'er Reqs | Event Reqs | Task | R T | Stop Time | Response Time |
|------|----|----------|---------------|--------------|---------------|--------------|--------------|------------|------|-----|-------------|---------------|
| SAL1 | TP | U | | | | 2 | 2 | 0 | 146 | T | 11:17:04.85 | .6881 |
| PAY1 | TP | U | | | | 2 | 0 | 0 | 160 | T | 11:17:12.21 | .2010 |
| SAL1 | TP | U | | | | 2 | 2 | 0 | 174 | T | 11:17:53.63 | .1657 |
| PAY1 | TP | U | | | | 2 | 0 | 0 | 197 | T | 11:18:14.42 | .0861 |
| SAL1 | TP | U | | | | 2 | 2 | 0 | 211 | T | 11:18:47.27 | .1222 |
| SAL1 | TP | U | | | | 2 | 2 | 0 | 239 | T | 11:19:40.33 | .1835 |
| PAY1 | TP | U | | | | 2 | 0 | 0 | 294 | T | 11:20:04.20 | .1390 |
| PAY1 | TP | U | | | | 2 | 0 | 0 | 305 | T | 11:20:19.64 | .0747 |
| RED1 | U | U | R SALES111111 | ORDER | CREDIT-CHECK | 0 | 2 | 1 | 176 | T | 11:17:54.05 | .5333 |
| STOC | U | U | R SALES111111 | ORDER | STOCK-CHECK | 0 | 2 | 1 | 177 | T | 11:17:54.05 | .5145 |
| SALE | U | U | R SALES111111 | ORDER | DFHROOT | 10 | 5 | 4 | 175 | T | 11:17:54.05 | .5675 |
| INV1 | U | U | SALES111111 | ORDER | INVOICE-BUILD | 0 | 1 | 1 | 178 | T | 11:17:54.09 | .0359 |
| DEL1 | U | U | SALES111111 | ORDER | DELIV-NOTE | 0 | 1 | 1 | 179 | T | 11:17:55.29 | 1.2323 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 0 | 0 | 0 | 180 | T | 11:17:55.31 | 1.2198 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 1 | 3 | 2 | 183 | T | 11:17:55.37 | .0800 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 1 | 3 | 5 | 184 | T | 11:17:55.42 | .0519 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 2 | 2 | 1 | 186 | T | 11:18:00.65 | .0566 |
| REM1 | U | U | SALES111111 | ORDER | SEND-REMINDER | 0 | 1 | 1 | 187 | T | 11:18:00.68 | .0243 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 1 | 0 | 3 | 188 | T | 11:18:00.72 | .0389 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 2 | 2 | 1 | 191 | T | 11:18:05.92 | .0826 |
| REM1 | U | U | SALES111111 | ORDER | SEND-REMINDER | 0 | 1 | 1 | 192 | T | 11:18:05.96 | .0367 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 1 | 0 | 3 | 193 | T | 11:18:06.04 | .0824 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 2 | 2 | 1 | 194 | T | 11:18:11.13 | .0463 |
| REM1 | U | U | SALES111111 | ORDER | SEND-REMINDER | 0 | 1 | 1 | 195 | T | 11:18:11.16 | .0282 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 1 | 0 | 3 | 196 | T | 11:18:11.20 | .0437 |
| SALE | U | U | R SALES111111 | ORDER | DFHROOT | 0 | 1 | 3 | 198 | T | 11:18:14.42 | .0821 |
| SALE | U | U | SALES111111 | ORDER | DFHROOT | 0 | 0 | 0 | 199 | T | 11:18:15.03 | .6101 |

Figure 230. BTS report

WORKLOAD - Workload Activity report

The **WORKLOAD** or **WLM** operand requests the Workload Activity report.

The command format is:

```
CICSPA WORKLOAD(
    [OUTPUT(ddname),]
    [EXTERNAL(ddname),]
    [SUMMARY[(EXE)],]
    [LIST,]
    [PEAK(percentile),]
    TASKORDER(START|STOP)
    [LINECount(nnn),]
    [TITLE1('...up to 64 characters...'),]
    [TITLE2('...up to 64 characters...'),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
        ...))])
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **WKLDnnnn** where **nnnn** is the report sequence number **0001-9999**. See "OUTPUT" on page 384 for further information.

EXTERNAL

Specifies the DDname for the work data set used by the external sort facility. If not specified, CICS PA assigns an External Work File from a pool

of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See “EXTERNAL” on page 385 for further information.

An external sort is not required when only a summary report of BTE transactions is requested.

SUMMARY

Requests the Workload Manager Activity Summary report.

Specify **EXE** to summarize transactions in both EXE (execution) Y and BTE (begin-to-end) phases, otherwise only BTE transactions are listed.

LIST Requests the Workload Manager Activity List report, a detailed list of BTE, EXE Y and EXE N transaction activity.

PEAK(percentile)

Applies to transaction response times in the Workload Activity Summary report and is useful for monitoring service levels. Specify a number between 50 and 100 to report the response time within which that percentage of transactions completed. Computations assume a normal distribution. For example, specify 95 to determine the response time that 95% of transactions completed within. The default is **90**.

TASKORDER(START|STOP)

In the Workload Manager Activity List report, sorts tasks within each UOW in either descending order of stop time (the default) or ascending order of start time.

LINECOUNT

Controls the number of lines per page. See “LINECount” on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See “TITLE1 and TITLE2” on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See “Using SELECT statements” on page 516 for a detailed explanation and examples.

WORKLOAD examples

Example 1: Default report

This is the Summary report showing BTE work only.

```
CICSPA WORKLOAD
```

The following command achieves the same:

```
CICSPA WORKLOAD(SUMMARY)
```

Example 2: Both BTE and EXE transactions

This example produces a Summary report showing both BTE and EXE transactions like that shown in Figure 231 on page 474.

```
CICSPA WORKLOAD(SUMMARY(EXE)
```

V5R1M0

CICS Performance Analyzer
Workload Manager Activity Summary by Service Class

WKLD0001 Printed at 12:03:45 04/17/2013 Data from 15:47:53 6/01/2004 to 15:58:53 6/01/2004 Page 1

| Service Class | APPLID | Phase | #Tasks | Response Time | | | |
|-----------------|----------|-------|--------|---------------|---------|----------|---------|
| | | | | Average | Std Dev | 90% Peak | Maximum |
| FINSCLAS | CICPTOR1 | BTE | 176 | .5665 | .4369 | .8753 | 1.3745 |
| | CICPAOR1 | EXE | 169 | .5239 | .4564 | .8280 | 1.1684 |
| STOSCLAS | CICPTOR1 | BTE | 2123 | .9265 | .3981 | 1.2675 | 2.0246 |
| | CICPAOR1 | EXE | 2078 | .8639 | .3627 | 1.1927 | 1.8327 |
| QUIKSERV | CICPAOR1 | BTE | 5476 | .3846 | .1976 | .4673 | .6571 |
| LONGSERV | CICPAOR1 | BTE | 1958 | 1.5861 | .8392 | 2.2179 | 5.5094 |
| * Grand Total * | * | BTE | 9733 | .6853 | .4812 | 1.3718 | 2.0246 |
| * Grand Total * | * | EXE | 2247 | .8047 | .3927 | 0.9201 | 5.5094 |

V5R1M0

CICS Performance Analyzer
Workload Manager Activity Summary by Report Class

WKLD0001 Printed at 12:03:45 04/17/2013 Data from 15:47:53 6/01/2004 to 15:58:53 6/01/2004 Page 2

| Report Class | APPLID | Phase | #Tasks | Response Time | | | |
|-----------------|----------|-------|--------|---------------|---------|----------|---------|
| | | | | Average | Std Dev | 90% Peak | Maximum |
| FINSCLAS | CICPTOR1 | BTE | 176 | .5665 | .4369 | .8753 | 1.3745 |
| | CICPAOR1 | EXE | 169 | .5239 | .4564 | .8280 | 1.1684 |
| STOSCLAS | CICPTOR1 | BTE | 2123 | .9265 | .3981 | 1.2675 | 2.0246 |
| | CICPAOR1 | EXE | 2078 | .8639 | .3627 | 1.1927 | 1.8327 |
| QUIKSERV | CICPAOR1 | BTE | 5476 | .3846 | .1976 | .4673 | .6571 |
| LONGSERV | CICPAOR1 | BTE | 1958 | 1.5861 | .8392 | 2.2179 | 5.5094 |
| * Grand Total * | * | BTE | 9733 | .6853 | .4812 | 1.3718 | 2.0246 |
| * Grand Total * | * | EXE | 2247 | .8047 | .3927 | 0.9201 | 5.5094 |

Figure 231. Workload Activity report (Summary report)

Example 3: Workload List report only

This example produces only the List report (not the Summary) like that shown in Figure 232.

CICSPA WORKLOAD(LIST)

V5R1M0

CICS Performance Analyzer
Workload Manager Activity List

WKLD0001 Printed at 12:03:45 04/17/2013 Data from 15:47:53 2/01/2005 to 15:58:53 2/01/2005 Page 1

| Tran | Userid | SC | TranType | Term | LUName | Request Type | Program | Fcty T/Name | Conn Name | Service Class | Report Class | APPLID | Task | T | P | C | Stop Time | Response A Time | B |
|------|---------|----|----------|------|----------|--------------|---------|-------------|-----------|---------------|--------------|----------|------|---|-----|---|-------------|-----------------|---|
| FINA | STEVEP | TP | | <AAK | CICPTOR1 | AP: | FINANCE | S/0005 | 53T1 | FINSCLAS | FINRCLAS | CICPAOR1 | 44 | T | EXE | Y | 15:57:53.92 | .5239 | |
| FINS | STEVEP | TP | | 0005 | TCP00005 | TR:AOR1 | | T/0005 | | FINSCLAS | FINRCLAS | CICPTOR1 | 73 | T | BTE | | 15:57:53.93 | .5612 | |
| STOA | SHIRLEY | TP | | <AAK | CICPTOR1 | AP: | STOCK | S/0006 | 53T1 | STOSCLAS | STORCLAS | CICPAOR1 | 46 | T | EXE | Y | 15:57:54.01 | .8574 | |
| STOS | SHIRLEY | TP | | 0006 | TCP00006 | TR:AOR1 | | T/0006 | | STOSCLAS | STORCLAS | CICPTOR1 | 78 | T | BTE | | 15:57:54.02 | .9123 | |
| ORDQ | SYLVIA | TO | | 0011 | TCP00011 | AP: | ORDRINQ | T/0011 | | QUIKSERV | QUIKSERV | CICPAOR1 | 79 | T | BTE | | 15:57:55.12 | .3762 | |
| ORDQ | JOHNX | TO | | 0012 | TCP00012 | AP: | ORDRINQ | T/0012 | | QUIKSERV | QUIKSERV | CICPAOR1 | 82 | T | BTE | | 15:50:55.23 | .4321 | |
| ORDU | SYLVIA | TO | | 0011 | TCP00011 | AP: | ORDRUPD | T/0011 | | LONGSERV | LONGSERV | CICPAOR1 | 98 | T | BTE | | 15:54:56.13 | 1.4581 | |
| ORDU | JOHNX | TO | | 0012 | TCP00012 | AP: | ORDRUPD | T/0012 | | LONGSERV | LONGSERV | CICPAOR1 | 109 | T | BTE | | 15:58:56.17 | 1.2394 | |

Figure 232. Workload Activity report (List report)

TRACKINGLIST - Transaction Tracking List report

The **TRACKINGLIST** operand requests the Transaction Tracking List report. This report combines CMF records for each originating transaction and its subordinate (group) transactions. Group transactions are identified by sharing the same transaction group ID with other transactions or by having a PHCOUNT > 0.

The command format is:

```

CICSPA TRACKINGLIST(
    [OUTPUT(ddname),]
    [EXTERNAL(ddname),]
    [OFIELDS(field1[(options)],...),]
    [GFIELDS(field1[(options)],...),]
    [PRINTMULTIPLE|NOPRINTMULTIPLE,]
    [PRINTSINGLE|NOPRINTSINGLE,]
    [LINECount(nnn),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
    [SELGRP(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
    [TITLE1('...up to 64 characters...'),]
    [TITLE2('...up to 64 characters...'),])

```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **TTLsnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

EXTERNAL

Specifies the DDname for the work data set used by the external SORT facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See “EXTERNAL” on page 385 for further information.

PRINTMULTIPLE

Print only group transactions. This is the default condition when creating the report.

NOPRINTMULTIPLE

Do not print group transactions.

PRINTSINGLE

Print only transactions that do not belong to a group.

NOPRINTSINGLE

Do not print transactions that do not belong to a group.

LINECOUNT

Controls the number of lines per page. See “LINECOUNT” on page 386 for further information.

OFIELDS

Specifies which fields are included in the origin section of the report and their format.

If the OFIELDS operand is not specified, the default is:

```

CICSPA TRACKINGLIST(OFIELDS(OTRAN,   Originating Transaction ID
                                OUSERID,   Originating User ID
                                OAPPLID,   Originating CICS Application ID
                                OTASKNO,   Originating Transaction number
                                OSTART(TIMET), Originating Task Start time
                                OORIGIN,   Originating Transaction Origin type
                                OFCTY,     Originating Transaction Facility name
                                OTCPSRVC,  Originating TCP/IP Service name
                                OCLI6ADR,   Originating Client or Telnet IP address
                                OCLIPT))   Originating Client IP port number

```

GFIELDS

Specifies which fields are included in the group section of the report and their format.

If the GFIELDS operand is not specified, the default is:

| | |
|-----------------------------------|-----------------------------|
| CICSPA TRACKINGLIST(GFIELDS(TRAN, | Transaction ID |
| USERID, | User ID |
| APPLID, | CICS Application ID |
| TASKNO, | Transaction number |
| START(TIMET), | Task Start time |
| RTYPE, | Record type |
| ORIGIN, | Transaction origin |
| RESPONSE, | Response time |
| CPU, | User CPU |
| PHTRAN, | Previous Hop transaction ID |
| PHTASKNO, | Previous Hop task number |
| PHAPPLID, | Previous Hop application ID |
| PHSTART, | Previous Hop start time |
| PHCOUNT)) | Previous Hop count |

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what records to include or exclude from report processing based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

SELGRP(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what records and groups to include or exclude after report processing based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

This set of selection criteria is applied as a post-processing step. This is a second level of filtering that determines which Groups are to be included in the report. Only when all of the records in the Group fail this set of selection criteria will the whole group and its associated Origin record be excluded from the report.

Note: The combination of PRINTMULTIPLE and PRINTSINGLE results in a report containing all transactions. Conversely, specifying NOPRINTMULTIPLE and NOPRINTSINGLE results in an empty report.

TRACKINGLIST examples

Example 1:

```
CICSPA IN(SMFIN001),
NOAPPLID,
LINECNT(60),
FORMAT(':', '/'),
PRECISION(4),
TRACKINGLIST(OUTPUT(TTLS0001),
EXTERNAL(CPAXW001),
PRINTMULTIPLE,NOPRINTSINGLE)
```

| TTLS0001 Printed at 12:03:45 04/17/2013 Data from 17:07:03 3/07/2011 Page 9 | | | | | | | | | | | | | | |
|---|---------|----------|---------|--------------|---------|--------|---------------|---------------|--------|----------|----------|--------------|----------|---------------|
| OTran | OUserid | OAPPLID | OTaskNo | OStart Time | OOrigin | OFcty | OTCPIPSr | OC1i6Adr | | | | | OCLIPORT | |
| PS3 | JOHNB | IYCUZC03 | 418 | 16:25:34.939 | TERM | 2318 | | | | | | | 0 | |
| Tran | Userid | APPLID | TaskNo | Start Time | RTyp | Origin | Response Time | User CPU Time | PHTran | PHTaskNo | PHAPPLID | PHStart Time | PHCount | PHLatncy Time |
| PS3 | JOHNB | IYCUZC03 | 418 | 16:25:34.939 | T | TERM | .0048 | .0001 | | 0 | | 16:25:34.939 | 0 | .0000 |
| PS3 | JOHNB | IYCUZC01 | 97486 | 16:25:34.941 | T | MRO | .0029 | .0007 | PS3 | 418 | IYCUZC03 | 16:25:34.939 | 1 | .0019 |
| CSM1 | JOHNB | IYCUZC07 | 2966 | 16:25:34.941 | T | MRO | .0027 | .0004 | PS3 | 97486 | IYCUZC01 | 16:25:34.941 | 2 | .0001 |
| ----- | | | | | | | | | | | | | | |
| OTran | OUserid | OAPPLID | OTaskNo | OStart Time | OOrigin | OFcty | OTCPIPSr | OC1i6Adr | | | | | OCLIPORT | |
| PX3 | JOHNB | IYCUZC03 | 419 | 16:25:34.939 | TERM | 2930 | | | | | | | 0 | |
| Tran | Userid | APPLID | TaskNo | Start Time | RTyp | Origin | Response Time | User CPU Time | PHTran | PHTaskNo | PHAPPLID | PHStart Time | PHCount | PHLatncy Time |
| PX3 | JOHNB | IYCUZC03 | 419 | 16:25:34.939 | T | TERM | .0052 | .0001 | | 0 | | 16:25:34.939 | 0 | .0000 |
| PX3 | JOHNB | IYCUZC01 | 97487 | 16:25:34.941 | T | MRO | .0032 | .0008 | PX3 | 419 | IYCUZC03 | 16:25:34.939 | 1 | .0019 |
| CSM1 | JOHNB | IYCUZC07 | 2967 | 16:25:34.941 | T | MRO | .0028 | .0004 | PX3 | 97487 | IYCUZC01 | 16:25:34.941 | 2 | .0003 |
| ----- | | | | | | | | | | | | | | |
| OTran | OUserid | OAPPLID | OTaskNo | OStart Time | OOrigin | OFcty | OTCPIPSr | OC1i6Adr | | | | | OCLIPORT | |
| HR2 | JOHNB | IYCUZC04 | 99073 | 16:25:34.949 | TERM | 1865 | | | | | | | 0 | |
| Tran | Userid | APPLID | TaskNo | Start Time | RTyp | Origin | Response Time | User CPU Time | PHTran | PHTaskNo | PHAPPLID | PHStart Time | PHCount | PHLatncy Time |
| CSM1 | JOHNB | IYCUZC07 | 2969 | 16:25:34.950 | T | MRO | .0104 | .0002 | HR2 | 96253 | IYCUZC02 | 16:25:34.950 | 2 | .0003 |
| ----- | | | | | | | | | | | | | | |
| OTran | OUserid | OAPPLID | OTaskNo | OStart Time | OOrigin | OFcty | OTCPIPSr | OC1i6Adr | | | | | OCLIPORT | |
| PA2 | JOHNB | IYCUZC03 | 420 | 16:25:34.949 | TERM | 2646 | | | | | | | 0 | |
| Tran | Userid | APPLID | TaskNo | Start Time | RTyp | Origin | Response Time | User CPU Time | PHTran | PHTaskNo | PHAPPLID | PHStart Time | PHCount | PHLatncy Time |
| PA2 | JOHNB | IYCUZC03 | 420 | 16:25:34.949 | T | TERM | .0019 | .0001 | | 0 | | 16:25:34.949 | 0 | .0000 |
| PA2 | JOHNB | IYCUZC01 | 97488 | 16:25:34.950 | T | MRO | .0010 | .0002 | PA2 | 420 | IYCUZC03 | 16:25:34.949 | 1 | .0008 |

Figure 233. Transaction Tracking List report

TRACKINGSUMMARY - Transaction Tracking Summary report

The **TRACKINGSUMMARY** operand requests the Transaction Tracking Summary report. The report combines CMF records for each originating transaction and its subordinate (group) transactions. Group transactions are identified by sharing the same transaction group ID with other transactions or by having a PHCOUNT > 0.

The command format is:

```
CICSPA TRACKINGSUMMARY(
    [OUTPUT(ddname),]
    [EXTERNAL(ddname),]
    [PRINTMULTIPLE|NOPRINTMULTIPLE,]
    [PRINTSINGLE|NOPRINTSINGLE,]
    [LINECount(nnn),]
    [FIELDS(field1[(options)],...),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...),)]
    [SELGRP(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...),)]
    [TITLE1('...up to 64 characters...'),]
    [TITLE2('...up to 64 characters...'),])
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **TTSUnnnn** where nnnn is the report sequence number **0001-9999**. See "OUTPUT" on page 384 for further information.

EXTERNAL

Specifies the DDname for the work data set used by the external SORT facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See "EXTERNAL" on page 385 for further information.

PRINTMULTIPLE

Print only group transactions. This is the default condition when creating the report.

NOPRINTMULTIPLE

Do not print group transactions.

PRINTSINGLE

Print only transactions that do not belong to a group.

NOPRINTSINGLE

Do not print transactions that do not belong to a group.

LINECOUNT

Controls the number of lines per page. See "LINECount" on page 386 for further information.

FIELDS

Specifies which fields are included in the report or extract, their order, and format. If the FIELDS operand is not specified, the default is:

```
CICSPA TRACKINGSUMMARY(FIELDS(
    PHAPPLID,      Previous Hop application ID
    PHTRAN,        Previous Hop transaction ID
    PHCOUNT,      Previous Hop count
    APPLID,        CICS Application ID
    TRAN,          Transaction ID
    TASKCNT,       Task count
    Avg Response,  Average Response time
    Max Response,  Maximum Response time
    Avg Dispatch,  Average Dispatch time
    Avg CPU,       Average CPU time
    Avg Suspend,   Average Suspend time
    Max Suspend,   Maximum Suspend time
    Avg DispWait,  Average Dispatch Wait time
    Avg FCWAIT,    Average File I/O Wait time
    Avg FCAMCT,    Average File Access Method requests
    Avg IRWAIT,    Average MRO link wait time
    Avg SC24UHWM,  Average UDSA HWM below 16MB
    Avg SC31UHWM)) Average EUDSA HWM above 16MB
```

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what records to include or exclude from report processing based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

SELGRP(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what records and groups to include or exclude after report processing based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

This set of selection criteria is applied as a post-processing step. This is a second level of filtering that determines which Groups are to be included

in the report. Only when all of the records in the Group fail this set of selection criteria will the whole group and its associated Origin record be excluded from the report.

Note: The combination of PRINTMULTIPLE and PRINTSINGLE results in a report containing all transactions. Conversely, specifying NOPRINTMULTIPLE and NOPRINTSINGLE results in an empty report.

TRACKINGSUMMARY examples

Example 1:

```
CICSPA IN(SMFIN001),
      NOAPPLID,
      LINECNT(60),
      FORMAT(':', '/'),
      PRECISION(4),
TRACKINGSUMMARY(OUTPUT(TTSU0001),
      EXTERNAL(CPAXW001),
      PRINTMULTIPLE, PRINTSINGLE,
      FIELDS(PHAPPLID,
      PHTRAN,
      PHCOUNT,
      APPLID,
      TRAN))
```

V5R1M0

CICS Performance Analyzer
Performance Transaction Tracking Summary

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| PHAPPLID | PHTran | PHCount | APPLID | Tran | Hop% | #Tasks | Avg Response Time | Max Response Time | Avg Dispatch Time | Avg User Time | Avg CPU | Avg Suspend Time | Max Suspend Time | Avg DispWait Time | Avg FC Wait Time | Avg FCAMRq Count | Avg IR Wait Time | Avg SC24UHM Count | Avg SC31UHM Count |
|----------|--------|---------|----------|------|------|--------|-------------------|-------------------|-------------------|---------------|---------|------------------|------------------|-------------------|------------------|------------------|------------------|-------------------|-------------------|
| IYUCZC03 | /FOR | 0 | IYUCZC03 | /FOR | 100 | 17175 | .0016 | .0529 | .0003 | .0001 | .0013 | .0526 | .0002 | .0000 | .0000 | 0 | .0010 | 0 | 63280 |
| | | 1 | IYUCZC01 | /FOR | | 17175 | .0004 | .0164 | .0001 | .0001 | .0003 | .0164 | .0000 | | | 0 | .0000 | 0 | |
| | | 0 | IYUCZC03 | CSPG | | 1449 | .0007 | .0142 | .0003 | .0001 | .0005 | .0139 | .0002 | .0000 | 0 | .0000 | 0 | 0 | |
| | | 0 | IYUCZC03 | DE1 | | 958 | .0136 | .0525 | .0002 | .0001 | .0134 | .0523 | .0002 | .0000 | 0 | .0130 | 0 | 0 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE1 | 100 | 958 | .0123 | .0517 | .0004 | .0003 | .0120 | .0513 | .0002 | .0000 | 0 | .0110 | 0 | 167440 | |
| IYUCZC01 | DE1 | 2 | IYUCZC07 | CSMI | 100 | 958 | .0114 | .0504 | .0002 | .0002 | .0113 | .0502 | .0004 | .0008 | 3 | .0010 | 0 | 23 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE20 | 9 | 92 | .0088 | .0284 | .0005 | .0005 | .0083 | .0278 | .0001 | .0000 | 0 | .0070 | 0 | 409248 | |
| IYUCZC01 | DE20 | 2 | IYUCZC07 | CSMI | 9 | 92 | .0083 | .0264 | .0002 | .0002 | .0081 | .0262 | .0002 | .0010 | 13 | .0018 | 0 | 0 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE21 | 10 | 104 | .0090 | .0288 | .0005 | .0005 | .0085 | .0282 | .0001 | .0000 | 0 | .0073 | 0 | 409248 | |
| IYUCZC01 | DE21 | 2 | IYUCZC07 | CSMI | 10 | 104 | .0085 | .0286 | .0003 | .0002 | .0083 | .0282 | .0003 | .0011 | 13 | .0018 | 0 | 1 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE22 | 9 | 95 | .0077 | .0341 | .0005 | .0005 | .0072 | .0335 | .0001 | .0000 | 0 | .0059 | 0 | 409248 | |
| IYUCZC01 | DE22 | 2 | IYUCZC07 | CSMI | 9 | 95 | .0071 | .0329 | .0002 | .0002 | .0069 | .0325 | .0002 | .0009 | 13 | .0017 | 0 | 1 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE23 | 10 | 105 | .0092 | .0464 | .0005 | .0005 | .0087 | .0459 | .0002 | .0000 | 0 | .0070 | 0 | 409248 | |
| IYUCZC01 | DE23 | 2 | IYUCZC07 | CSMI | 10 | 105 | .0086 | .0462 | .0003 | .0002 | .0084 | .0459 | .0002 | .0009 | 13 | .0021 | 0 | 0 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE24 | 9 | 89 | .0077 | .0282 | .0005 | .0005 | .0072 | .0276 | .0001 | .0000 | 0 | .0059 | 0 | 409248 | |
| IYUCZC01 | DE24 | 2 | IYUCZC07 | CSMI | 9 | 89 | .0073 | .0279 | .0002 | .0002 | .0070 | .0276 | .0002 | .0008 | 13 | .0019 | 0 | 0 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE25 | 9 | 94 | .0098 | .0269 | .0005 | .0005 | .0093 | .0263 | .0002 | .0000 | 0 | .0080 | 0 | 409248 | |
| IYUCZC01 | DE25 | 2 | IYUCZC07 | CSMI | 9 | 94 | .0093 | .0266 | .0003 | .0002 | .0090 | .0263 | .0003 | .0012 | 13 | .0018 | 0 | 1 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE26 | 8 | 83 | .0081 | .0307 | .0005 | .0005 | .0076 | .0302 | .0001 | .0000 | 0 | .0065 | 0 | 409248 | |
| IYUCZC01 | DE26 | 2 | IYUCZC07 | CSMI | 8 | 83 | .0077 | .0302 | .0002 | .0002 | .0075 | .0299 | .0002 | .0010 | 13 | .0017 | 0 | 0 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE27 | 10 | 103 | .0084 | .0293 | .0005 | .0005 | .0079 | .0288 | .0002 | .0000 | 0 | .0066 | 0 | 409248 | |
| IYUCZC01 | DE27 | 2 | IYUCZC07 | CSMI | 10 | 103 | .0079 | .0290 | .0002 | .0002 | .0076 | .0288 | .0002 | .0009 | 13 | .0020 | 0 | 0 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE28 | 10 | 101 | .0082 | .0333 | .0005 | .0005 | .0077 | .0326 | .0001 | .0000 | 0 | .0066 | 0 | 409248 | |
| IYUCZC01 | DE28 | 2 | IYUCZC07 | CSMI | 10 | 101 | .0077 | .0324 | .0002 | .0002 | .0075 | .0319 | .0002 | .0008 | 13 | .0017 | 0 | 1 | |
| IYUCZC03 | DE1 | 1 | IYUCZC01 | DE29 | 9 | 93 | .0080 | .0296 | .0005 | .0005 | .0075 | .0291 | .0001 | .0000 | 0 | .0064 | 0 | 409248 | |
| IYUCZC01 | DE29 | 2 | IYUCZC07 | CSMI | 9 | 93 | .0076 | .0292 | .0002 | .0002 | .0073 | .0289 | .0002 | .0009 | 13 | .0017 | 0 | 0 | |
| | | 0 | IYUCZC03 | HR2 | | 357 | .0071 | .0234 | .0002 | .0001 | .0068 | .0229 | .0002 | .0000 | 0 | .0066 | 0 | 0 | |
| IYUCZC03 | HR2 | 1 | IYUCZC01 | HR2 | 100 | 357 | .0061 | .0224 | .0003 | .0003 | .0057 | .0221 | .0001 | .0000 | 0 | .0056 | 0 | 132896 | |
| IYUCZC01 | HR2 | 2 | IYUCZC07 | CSMI | 100 | 357 | .0054 | .0211 | .0001 | .0001 | .0052 | .0210 | .0002 | .0005 | 4 | .0003 | 0 | 4 | |

Figure 234. Transaction Tracking Summary report

LISTEXC - Exception List report

The LISTEXC operand requests the Exception List report.

The command format is:

```
CICSPA LISTEXC(
      [OUTPUT(ddname),]
      [LINECount(nnn),])
```

```
[TITLE1('...up to 64 characters...'),]
[TITLE2('...up to 64 characters...'),]
[SELECT(EXCEPTION(INCLUDE|EXCLUDE(field1(values1),...),
...)))]
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **XLSTnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

LINECOUNT

Controls the number of lines per page. See “LINECount” on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See “TITLE1 and TITLE2” on page 386 for further information.

SELECT(EXCEPTION(INCLUDE|EXCLUDE

Specifies what CMF exception data to include or exclude from the report based on data field values. See “Using SELECT statements” on page 516 for a detailed explanation and examples.

LISTEXC examples

Example 1: Default report

```
CICSPA LISTEXC
```

Example 2: Exceptions for a particular transaction

In this example, the report only contains exception records for transaction ROLE.

```
CICSPA LISTEXC(SELECT(EXCEPTION(INCLUDE(TRAN(ROLE))))))
```

Example 3: Exceptions for a specified report interval

This example lists the exception data for January 16, 2005.

```
CICSPA IN(SMFIN001),
LISTEXC(SELECT(EXCEPTION(
INCLUDE(ACTIVE(FROM(2005/01/16,),TO(2005/01/17,))))))
```

Example 4: Particular types of exception

You can use SELECT to report only those exception records for transactions that incurred a particular type of CICS resource shortage. For example, the following command generates an Exception List report of only the exception class records for transactions that incurred a storage wait in either the CDSA or ECDSA.

```
CICSPA IN(SMFIN002),
LISTEXC(SELECT(EXCEPTION(
INCLUDE(STORAGEW(CDSA,ECDSA))))))
```

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| Tran | Term | LUName | Userid | Tran SC Class | Service Class | Report Class | Exp Taskno | Time Seq | Time Start | Elapsed | Current Program | Resource Type | Resource ID | Exception Type |
|------|------|----------|---------|------------------|------------------|-----------------|---------------|-------------|---------------|---------|--------------------|------------------|----------------|-------------------|
| ABRW | P045 | IG2ZP045 | CBAKER | TP | | | 834 | 1 | 08:08:37 | 10.189 | DFHSABRW | FILE | FILEA | STRING |
| ABRW | S205 | IGCS205 | BRENNER | TP | | | 835 | 1 | 08:08:47 | 7.245 | DFHSABRW | FILE | FILEA | STRING |
| ABRW | S220 | IGCS220 | BRENNER | TP | | | 837 | 1 | 08:08:52 | 2.996 | DFHSABRW | FILE | FILEA | STRING |
| CECI | S220 | IGCS220 | BRENNER | TO | | | 1151 | 1 | 08:12:10 | .005 | DFHECID | TEMPSTOR | CACA | BUFFER |
| CECI | S220 | IGCS220 | BRENNER | TO | | | 1151 | 2 | 08:12:10 | .002 | DFHECID | TEMPSTOR | CACA | BUFFER |
| CECI | S220 | IGCS220 | BRENNER | TO | | | 1151 | 3 | 08:12:10 | .002 | DFHECID | TEMPSTOR | CACA | BUFFER |
| CECI | P045 | IG2ZP045 | CBAKER | TO | | | 1149 | 1 | 08:12:10 | .004 | DFHECID | TEMPSTOR | LONGTSNAME | BUFFER |
| CECI | P045 | IG2ZP045 | CBAKER | TO | | | 1149 | 2 | 08:12:10 | .004 | DFHECID | TEMPSTOR | LONGTSNAME | BUFFER |
| CECI | P045 | IG2ZP045 | CBAKER | TO | | | 1149 | 3 | 08:12:10 | .002 | DFHECID | TEMPSTOR | LONGTSNAME | BUFFER |
| CECI | P045 | IG2ZP045 | CBAKER | TO | | | 1149 | 4 | 08:12:10 | .004 | DFHECID | TEMPSTOR | LONGTSNAME | BUFFER |
| CECI | P045 | IG2ZP045 | CBAKER | TO | | | 1149 | 5 | 08:12:10 | .004 | DFHECID | TEMPSTOR | LONGTSNAME | BUFFER |
| CECI | P045 | IG2ZP045 | CBAKER | TO | | | 1149 | 6 | 08:12:10 | .004 | DFHECID | TEMPSTOR | LONGTSNAME | BUFFER |
| CECI | P045 | IG2ZP045 | CBAKER | TO | | | 1149 | 7 | 08:12:10 | .002 | DFHECID | TEMPSTOR | LONGTSNAME | BUFFER |

Figure 235. Exception List report - STORAGEW(CDSA,ECDSA)

Example 5: Exceptions for FILE resources

This example produces an Exception List report like that shown in Figure 236. It includes only the exception records for a specific resource type of FILE.

```
CICSPA LISTEXC(SELECT(EXCEPTION(INCLUDE(RESOURCETYPE(FILE))))))
```

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| Tran | Term | LUName | Userid | Tran SC Class | Service Class | Report Class | Exp Taskno | Time Seq | Time Start | Elapsed | Current Program | Resource Type | Resource ID | Exception Type |
|------|------|----------|---------|------------------|------------------|-----------------|---------------|-------------|---------------|---------|--------------------|------------------|----------------|-------------------|
| ABRW | P045 | IG2ZP045 | CBAKER | TP | | | 834 | 1 | 08:08:37 | 10.189 | DFHSABRW | FILE | FILEA | STRING |
| ABRW | S205 | IGCS205 | BRENNER | TP | | | 835 | 1 | 08:08:47 | 7.245 | DFHSABRW | FILE | FILEA | STRING |
| ABRW | S220 | IGCS220 | BRENNER | TP | | | 837 | 1 | 08:08:52 | 2.996 | DFHSABRW | FILE | FILEA | STRING |

Figure 236. Exception List report

Example 6: Exceptions for LSRPOOL and FILE resources

This example generates an Exception List report for the exception records for resource types LSRPOOL and FILE.

```
CICSPA LISTEXC(SELECT(EXCEPTION(
INCLUDE(RESOURCETYPE(LSRPOOL,FILE))))))
```

Example 7: Exceptions for STORAGE resources

This examples produces an Exception List report that includes only the exception records for a specific resource type of STORAGE.

```
CICSPA LISTEXC(SELECT(EXCEPTION(INCLUDE(RESOURCETYPE(STORAGE))))))
```

Example 8: Exceptions for a particular transaction ID

This example produces an Exception List report that only includes the exception records for specific transaction identifiers.

```
CICS LISTEXC(SELECT(EXCEPTION(INCLUDE(TRAN(ABRW))))))
```

SUMEXC - Exception Summary report

The **SUMEXC** operand requests the Exception Summary report.

The command format is:

```

CICSPA SUMEXC(
    [OUTPUT(ddname),]
    [LINECount(nnn),]
    [TITLE1('...up to 64 characters...'),]
    [TITLE2('...up to 64 characters...'),]
    [SELECT(EXCEPTION(INCLUDE|EXCLUDE(field1(values1),...),
        ...))])

```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **XSUMnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

LINECOUNT

Controls the number of lines per page. See “LINECount” on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See “TITLE1 and TITLE2” on page 386 for further information.

SELECT(EXCEPTION(INCLUDE|EXCLUDE

Specifies what CMF exception data to include or exclude from the report based on data field values. See “Using SELECT statements” on page 516 for a detailed explanation and examples.

SUMEXception examples

Example 1: Default report

```
CICSPA SUMEXC
```

Example 2: VSTRINGW exceptions on a particular file

This example shows the SUMEXception operand combined with a SELECT statement. This report will only contain the exception class records that are generated because of a VSAM string wait on file FILEA.

```
CICSPA SUMEXC(SELECT(EXCEPTION(INCLUDE(VSTRINGW(FILEA))))))
```

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CICS Performance Analyzer
Exception Summary

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| Tran ID | Total Excepts | TS-Buffer-Wait Average | TS-Buffer-Wait Count | TS-String-Wait Average | TS-String-Wait Count | Pool-Buffer-Wait Average | Pool-Buffer-Wait Count | Pool-String-Wait Average | Pool-String-Wait Count | File-String-Wait Average | File-String-Wait Count | ..Temp Storage. Average | ..Temp Storage. Count | ..Main Storage. Average | ..Main Storage. Count |
|---------|---------------|------------------------|----------------------|------------------------|----------------------|--------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| ABRW | 3 | | | | | | | | | 6.810 | 3 | | | | |
| CEBR | 16 | | | .003 | 16 | | | | | | | | | | |
| CECI | 257 | .006 | 256 | .003 | 1 | | | | | | | | | | |
| TOTAL | 276 | .006 | 256 | .003 | 17 | | | | | 6.810 | 3 | | | | |

Figure 237. Exception Summary report

RESUSAGE - Transaction Resource Usage reports

The RESUSAGE operand requests the Transaction Resource Usage reports.

The command format is:

```

CICSPA RESUSAGE(
    [OUTPUT(ddname),]
    [TRANLIST(FILE,TEMPSTOR,DPL),]
    [TRANSUMmary(FILE,TEMPSTOR,DPL),]

```

```
[FILESUMmary (BYTRAN,TOTAL),]
[TEMPSTORSUMmary (BYTRAN,TOTAL),]
[DPLSUMmary (BYTRAN,TOTAL),]
[LINECount (nnn),]
[TITLE1 ('...up to 64 characters...'),]
[TITLE2 ('...up to 64 characters...'),]
[SELECT (PERFORMANCE (INCLUDE | EXCLUDE (field1 (values1), ...),
...)))]
```

The default report produces all the Summaries.

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **RESUnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

TRANLIST

Requests the Transaction Resource Usage List report, a detailed list of all transactions with CMF transaction resource class data.

Specify **FILE** to report File usage statistics, **TEMPSTOR** to report Temporary Storage usage statistics, and **DPL** to report DPL usage statistics.

Currently these are the only resource types available. The default is **TRANLIST(FILE,TEMPSTOR,DPL)**.

TRANSUMMARY

Specify **FILE** to request the Transaction File Usage Summary report, a summary (averages and maximums) of File activity for each Transaction ID.

Specify **TEMPSTOR** to request the Transaction Temporary Storage Usage Summary report, a summary (averages and maximums) of Temporary Storage activity for each Transaction ID.

Specify **DPL** to request the Transaction Distributed Program Link (DPL) Usage Summary report, a summary (averages and maximums) of DPL activity for each Transaction ID.

Currently these are the only resource types available. The default is **TRANSUMMARY(FILE,TEMPSTOR,DPL)**.

FILESUMMARY

Requests the File Usage Summary report, a summary (averages and maximums) of File usage for each File.

Specify **BYTRAN** to break down the File usage statistics by Transaction ID.

Specify **TOTAL** to give total usage statistics for each File.

The default is **FILESUMMARY(BYTRAN,TOTAL)**.

TEMPSTORSUMMARY

Requests the Temporary Storage Usage Summary report, a summary (averages and maximums) of Temporary Storage usage for each Temporary Storage Queue.

Specify **BYTRAN** to break down the Temporary Storage usage statistics by Transaction ID.

Specify **TOTAL** to give total usage statistics for each Temporary Storage Queue.

The default is **TEMPSTORSUMMARY(BYTRAN,TOTAL)**.

DPLSUMMARY

Requests the DPL Usage Summary report, a summary (averages and maximums) of usage for each DPL.

Specify **BYTRAN** to break down the DPL usage statistics by Transaction ID.

Specify **TOTAL** to give total usage statistics for each DPL.

The default is **DPLSUMMARY(BYTRAN,TOTAL)**.

LINECOUNT

Controls the number of lines per page. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

The Transaction Resource Usage report processes transaction resource class and performance class data, and uses Performance Selection Criteria to filter both. For more information, see "Performance Selection Criteria" on page 220.

RESUSAGE examples

Example 1: Default report

The default produces all the Summary reports:

1. Transaction File Usage Summary report
2. Transaction Temporary Storage Usage Summary report
3. Transaction DPL Usage Summary report
4. File Usage Summary report with individual and total Transaction statistics
5. Temporary Storage Usage Summary report with individual and total Transaction statistics
6. DPL Usage Summary report with individual and total Transaction statistics

CICSPA RESUSAGE

The following command achieves the same:

```
CICSPA RESUSAGE(TRANSUMM(FILE,TEMPSTOR,DPL),  
                FILESUMM(BYTRAN,TOTAL),  
                TEMPSTORSUMM(BYTRAN,TOTAL),  
                DPLSUMM(BYTRAN,TOTAL))
```

Example 2:

This example produces a Transaction Resource Usage List report showing File Usage, Temporary Storage Usage, and DPL Usage details as shown in Figure 238 on page 485.

```
CICSPA RESUSAGE(TRANLIST(FILE,TEMPSTOR,DPL))
```

| Tran | Userid | SC | TranType | Term | LUName | Request Type | Program | Fcty T/Name | Conn Name | NETName | APPLID | Task | UOW Seq | R T | Stop OStart | Response Time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------|-------------------|----------|----------|-----------|--------------|-------------|-----------------|------------------|-------------------|----------|------|---------|-----|--------------|---------------|-------------|-------|-------------------|----------|----------|-----------|------------|-------------|-----------------|------------------|------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|---|--------------|----|---|----|---|---|-----|---|---|---|-----|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--------------|---|---|---|---|---|---|---|---|---|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--------------|---|---|---|---|---|---|---|---|---|---|
| CW2A | CBAKER | U | U | - | - | AP: | DFHW2FI | B/ | - | GBIBMIYA.IYK2Z1V2 | IYK2Z1V2 | 44 | 1 | T | 15:06:26.734 | .1473 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CWXN | CBAKER | - | U | - | - | - | - | - | - | - | IYK2Z1V2 | 43 | - | - | 15:06:26.580 | .1541 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>File</th> <th>Get</th> <th>Put</th> <th>Browse</th> <th>FC Add</th> <th>FC Delete</th> <th>FC Total</th> <th>I/O File</th> <th>I/O RLS</th> <th>I/O CFDT</th> <th>AccMeth Requests</th> </tr> </thead> <tbody> <tr> <td>FILEA</td> <td>.0000</td> <td>.0000</td> <td>.0001</td> <td>.0000</td> <td>.0000</td> <td>.0153</td> <td>.0147</td> <td>.0000</td> <td>.0000</td> <td></td> </tr> <tr> <td>Elapse Count</td> <td>11</td> <td>0</td> <td>66</td> <td>0</td> <td>0</td> <td>143</td> <td>2</td> <td>0</td> <td>0</td> <td>143</td> </tr> </tbody> </table> | | | | | | | | | | | | | | | | | File | Get | Put | Browse | FC Add | FC Delete | FC Total | I/O File | I/O RLS | I/O CFDT | AccMeth Requests | FILEA | .0000 | .0000 | .0001 | .0000 | .0000 | .0153 | .0147 | .0000 | .0000 | | Elapse Count | 11 | 0 | 66 | 0 | 0 | 143 | 2 | 0 | 0 | 143 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| File | Get | Put | Browse | FC Add | FC Delete | FC Total | I/O File | I/O RLS | I/O CFDT | AccMeth Requests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FILEA | .0000 | .0000 | .0001 | .0000 | .0000 | .0153 | .0147 | .0000 | .0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elapse Count | 11 | 0 | 66 | 0 | 0 | 143 | 2 | 0 | 0 | 143 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CEJR | CBAKER | U | S | - | - | AP: | DFHEJITL | | | GBIBMIYA.IYK2Z1V2 | IYK2Z1V2 | 58 | 1 | T | 15:11:26.947 | .3140 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>File</th> <th>Get</th> <th>Put</th> <th>Browse</th> <th>FC Add</th> <th>FC Delete</th> <th>FC Total</th> <th>I/O File</th> <th>I/O RLS</th> <th>I/O CFDT</th> <th>AccMeth Requests</th> </tr> </thead> <tbody> <tr> <td>DFHEJDIR</td> <td>.0841</td> <td>.0000</td> <td>.0000</td> <td>.0000</td> <td>.0000</td> <td>.0841</td> <td>.0009</td> <td>.0000</td> <td>.0000</td> <td></td> </tr> <tr> <td>Elapse Count</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>DFHEJOS</td> <td>.0834</td> <td>.0000</td> <td>.0000</td> <td>.0000</td> <td>.0000</td> <td>.0834</td> <td>.0011</td> <td>.0000</td> <td>.0000</td> <td></td> </tr> <tr> <td>Elapse Count</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>Total</td> <td>.1675</td> <td>.0000</td> <td>.0000</td> <td>.0000</td> <td>.0000</td> <td>.1675</td> <td>.0020</td> <td>.0000</td> <td>.0000</td> <td></td> </tr> <tr> <td>Elapse Count</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>2</td> <td>4</td> <td>0</td> <td>0</td> <td>2</td> </tr> </tbody> </table> | | | | | | | | | | | | | | | | | File | Get | Put | Browse | FC Add | FC Delete | FC Total | I/O File | I/O RLS | I/O CFDT | AccMeth Requests | DFHEJDIR | .0841 | .0000 | .0000 | .0000 | .0000 | .0841 | .0009 | .0000 | .0000 | | Elapse Count | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | DFHEJOS | .0834 | .0000 | .0000 | .0000 | .0000 | .0834 | .0011 | .0000 | .0000 | | Elapse Count | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | Total | .1675 | .0000 | .0000 | .0000 | .0000 | .1675 | .0020 | .0000 | .0000 | | Elapse Count | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 2 |
| File | Get | Put | Browse | FC Add | FC Delete | FC Total | I/O File | I/O RLS | I/O CFDT | AccMeth Requests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DFHEJDIR | .0841 | .0000 | .0000 | .0000 | .0000 | .0841 | .0009 | .0000 | .0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elapse Count | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DFHEJOS | .0834 | .0000 | .0000 | .0000 | .0000 | .0834 | .0011 | .0000 | .0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elapse Count | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | .1675 | .0000 | .0000 | .0000 | .0000 | .1675 | .0020 | .0000 | .0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elapse Count | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CECI | CBAKER | TO | U | T164 | IYCWT164 | AP: | DFHECIP | T/T164 | | GBIBMIYA.IYCWT164 | IYK2Z1V2 | 75 | 1 | T | 15:13:16.521 | 10.0157 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>DPL Program</th> <th>SYSID</th> <th>DPL LINK Requests</th> </tr> </thead> <tbody> <tr> <td>DFH0STAT</td> <td>CJB1</td> <td>Count 2</td> </tr> <tr> <td>DFH0STAT</td> <td>CJB3</td> <td>Count 4</td> </tr> <tr> <td>Total</td> <td></td> <td>Count 6</td> </tr> </tbody> </table> | | | | | | | | | | | | | | | | | DPL Program | SYSID | DPL LINK Requests | DFH0STAT | CJB1 | Count 2 | DFH0STAT | CJB3 | Count 4 | Total | | Count 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DPL Program | SYSID | DPL LINK Requests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DFH0STAT | CJB1 | Count 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DFH0STAT | CJB3 | Count 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | | Count 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CEMT | CBAKER | TO | U | T164 | IYCWT164 | AP: | DFHEMTP | T/T164 | | GBIBMIYA.IYCWT164 | IYK2Z1V2 | 89 | 6 | T | 15:17:57.532 | 14.5784 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>TSQueue</th> <th>Get</th> <th>Put_Aux</th> <th>Put_Main</th> <th>TS Total</th> <th>I/O TS</th> <th>I/O Shr_TS</th> <th>TS Item Get</th> <th>TS Item Put_Aux</th> <th>TS Item Put_Main</th> </tr> </thead> <tbody> <tr> <td>T164EZA</td> <td>.0000</td> <td>.0000</td> <td>.0000</td> <td>.0004</td> <td>.0000</td> <td>.0000</td> <td>0</td> <td>89</td> <td>0</td> </tr> <tr> <td>Elapse Count</td> <td>0</td> <td>1</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>89</td> <td>0</td> </tr> </tbody> </table> | | | | | | | | | | | | | | | | | TSQueue | Get | Put_Aux | Put_Main | TS Total | I/O TS | I/O Shr_TS | TS Item Get | TS Item Put_Aux | TS Item Put_Main | T164EZA | .0000 | .0000 | .0000 | .0004 | .0000 | .0000 | 0 | 89 | 0 | Elapse Count | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 89 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TSQueue | Get | Put_Aux | Put_Main | TS Total | I/O TS | I/O Shr_TS | TS Item Get | TS Item Put_Aux | TS Item Put_Main | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T164EZA | .0000 | .0000 | .0000 | .0004 | .0000 | .0000 | 0 | 89 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elapse Count | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 89 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 238. Transaction Resource Usage List report

Example 3:

This example produces the Transaction File Usage Summary report like that shown in Figure 239 on page 486.

CICSPA RESUSAGE(TRANSUMM(FILE))

| V5R1M0 | | CICS Performance Analyzer Transaction File Usage Summary | | | | | | | | | | |
|----------|----------|---|----------------------|--|--------|--------|--------|-----------------|-------------|-------------|----------|----------|
| RESU0001 | | Printed at 12:03:45 04/17/2013 | | Data from 09:00:10 5/23/2013 to 08:35:48 5/29/2013 | | | | APPLID IYK2Z1V1 | Page 3 | | | |
| Tran | #Tasks | ***** FC Calls ***** | | | | | | ***** I/O | ***** Waits | ***** | AccMeth | |
| | | Get | Put | Browse | Add | Delete | Total | File | RLS | CFDT | Requests | |
| CEDA | 11 | Elapse Avg | | | | | | .2031 | .0000 | .0000 | | |
| | | Max | | | | | | 1.5718 | .0000 | .0000 | | |
| | Count | Avg | 39 | 0 | 420 | 2 | 1 | 471 | 54 | 0 | 493 | |
| | | Max | 369 | 2 | 4354 | 8 | 4 | 4739 | 426 | 0 | 4925 | |
| File | #Tasks | ***** FC Calls ***** | | | | | | ***** I/O | ***** Waits | ***** | AccMeth | |
| | | Get | Put | Browse | Add | Delete | Total | File | RLS | CFDT | Requests | |
| DFHCSD | 11 | Elapse Avg | .1560 | .0036 | .0139 | .0126 | .0077 | .2081 | .2031 | .0000 | .0000 | |
| | | Max | 1.4601 | .0110 | .1195 | .0458 | .0358 | 1.6370 | 1.5718 | .0000 | .0000 | |
| | Count | Avg | 39 | 0 | 414 | 2 | 1 | 465 | 54 | 0 | 493 | |
| | | Max | 369 | 2 | 4354 | 8 | 4 | 4739 | 426 | 0 | 4925 | |
| Tran | #Tasks | ***** FC Calls ***** | | | | | | ***** I/O | ***** Waits | ***** | AccMeth | |
| | | Get | Put | Browse | Add | Delete | Total | File | RLS | CFDT | Requests | |
| CMAC | 3 | Elapse Avg | | | | | | .0282 | .0000 | .0000 | | |
| | | Max | | | | | | .0295 | .0000 | .0000 | | |
| | Count | Avg | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | |
| | | Max | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 2 | |
| Tran | File | #Tasks | ***** FC Calls ***** | | | | | | ***** I/O | ***** Waits | ***** | AccMeth |
| | | | Get | Put | Browse | Add | Delete | Total | File | RLS | CFDT | Requests |
| CMAC | DFHCMACD | 3 | Elapse Avg | .0582 | .0000 | .0000 | .0000 | .0000 | .0582 | .0282 | .0000 | .0000 |
| | | | Max | 1.747 | .0000 | .0000 | .0000 | .0000 | 1.747 | .0295 | .0000 | .0000 |
| | | Count | Avg | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| | | | Max | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 2 |

Figure 239. Transaction File Usage Summary report

Example 4:

This example produces the File Usage Summary report with individual Transaction ID statistics and total Transaction statistics like that shown in Figure 240. Only data for files whose file names match the CB* pattern are included in the report.

```
CICSPA RESUSAGE(FILESUMM,SELECT(PERF(INC(FILENAME(CB*))))
```

| V5R1M0 | | CICS Performance Analyzer File Usage Summary | | | | | | | | | | |
|----------|------|---|----------------------|--|--------|----------|--------|-----------------|-----------|-------------|-------|----------|
| RESU0001 | | Printed at 12:03:45 04/17/2013 | | Data from 09:00:10 5/23/2004 to 08:35:48 5/29/2004 | | | | APPLID IYK2Z1V1 | Page 2 | | | |
| File | Tran | #Tasks | ***** FC Calls ***** | | | | | | ***** I/O | ***** Waits | ***** | AccMeth |
| | | | Get | Put | Browse | Add | Delete | Total | File | RLS | CFDT | Requests |
| CBFILEA | CMAC | 3 | Elapse Avg | .0582 | .0000 | .0000 | .0000 | .0000 | .0582 | .0282 | .0000 | .0000 |
| | | | Max | 1.747 | .0000 | .0000 | .0000 | .0000 | 1.747 | .0295 | .0000 | .0000 |
| | | Count | Avg | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| | | | Max | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 2 |
| CBFILEB | CEDA | 11 | Elapse Avg | .1560 | .0036 | .0139 | .0126 | .0077 | .2081 | .2031 | .0000 | .0000 |
| | | | Max | 1.4601 | .0110 | .1195 | .0458 | .0358 | 1.6370 | 1.5718 | .0000 | .0000 |
| | | Count | Avg | 39 | 0 | 414 | 2 | 1 | 465 | 54 | 0 | 493 |
| | | | Max | 369 | 2 | 4354 | 8 | 4 | 4739 | 426 | 0 | 4925 |
| | CSSY | 5 | Elapse Avg | .4939 | .0000 | 8111.611 | .0000 | .0000 | 8112.355 | 1.4960 | .0000 | .0000 |
| | | | Max | .8421 | .0000 | 40557.78 | .0000 | .0000 | 40557.78 | 2.3385 | .0000 | .0000 |
| | | Count | Avg | 130 | 0 | 2618 | 0 | 0 | 2880 | 356 | 0 | 3754 |
| | | | Max | 217 | 0 | 3273 | 0 | 0 | 3710 | 356 | 0 | 3754 |
| | Totl | 16 | Elapse Avg | .2616 | .0025 | 2534.888 | .0087 | .0053 | 2535.254 | .6071 | .0000 | .0000 |
| | | | Max | 2.4697 | .0401 | 40558.06 | .1390 | .0842 | 40561.78 | 7.4800 | .0000 | .0000 |
| | | Count | Avg | 67 | 0 | 1103 | 1 | 0 | 1219 | 148 | 0 | 1512 |
| | | | Max | 651 | 7 | 13092 | 23 | 12 | 14403 | 1780 | 0 | 18770 |

Figure 240. File Usage Summary report

Example 5:

This example produces the Temporary Storage Usage Summary report and the Transaction Temporary Storage Usage Summary report with individual Transaction ID statistics and total Transaction Usage statistics like that shown in Figure 241 and Figure 242.

CICSPA RESUSAGE(TRANSUMM(TEMPSTOR),
TEMPSTORSUMM(BYTRAN,TOTAL))

```

V5R1M0
CICS Performance Analyzer
Transaction Temporary Storage Usage Summary
TEMP0001 Printed at 12:03:45 04/17/2013 Data from 09:14:16 3/20/2004 to 09:41:25 3/20/2004 APPLID IYK2Z1V1 Page 1

```

| Tran | #Tasks | ***** TS Calls ***** | | | | *** I/O Waits *** | | | | |
|-----------|--------|----------------------|---------|----------|-------|-------------------|--------|---------------------|---------|----------|
| | | Get | Put_Aux | Put_Main | Total | TS | Shr_TS | Get | Put_Aux | Put_Main |
| CECI | 3 | Elapse Avg | | | | .0000 | .0139 | | | |
| | | Max | | | | .0000 | .0139 | | | |
| | Count | Avg | 2 | 0 | 6 | 8 | 0 | 10 | | |
| | | Max | 3 | 0 | 12 | 12 | 0 | 17 | | |
| TSQueue | #Tasks | ***** TS Calls ***** | | | | *** I/O Waits *** | | ***** TS Item ***** | | |
| | | Get | Put_Aux | Put_Main | Total | TS | Shr_TS | Get | Put_Aux | Put_Main |
| TS_Queue1 | 2 | Elapse Avg | .0104 | .0000 | .0002 | .0106 | .0000 | .0139 | | |
| | | Max | .0104 | .0000 | .0002 | .0104 | .0000 | .0139 | | |
| | Count | Avg | 2 | 0 | 6 | 8 | 0 | 10 | 56 | 44 |
| | | Max | 3 | 0 | 12 | 12 | 0 | 17 | 112 | 88 |
| | | Length | | | | | | | 378 | 756 |
| TS_Queue2 | 1 | Elapse Avg | .0104 | .0000 | .0002 | .0000 | .0000 | .0139 | | |
| | | Max | .0104 | .0000 | .0002 | .0000 | .0000 | .0139 | | |
| | Count | Avg | 2 | 0 | 6 | 8 | 0 | 104 | 56 | 44 |
| | | Max | 2 | 0 | 6 | 8 | 0 | 104 | 112 | 88 |
| | | Length | | | | | | | 378 | 756 |
| Total | 2 | Elapse Avg | .0104 | .0000 | .0002 | .0000 | .0000 | .0139 | | |
| | | Max | .0104 | .0000 | .0002 | .0104 | .0000 | .0139 | | |
| | Count | Avg | 2 | 0 | 6 | 8 | 0 | 10 | 56 | 44 |
| | | Max | 3 | 0 | 12 | 12 | 0 | 17 | 112 | 88 |
| | | Length | | | | | | | 378 | 756 |

Figure 241. Transaction Temporary Storage Usage Summary report

```

V5R1M0
CICS Performance Analyzer
Temporary Storage Usage Summary
TEMP0001 Printed at 12:03:45 04/17/2013 Data from 09:14:16 3/20/2004 to 09:41:25 3/20/2004 APPLID IYK2Z1V1 Page 3

```

| TSQueue | Tran | #Tasks | ***** TS Calls ***** | | | | *** I/O Waits *** | | ***** TS Item ***** | | |
|------------|-------|--------|----------------------|---------|----------|-------|-------------------|--------|---------------------|---------|----------|
| | | | Get | Put_Aux | Put_Main | Total | TS | Shr_TS | Get | Put_Aux | Put_Main |
| CJBTSQNAME | CECI | 1 | Elapse Avg | .0000 | .0000 | .0000 | .0000 | .0739 | .0000 | | |
| | | | Max | .0000 | .0000 | .0000 | .0000 | .0739 | .0000 | | |
| | Count | Avg | 0 | 0 | 0 | 0 | 66 | 0 | 0 | 0 | 0 |
| | | Max | 0 | 0 | 0 | 0 | 66 | 0 | 0 | 0 | 0 |
| | | Length | | | | | | | | | |
| MONITOR | CZUX | 15 | Elapse Avg | .0000 | .0000 | .0000 | .0000 | .0022 | .0000 | | |
| | | | Max | .0000 | .0000 | .0000 | .0000 | .0048 | .0000 | | |
| | Count | Avg | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| | | Max | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| | | Length | | | | | | | | | |
| SHAR1 | CEBR | 1 | Elapse Avg | .0000 | .0000 | .0000 | .0000 | .0000 | .0012 | | |
| | | | Max | .0000 | .0000 | .0000 | .0000 | .0000 | .0012 | | |
| | Count | Avg | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| | | Max | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| | | Length | | | | | | | | | |
| | CECI | 1 | Elapse Avg | .0000 | .0000 | .0000 | .0000 | .0000 | .0028 | | |
| | | | Max | .0000 | .0000 | .0000 | .0000 | .0000 | .0028 | | |
| | Count | Avg | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| | | Max | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| | | Length | | | | | | | | | |
| | Totl | 2 | Elapse Avg | .0000 | .0000 | .0000 | .0000 | .0000 | .0020 | | |
| | | | Max | .0000 | .0000 | .0000 | .0000 | .0000 | .0028 | | |
| | Count | Avg | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| | | Max | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| | | Length | | | | | | | | | |

Figure 242. Temporary Storage Usage Summary report

Example 6:

This example produces the DPL Usage Summary report and the Transaction DPL Usage Summary report with individual Transaction ID statistics and total Transaction statistics like that shown in Figure 243 on page 488 and Figure 244 on page 489.

CICSPA RESUSAGE(TRANSUMM(DPL),
DPLSUMM(BYTRAN,TOTAL))

V5R1M0

CICS Performance Analyzer
Transaction DPL Usage Summary

DPLS0001 Printed at 12:03:45 04/17/2013 Data from 07:12:47 7/15/2013 to 07:56:49 7/15/2013 APPLID CCVT41M Page 1

| Tran | Program | | #Tasks | | DPL LINK |
|-------|----------|-------|--------|-------|----------|
| ----- | | | ----- | | Requests |
| DIAD | DIADPL | | 29 | Count | Avg 8 |
| | | | | | Max 13 |
| | Program | SYSID | #Tasks | | DPL LINK |
| | ----- | | ----- | | Requests |
| | DIADLET | T41T | 12 | Count | Avg 1 |
| | | | | | Max 1 |
| | DIADLET | T41X | 17 | Count | Avg 1 |
| | | | | | Max 1 |
| | DIAREAD | T41T | 7 | Count | Avg 2 |
| | | | | | Max 4 |
| | DIAREAD | T41X | 17 | Count | Avg 7 |
| | | | | | Max 9 |
| | DIATDQ | T41T | 29 | Count | Avg 1 |
| | | | | | Max 1 |
| | DIATDQ | T41X | 29 | Count | Avg 1 |
| | | | | | Max 1 |
| | DIAWRITE | T41T | 12 | Count | Avg 1 |
| | | | | | Max 1 |
| | DIAWRITE | T41X | 17 | Count | Avg 1 |
| | | | | | Max 1 |
| | Total | | 140 | Count | Avg 1 |
| | | | | | Max 9 |

Figure 243. Transaction DPL Usage Summary report

| Program | SYSID | Tran | #Tasks | DPL LINK Requests | | |
|----------|-------|------|--------|-------------------|-------|-----|
| DIADLET | T41T | DIAD | 12 | Count | Avg | 1 |
| | | | | | Max | 1 |
| | | T41X | DIAD | 17 | Count | Avg |
| | | | | Max | 1 | |
| | | Tot1 | 29 | Count | Avg | 1 |
| | | | | Max | 1 | |
| ----- | | | | | | |
| DIAREAD | T41T | DIAD | 7 | Count | Avg | 2 |
| | | | | | Max | 4 |
| | | T41X | DIAD | 17 | Count | Avg |
| | | | | Max | 9 | |
| | | Tot1 | 24 | Count | Avg | 5 |
| | | | | Max | 9 | |
| ----- | | | | | | |
| DIATDQ | T41T | DIAD | 29 | Count | Avg | 1 |
| | | | | | Max | 1 |
| | | T41X | DIAD | 29 | Count | Avg |
| | | | | Max | 1 | |
| | | Tot1 | 58 | Count | Avg | 1 |
| | | | | Max | 1 | |
| ----- | | | | | | |
| DIAWRITE | T41T | DIAD | 12 | Count | Avg | 1 |
| | | | | | Max | 1 |
| | | T41X | DIAD | 17 | Count | Avg |
| | | | | Max | 1 | |
| | | Tot1 | 29 | Count | Avg | 1 |
| | | | | Max | 1 | |

Figure 244. DPL Usage Summary report

STATSALERT - Statistics Alert reports

The **STATSALERT** operand requests a Statistics Alert report.

The command format for a Statistics Alert report is:

```
CICSPA STATSALERT([OUTPUT(ddname),]
                  [EXTERNAL(ddname),]
                  STALTDEF(statistics-alert-definition),
                  [BY(APPLID[(LIST,SUMMARY)] |
                    ALERT[(LIST,SUMMARY)] |
                    COLLECT |
                    INTERVAL |
                    RESOURCE),]
                  [TYPE(EOD,INT,USS,REQ,RRT),]
                  [LINECount(nnn),]
                  [TITLE1('...up to 64 characters...'),]
                  [TITLE2('...up to 64 characters...')])
```

The options are:

STALTDEF(statistics-alert-definition)

The name of the Statistics Alert Definition that you want to use for this report. For details, see Chapter 14, "Statistics alert reporting," on page 353.

In the JCL for the report, the DDname CPAHDBRG identifies the Repository data set that defines the Alert Definition.

BY(...) The sort order of the report. For reports sorted by APPLID or Alert, you can specify a report type: List (the default), Summary, or both. Other sorting options are available only as List reports.

List reports show each instance of an Alert on a separate row, with details such as the threshold value and the Formula value that triggered the Alert.

Summary reports show the number of Alerts for the report period, rather than the details of each instance.

TYPE(...)

The types of statistics intervals to include in the report.

LINECount

Controls the number of lines per page in the report. See “LINECount” on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line) for the report. See “TITLE1 and TITLE2” on page 386 for further information.

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **STALnnnn** where nnnn is the report sequence number **0001-9999** to uniquely identify the output. See “OUTPUT” on page 384 for further information.

EXTERNAL

Specifies the DDname for the work data set used by the external SORT facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See “EXTERNAL” on page 385 for further information.

STATSALERT examples

Example: List and Summary by APPLID

This example produces a “List by APPLID” report followed by a “Summary by APPLID” report in the same output data set, STAL0001, as shown in Figure 245 on page 491 and Figure 246 on page 491:

```
CICSPA STATSALERT(OUTPUT(STAL0001),
                  EXTERNAL(CPAXW001),
                  STALTDEF(SAMPLE2),
                  BY(APPLID(LIST,SUMMARY)),
                  TYPE(EOD,REQ,RRT,INT,USS))
```

System: CCVQ32C Image: FTS1 VRM: 650 Type: TS

| Sev Alert | Threshold | Actual | Collection Time | Type |
|-------------------------------------|-----------|---------|---------------------|------|
| W Program load requests that waited | >0 | 2 | 2009-01-13 00.00.01 | EOD |
| I DSA limit | >=0K | 5120K | 2009-01-13 00.00.01 | EOD |
| I DSA allocated | >=0K | 2304K | 2009-01-13 00.00.01 | EOD |
| I DSA peak | >=0K | 2304K | 2009-01-13 00.00.01 | EOD |
| I EDSA limit | >=0K | 614400K | 2009-01-13 00.00.01 | EOD |
| I EDSA allocated | >=0K | 49152K | 2009-01-13 00.00.01 | EOD |
| I EDSA peak | >0K | 49152K | 2009-01-13 00.00.01 | EOD |
| I MEMLIMIT size | >=0M | 0M | 2009-01-13 00.00.01 | EOD |
| I Active address space: current | >=0M | 0M | 2009-01-13 00.00.01 | EOD |
| I Active address space: peak | >=0M | 0M | 2009-01-13 00.00.01 | EOD |
| I Active GDSA: current | >=0M | 0M | 2009-01-13 00.00.01 | EOD |
| I Active GDSA: peak | >=0M | 0M | 2009-01-13 00.00.01 | EOD |
| I Dispatcher settings: ICV (ms) | * | 5.000 | 2009-01-13 00.00.01 | EOD |
| I Dispatcher settings: ICVR (ms) | * | 5.000 | 2009-01-13 00.00.01 | EOD |
| I Dispatcher settings: ICVTS (ms) | * | 5.000 | 2009-01-13 00.00.01 | EOD |
| I Dispatcher settings: PRYAGE (ms) | * | 32.768 | 2009-01-13 00.00.01 | EOD |
| I Dispatcher settings: SUBTSKS | * | 1 | 2009-01-13 00.00.01 | EOD |
| I Dispatcher settings: MROBTCH | * | 1 | 2009-01-13 00.00.01 | EOD |
| I Open TCBs limit | * | 12 | 2009-01-13 00.00.01 | EOD |
| TCB Pool = OPEN | | | | |
| I Open TCBs current | * | 0 | 2009-01-13 00.00.01 | EOD |
| TCB Pool = OPEN | | | | |
| : | | | | |
| I Program load-to-use ratio (%) | >=25 | 100 | 2009-01-13 00.00.01 | EOD |
| Program Name = CEEV003 | | | | |
| : | | | | |

System: CCVQ32D1 Image: FTS1 VRM: 650 Type: TS

| Sev Alert | Threshold | Actual | Collection Time | Type |
|--|-----------|--------|---------------------|------|
| W Program load requests that waited | >0 | 8 | 2009-01-13 00.00.00 | EOD |
| W Maximum active transactions in class reached | >0 | 329 | 2009-01-13 00.00.00 | EOD |
| Tclass Name = DFHTCL02 | | | | |
| : | | | | |

Figure 245. Statistics Alerts - List by APPLID report

System: CCVQ32C Image: FTS1 Type: TS

| Sev Alert | Intervals | Alerts |
|-------------------------------------|-----------|--------|
| W Program load requests that waited | 1 | 1 |
| I Tasks: limit | 1 | 1 |
| I Tasks: current | 1 | 1 |
| I Tasks: peak | 1 | 1 |
| I Tasks: total | 1 | 1 |
| I Transaction class: task limit | 6 | 14 |
| Tclass Name = DFHCOMCL | | 1 |
| Tclass Name = DFHEDFTC | | 1 |
| Tclass Name = DFHTCIND | | 1 |
| : | | |

System: CCVQ32D1 Image: FTS1 Type: TS

| Sev Alert | Intervals | Alerts |
|--|-----------|--------|
| W Maximum active transactions in class reached | 1 | 1 |
| Tclass Name = DFHTCL02 | | 1 |
| W Temporary storage: buffer waits on DFHTEMP | 1 | 1 |
| W Program load requests that waited | 1 | 1 |
| I Tasks: limit | 1 | 1 |
| I Tasks: current | 1 | 1 |
| I Tasks: peak | 1 | 1 |
| I Tasks: total | 1 | 1 |
| I Transaction class: task limit | 6 | 14 |
| Tclass Name = DFHCOMCL | | 1 |
| Tclass Name = DFHEDFTC | | 1 |
| Tclass Name = DFHTCIND | | 1 |
| : | | |

Figure 246. Statistics Alerts - Summary by APPLID report

CTGSTATISTICS - CICS TG Statistics reports

The **CTGSTATISTICS** operand requests the CICS Transaction Gateway statistics reports.

The command format is:

```
CICSPA CTGSTATISTICS[(  
    [OUTPUT(ddname|STTG0001),]  
    [EXTERNAL(ddname),]  
    [LINECNT(nnn),]  
    [ACTIVITY,]  
    [USAGE(RATIO(90),]  
    [CONFIGURATION,]  
    [CLIENTWORKLOAD,]  
    [CICSWORKLOAD,]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...')]])]
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **STTGnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

EXTERNAL

Specifies the optional DDname for the work data set used by the external SORT facility. If specified, CICS PA performs an external sort. If not specified, CICS PA performs an internal sort where the records are sorted in storage by CICS PA. The CICS PA dialog always generates the EXTERNAL operand with a DDname in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See “EXTERNAL” on page 385 for further information.

LINECount

Controls the number of lines per page. See “LINECount” on page 386 for further information.

ACTIVITY

Requests the Activity Summary report.

USAGE

Requests the Usage and Capacity report.

CONFIGURATION

Requests the Configuration Summary report.

CLIENTWORKLOAD

Requests the Client Workload report.

CICSWORKLOAD

Requests the CICS Workload report.

RATIO

This option applies only to the Usage and Capacity report. A warning indicator is displayed against the EXCI pipes or IPIC sessions columns when the Num/Max or Num/Avail ratio exceeds the specified value. The default is 90.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See “TITLE1 and TITLE2” on page 386 for further information.

CTGSTATISTICS examples

The following command produces the Activity Summary report and the Usage and Capacity report. The capacity ratio in the Usage and Capacity report is specified as 30.

```
CICSPA CTGSTATISTICS(OUTPUT(STTG0001),
                     ACTIVITY,
                     USAGE(RATIO(30)))
```

```
V5R1M0
CICS Performance Analyzer
CICS Transaction Gateway - Activity Summary
STTG0001 Printed at 12:03:45 04/17/2013 Data from 12:56:00 10/12/2012 to 12:56:00 10/12/2012 Page 1

Gateway ID      Start time      Up time          Number of      Number of      Peak      Peak TPS time      Connect      Worker
                2012-10-12 12.33  0days 00.22.15  Intervals      requests      TPS          2012-10-12 12.55.00  Timeouts    Timeouts
CICSTG.CAI000   2012-10-12 12.33  0days 00.22.15  6              626066        617         2012-10-12 12.55.00  0            0
```

Figure 247. CICS Transaction Gateway - Activity Summary report

```
CICS Transaction Gateway - Usage and Capacity
STTG0001 Printed at 12:03:45 04/17/2013 Data from 12:56:00 10/12/2012 to 12:56:00 10/12/2012 Page 1

Gateway ID      Start time      Collection time  Region          Java heap      Clients      Workers      EXCI pipes      IPIC sessions
                2012-10-12 12.33  2012-10-12 12.35.00  Size/Max      Size/Max      Peak/Max      Peak/Max      Num/Max      Num/Avail
CICSTG.CAI000   2012-10-12 12.33  2012-10-12 12.40.00  351M/400M     37M/128M     100/250      106/250      106/250 *    0/100
CICSTG.CAI000   2012-10-12 12.33  2012-10-12 12.40.00  357M/400M     39M/128M     100/250      106/250      106/250 *    47/100 *
CICSTG.CAI000   2012-10-12 12.33  2012-10-12 12.45.00  359M/400M     39M/128M     100/250      105/250      106/250 *    47/100 *
CICSTG.CAI000   2012-10-12 12.33  2012-10-12 12.50.00  358M/400M     35M/128M     100/250      105/250      106/250 *    20/100
CICSTG.CAI000   2012-10-12 12.33  2012-10-12 12.55.00  358M/400M     39M/128M     100/250      105/250      106/250 *    49/100 *
CICSTG.CAI000   2012-10-12 12.33  2012-10-12 12.56.00  358M/400M     36M/128M     100/250      103/250      106/250 *    0/100
```

Figure 248. CICS Transaction Gateway - Usage and Capacity report

DB2 - DB2 report

The **DB2** operand requests the DB2 report.

Note: To maximize the DB2 details available for reporting, define your CICS-DB2 resources with ACCOUNTREC(TASK) or ACCOUNTREC(UOW). See the *CICS DB2 Guide* for more information on accounting for DB2 resources and the setup required.

The command format is:

```
CICSPA DB2(
           [OUTPUT(ddname),]
           [EXTERNAL(ddname),]
           [LIST(
             CLASS1,CLASS2,CLASS3,BUFFER,LOCKING,DML1,DML2|ALL),]
           [LONGSUMMARY(
             CLASS1,CLASS2,CLASS3,BUFFER,LOCKING,DML1,DML2|ALL),]
           [SHORTSUMMARY,]
           [SSID(id1,id2,...),]
           [CMFONLY,]
           [LISTZERO,]
           [MAXLONGSUM|NOMAXLONGSUM,]
           [LINECOUNT(nnn),]
           [TITLE1('...sub-heading left ...'),]
           [TITLE2('...sub-heading right...'),]
           [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
             ...))])
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **DB2Rnnnn** where nnnn is the report sequence number **0001-9999**. See "OUTPUT" on page 384 for further information.

EXTERNAL

Specifies the DDname for the work data set used by the external sort facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnn** where nnn is the sequence number **001-999**. See "EXTERNAL" on page 385 for further information.

LIST Requests the DB2 List report, a detailed list of all network units-of-work with DB2 activity. This report consolidates CICS CMF performance class records and DB2 accounting statistics from a single or multiple CICS systems. Each line on the report is a single CMF performance or DB2 accounting record.

Specify one or more of the following operands (or **ALL**) to control which DB2 accounting details are to be reported.

Note: Thread Identification is always reported.

CLASS1

Thread Time

CLASS2

In-DB2 Time

CLASS3

Suspend Time

BUFFER

Buffer Manager Summary

LOCKING

Locking Summary

DML1 SQL DML Query/Update

DML2 SQL DML 'Other'

If **LIST** is specified without operands, the default is **LIST(CLASS1,CLASS2,BUFFER,LOCKING)**.

LONGSUMmary

Requests the DB2 Long Summary report which summarizes these details by transaction and program (CMF performance data) and SSID and plan (DB2 accounting data) within APPLID. For each, average and maximum values are reported. CMF performance data is presented in columns across the page and associated DB2 accounting data is presented in rows down the page.

Specify one or more of the following operands (or **ALL**) to control which of the DB2 accounting details to include in the report.

Note: Thread Utilization is always reported.

CLASS1

Thread Time

CLASS2

In-DB2 Time

CLASS3

Suspend Time

BUFFER

Buffer Manager Summary

LOCKING

Locking Summary

DML1 SQL DML Query/Update

DML2 SQL DML 'Other'

If **LONGSUM** is specified without operands, the default is **LONGSUM(CLASS1,CLASS2,BUFFER,LOCKING)**.

SHORTSUMmary

Requests the DB2 Short Summary report, an abridged version of the DB2 Long Summary report, giving averages only (no maximums). This is the default report.

SSID Requests reporting to be limited to the DB2 Subsystem IDs that match the specified IDs or patterns. Masking characters are supported: % for one and only one character, and * for many or none.

CMFONLY

Requests CICS PA to process only CMF performance (SMF 110) records and not DB2 accounting records. If not specified, CICS PA will also process associated DB2 accounting (SMF 101) records. The default is to process both.

LISTZERO

Applies to the DB2 List report. Specify this option to report CMF performance records with **DB2REQCT=0** provided they are part of a network unit-of-work that has some DB2 activity. The default is to omit the CMF performance records with no DB2 activity.

MAXLONGSUM | NOMAXLONGSUM

Applies to the DB2 Long Summary report.

MAXLONGSUM requests that both average and maximum values are to be reported in the DB2 accounting detail lines. This is the default.

NOMAXLONGSUM requests that only the averages are to be reported (maximum values omitted).

LINECount

Controls the number of lines per page. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE | EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

DB2 examples

Example 1: Default report (DB2 Short Summary)

This example produces the default report like that shown in Figure 249 on page 496. The default is the Short Summary report with both CMF performance records (SMF 110) and DB2 accounting (SMF 101) records reported. CMF performance records with **DB2REQCT=0** are not included.

CICSPA DB2

The following command achieves the same:
CICSPA DB2(SHORTSUM)

```
V5R1M0
```

CICS Performance Analyzer
DB2 - Short Summary

DB2R0001 Printed at 12:03:45 04/17/2013 Data from 15:48:40 7/12/2004 to 15:50:42 7/12/2004 APPLID CIC53T1 Page 1

| Tran/ SSID | Program/ Planname | #Tasks/ #Threads | Average Response |Average Elapsed Time..... Thread | In-DB2 | DB2ConWt | DB2ThdWt |Average CPU Time..... User | Thread | In-DB2 |Average Count..... DB2Reqs | GetPage | SysPgUpd | #Abends |
|-----------------------|----------------------|---------------------|---------------------|---|--------|----------|----------|------------------------------------|---------|---------|------------------------------------|---------|----------|---------|
| CRD7 DB2P | CORD07P CPAPLAN | 2 2 | .4043 | .0631 | .0106 | .0000 | .0000 | .031008 | .011408 | .009811 | 3.0 | 4.0 | .0 | 0 |
| CRD9 DB2P | CORD09P CPAPLAN | 2 2 | .4091 | .0776 | .0104 | .0000 | .0000 | .030680 | .011478 | .009870 | 3.0 | 4.0 | .0 | 0 |
| SALE DB2P | DFH0SAL2 CPAPLAN | 10 10 | .2271 | .1394 | .0033 | .0000 | .0000 | .038147 | .003865 | .003136 | 1.0 | N/P | N/P | 0 |
| SAL1 DB2P | DFH0SAL1 CPAPLAN | 2 2 | 1.0268 | .7898 | .0033 | .0000 | .0000 | .038656 | .003843 | .003114 | 1.0 | N/P | N/P | 0 |
| *** Total *** DB2P | | 16 16 | .3720 | .2034 | .0051 | .0000 | .0000 | .036385 | .005757 | .004809 | 1.5 | 4.0 | .0 | 0 |

Figure 249. DB2 report (Short Summary)

Example 2: DB2 Long Summary

This example produces a DB2 Long Summary like that in Figure 250 on page 497.
CICSPA DB2(LONG(CLASS1,CLASS2,BUFFER,LOCKING))

These are the default DB2 accounting details for the DB2 Long Summary. The following command achieves the same:

CICSPA DB2(LONGSUM)

DB2R0001 Printed at 12:03:45 04/17/2013 Data from 16:58:04 7/03/2004 to 16:17:57 7/12/2004 APPLID CICS53A1 Page 1

| Tran/ SSID | Program/ Planname | #Tasks/ #Threads | Avg DB2ConWt Time | Max DB2ConWt Time | Avg DB2ThdWt Time | Max DB2ThdWt Time | Avg DB2Rqst Count | Max DB2Rqst Count | Avg UserCPU Time | Max UserCPU Time | Avg Response Time | Max Response Time | #Abends |
|---------------|----------------------|---------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|------------------------|-------------------------|-------------------------|---------|
| CRDE | CORD14P | 2 | .0000 | .0000 | .0000 | .0000 | 24.0 | 24 | .036896 | .052480 | .3141 | .5208 | 0 |
| DB2P | CPAPLAN | 4 | Thread Utilization | | Entry= | 0 | Pool= | 4 | Command= | 0 | | | |
| | | | Class1: Thread Time | | Avg: Elapsed= | .0369 | CPU= | .020809 | | | | | |
| | | | | | Max: Elapsed= | .0395 | CPU= | .024879 | | | | | |
| | | | Class2: In-DB2 Time | | Avg: Elapsed= | .0166 | CPU= | .015381 | | | | | |
| | | | | | Max: Elapsed= | .0201 | CPU= | .019369 | | | | | |
| | | | Buffer Manager Summary | | Avg: GtPgRq= | 3.3 | SyPgUp= | .0 | | | | | |
| | | | | | Max: GtPgRq= | 7 | SyPgUp= | 0 | | | | | |
| | | | Locking Summary | | Avg: Suspnd= | .0 | DeadLk= | .0 | TmeOut= | .0 | MxPgLk= | 1.0 | |
| | | | | | Max: Suspnd= | 0 | DeadLk= | 0 | TmeOut= | 0 | MxPgLk= | 1 | |
| CRD4 | CORD04P | 3 | .0000 | .0000 | .0000 | .0000 | 3075.3 | 9178 | 1.593973 | 4.693520 | 8.5758 | 24.9328 | 0 |
| DB2P | CPAPLAN | 4 | Thread Utilization | | Entry= | 0 | Pool= | 4 | Command= | 0 | | | |
| | | | Class1: Thread Time | | Avg: Elapsed= | .0569 | CPU= | .025045 | | | | | |
| | | | | | Max: Elapsed= | .0850 | CPU= | .029168 | | | | | |
| | | | Class2: In-DB2 Time | | Avg: Elapsed= | .0205 | CPU= | .018777 | | | | | |
| | | | | | Max: Elapsed= | .0241 | CPU= | .022986 | | | | | |
| | | | Buffer Manager Summary | | Avg: GtPgRq= | 3.3 | SyPgUp= | .0 | | | | | |
| | | | | | Max: GtPgRq= | 7 | SyPgUp= | 0 | | | | | |
| | | | Locking Summary | | Avg: Suspnd= | .0 | DeadLk= | .0 | TmeOut= | .0 | MxPgLk= | 1.0 | |
| | | | | | Max: Suspnd= | 0 | DeadLk= | 0 | TmeOut= | 0 | MxPgLk= | 1 | |
| . . . | | | | | | | | | | | | | |
| *** Total *** | | 23 | .0000 | .0000 | .0000 | .0000 | 417.3 | 9178 | .227745 | 4.693520 | 1.2403 | 24.9328 | 0 |
| DB2P | | 26 | Thread Utilization | | Entry= | 0 | Pool= | 26 | Command= | 0 | | | |
| | | | Class1: Thread Time | | Avg: Elapsed= | .0702 | CPU= | .025824 | | | | | |
| | | | | | Max: Elapsed= | .5211 | CPU= | .055524 | | | | | |
| | | | Class2: In-DB2 Time | | Avg: Elapsed= | .0204 | CPU= | .018508 | | | | | |
| | | | | | Max: Elapsed= | .0471 | CPU= | .040673 | | | | | |
| | | | Buffer Manager Summary | | Avg: GtPgRq= | 2.8 | SyPgUp= | .0 | | | | | |
| | | | | | Max: GtPgRq= | 11 | SyPgUp= | 0 | | | | | |
| | | | Locking Summary | | Avg: Suspnd= | .0 | DeadLk= | .0 | TmeOut= | .0 | MxPgLk= | 1.0 | |
| | | | | | Max: Suspnd= | 0 | DeadLk= | 0 | TmeOut= | 0 | MxPgLk= | 1 | |

Figure 250. DB2 report (Long Summary)

Example 3: DB2 List and DB2 Recap

This produces a DB2 List report like that in Figure 251 on page 498. An example of the Recap report which is always printed at the end of processing is shown in Figure 252 on page 498.

```
CICSPA DB2(LIST(ALL),LISTZERO)
```

| Tran/SSID | Userid/ Authid | Program/ Planname | APPLID | UOW Task | R Seq | T Term | LUName | ..DB2 Connect | Wait Thread | Time ReqCnt | DB2 ReqCnt | User Time | CPU Time | Start Time | Stop Time | Response Time | A B |
|--|----------------|-------------------|-----------|----------|--|--------|----------------|---------------|-------------|-------------|------------|--------------|--------------|------------|-----------|---------------|-----|
| CRD8 | CICSUSER | CORD08P | CICPAOR1 | 53 | 2 | T | <AAK CICIPTOR1 | .0000 | .0000 | 22 | .0185 | 15:49:40.023 | 15:49:40.105 | .0827 | | | |
| CRD5 | CICSUSER | CORD05P | CICPAOR1 | 52 | 2 | T | <AAK CICIPTOR1 | .0000 | .0000 | 12 | .0137 | 15:49:39.960 | 15:49:40.016 | .0566 | | | |
| CRDD | CICSUSER | CORD13P | CICIPTOR1 | 45 | 1 | T | 0013 TCP00013 | N/A | N/A | 0 | .0390 | 15:49:39.521 | 15:49:40.121 | .6006 | | | |
| DB2P | CICSUSER | CPAPLAN | CICPAOR1 | 52 | Thread Identification ID=POOLCRD50001 NETName=P390.TCP00013 UOWID=1F7D3A6472BA | | | | | | | | | | | | |
| Begin Time: 15:49:39.969 7/12/03 End Time: 15:49:40.007 7/12/03 | | | | | | | | | | | | | | | | | |
| Class1: Thread Time Elapsed= .0379 CPU= .019536 | | | | | | | | | | | | | | | | | |
| Class2: In-DB2 Time Elapsed= .0184 CPU= .014040 | | | | | | | | | | | | | | | | | |
| Class3: Suspend Time Total = N/P I/O= N/P Lock/Latch= N/P Other= N/P | | | | | | | | | | | | | | | | | |
| Buffer Manager Summary GtPgRq= 2 SyPgUp= 0 | | | | | | | | | | | | | | | | | |
| Locking Summary Suspnd= 0 DeadLk= 0 TmeOut= 0 MxPgLk= 1 | | | | | | | | | | | | | | | | | |
| SQL DML Query/Update Sel= 0 Ins= 0 Upd= 0 Del= 0 | | | | | | | | | | | | | | | | | |
| SQL DML 'Other' Des= 0 Pre= 0 Ope= 1 Fet= 10 Clo= 1 | | | | | | | | | | | | | | | | | |
| DB2P | CICSUSER | CPAPLAN | CICPAOR1 | 53 | Thread Identification ID=POOLCRD50001 NETName=P390.TCP00013 UOWID=1F7D3A6472BA | | | | | | | | | | | | |
| Begin Time: 15:49:40.032 7/12/03 End Time: 15:49:40.097 7/12/03 | | | | | | | | | | | | | | | | | |
| Class1: Thread Time Elapsed= .0654 CPU= .031185 | | | | | | | | | | | | | | | | | |
| Class2: In-DB2 Time Elapsed= .0231 CPU= .021452 | | | | | | | | | | | | | | | | | |
| Class3: Suspend Time Total = N/P I/O= N/P Lock/Latch= N/P Other= N/P | | | | | | | | | | | | | | | | | |
| Buffer Manager Summary GtPgRq= 2 SyPgUp= 0 | | | | | | | | | | | | | | | | | |
| Locking Summary Suspnd= 0 DeadLk= 0 TmeOut= 0 MxPgLk= 1 | | | | | | | | | | | | | | | | | |
| SQL DML Query/Update Sel= 0 Ins= 0 Upd= 0 Del= 0 | | | | | | | | | | | | | | | | | |
| SQL DML 'Other' Des= 0 Pre= 0 Ope= 1 Fet= 20 Clo= 1 | | | | | | | | | | | | | | | | | |

Figure 251. DB2 report (List)

Records processed by the DB2 report processor:

| | Count | % of Total |
|---|--------|------------|
| CMF performance class records: | | |
| Included | 120 | .6% |
| Excluded: | | |
| CICS PA record selection | 20,670 | 99.4% |
| No DB2 activity | 0 | .0% |
| Other | 0 | .0% |
| Total | 20,790 | |
| DB2 accounting records: | | |
| Included | 30 | .5% |
| Excluded: | | |
| CICS PA record selection | 0 | .0% |
| Not CICS Attach | 368 | 6.6% |
| Accounting Token not set | 5,196 | 92.9% |
| Other | 0 | .0% |
| Total | 5,594 | |
| Network units-of-work with DB2 activity: | | |
| Network units-of-work where: | | |
| DB2 accounting records were resolved | 30 | 100.0% |
| DB2 accounting records were not resolved | 0 | .0% |
| DB2 accounting records were not present | 0 | .0% |
| Total | 30 | |
| CMF performance class records with DB2 activity: | | |
| Matched to a DB2 accounting record | 30 | 100.0% |
| Not matched to any DB2 accounting records | 0 | .0% |
| Total | 30 | |
| CMF performance class records with no DB2 activity: | | |
| Total | 0 | |
| DB2 accounting records: | | |
| Eligible for summary reporting | 30 | 100.0% |
| Matched to a single CICS task | 30 | 100.0% |
| Matched to two or more CICS tasks | 0 | .0% |
| Not matched to any CICS tasks | 0 | .0% |
| Total | 30 | |

Figure 252. DB2 report (Recap)

MQ - WebSphere MQ report

The MQ operand requests the WebSphere MQ report.

Note: WebSphere MQ accounting records are produced when the Accounting Trace component of WebSphere MQ is activated. If the MQ accounting trace is active, CLASS(1) subtype 0 records are always produced, but subtypes 1 and 2 are only produced if CLASS(3) is specified when the trace is activated.

See the *WebSphere MQ for z/OS System Setup Guide* for more information on accounting for WebSphere MQ resources and the setup required.

The command format is:

```
CICSPA MQ(  
    [OUTPUT(ddname),]  
    [LIST,]  
    [SUMMARY,]  
    [CLASS1|CLASS3,]  
    [SORT([TRAN,][QUEUE]),]  
    [QNAME(name),]  
    [SSID(id1,id2,...),]  
    [LINECount(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **MQ00nnnn** where nnnn is the report sequence number **0001-9999**. See "OUTPUT" on page 384 for further information.

LIST Requests the WebSphere MQ List report.

SUMMARY

Requests the WebSphere MQ Summary report.

CLASS1|CLASS3

CLASS1 requests the reports to process MQ Class 1 records. This is the default.

CLASS3 requests the reports to process MQ Class 3 records.

If the List report is requested, CLASS1 and CLASS3 cannot both be specified because of the different report formats.

SORT Specifies the required sorting sequence of the Class 3 Summary report. The choices are:

1. SORT(TRAN) sorts by Transaction ID. This is the default.
2. SORT(QUEUE) sorts by WebSphere Queue name.
3. SORT(TRAN,QUEUE) sorts by Transaction ID, then Queue name.
4. SORT(QUEUE,TRAN) sorts by Queue name, then Transaction ID.

QNAME

Selects records for a particular WebSphere MQ queue name. You can specify a pattern such as CICS~~SM~~Q* to include more than one queue name. The queue name is case-sensitive.

SSID Requests reporting to be limited to the MQ Subsystem IDs that match the specified IDs or patterns. Masking characters are supported: % for one and only one character, and * for many or none.

LINECount

Controls the number of lines per page. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

The fields that can be specified in Selection Criteria for filtering MQ accounting (SMF 116) records are:

APPLID

CICS APPLID

TRAN CICS Transaction ID

TASKNO

CICS Task ID

START

Thread Start Time

STOP Thread End Time

ACTIVE

Thread Begin-End Time

MQ examples

Example 1: Default report (MQ Class 1 Summary)

This example produces the default report like that shown in Figure 253. The default is the Summary report for Class 1 data.

CICSPA MQ

The following command achieves the same:

CICSPA MQ(SUMMARY,CLASS1)

```
V5R1M0                                CICS Performance Analyzer
                                       WebSphere MQ Class 1 Summary
MQ000001 Printed at 12:03:45 04/17/2013 Data from 14:50:34 1/13/2004 to 14:51:24 1/13/2004 Page 1

----- Key -----
SSID  APPLID  TRAN   Count  Average   Average GET  Counts  Average PUTx  Counts
CPU   Calls  <=99    <=999    <=9999    >=10000    <=99    <=999    <=9999    >=10000
MQMD  CICS53A1 CKCN   1    0.000747    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
MQMD  CICS53A1 CKTI   1    0.001541    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
MQMD  CICS53A1 MQA1   1    0.064342   60.0    0.0    0.0    0.0    60.0    0.0    0.0    0.0
```

Figure 253. MQ Summary report (Class 1)

OMEGAMON - OMEGAMON reports

The OMEGAMON operand requests the OMEGAMON reports.

The command format is:

```
CICSPA OMEGAMON[(
    [OUTPUT(ddname|OMEG0001),]
    [LINECNT(nnn),]
    [DBMS(ADABAS, DATACOM, IDMS, SUPRA),]
    [LIST,]
    [SUMMARY(TRAN, DATABASE, AVG, MAX, MIN, TOT, DEV, PEAK(percentile)),]
    [PRINT(TOTALS, DB),]
```

```
[TITLE1('...sub-heading left ...'),]
[TITLE2('...sub-heading right...')]
[SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
...))]]
```

The options are:

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **OMEGnnnn** where nnnn is the report sequence number **0001-9999**. See “OUTPUT” on page 384 for further information.

LINECount

Controls the number of lines per page. See “LINECount” on page 386 for further information.

DBMS

The types of DBMS for which you want to produce reports.

LIST Requests the OMEGAMON List report.

SUMMARY

Requests the OMEGAMON Transaction Summary report (**TRAN**), the Database Summary report (**DATABASE**), and also the statistical functions that these reports use to summarize transaction data:

- AVG** Average
- MAX** Maximum
- MIN** Minimum
- TOT** Total
- DEV** Standard deviation
- PEAK** Peak percentile. Specify a percentile value between 50 and 100 to report the value for that percentage of transactions. Computations assume a normal distribution. For example, specify **PEAK(95)** to report the value for 95% of transactions.

Each statistical function that you specify produces additional rows in the reports, with the function name as the row heading.

PRINT

Each OMEGAMON XE for CICS (SMF 112) record contains database usage details for a single transaction. A transaction might use one database, or it might use multiple databases from different types of DBMS. For each type of DBMS used by the transaction, the record contains a “totals” segment. For each database used by the transaction, the record contains a “detail” segment.

PRINT(TOTALS)

Includes totals sections in a report, using information from totals segments in the input records.

PRINT(DB)

Includes database sections in a report, using information from detail segments in the input records.

The **PRINT** operand is relevant only to the List report and the Transaction Summary report; it has no effect on the Database Summary report.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See “TITLE1 and TITLE2” on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

CICS PA checks only the following Performance Selection Criteria fields when filtering OMEGAMON records:

APPLID

CICS APPLID

FILENAME

Database (or file) name

NETUOWPX

Originating System VTAM network name

START

Task start time.

Note: Report Interval-based selection for OMEGAMON XE for CICS records is limited to the Attach (START) time; the STOP and ACTIVE options are ignored.

TASKNO

Transaction identification number

TRAN CICS transaction ID**UOWID**

Unit of work ID

All other fields are ignored.

OMEGAMON examples

Example 1: Default report (both summary reports)

The default is the Database Summary report and Transaction Summary report for all types of DBMS. The following example shows a Transaction Summary report.

CICSPA OMEGAMON

OUTPUT

Controls the report output DDname. See "OUTPUT" on page 384 for further information. If not specified, CICS PA assigns a DDname in the format **xxxxnnnn** where **nnnn** is the report sequence number **0001-9999** to uniquely identify the output, and **xxxx** is:

LOGR for the System Logger report.

LOEX for the Recap report for the System Logger extract.

DDNAME

Specifies the DDname of the extract data set where the extracted data is written. When this operand is specified, instead of producing the report, CICS PA produces the extract file, and a Recap of the extract process is written to the OUTPUT operand report file.

The DDname can be up to 8 alphanumeric characters, with the first non-numeric. The CICS PA dialog assigns DDnames in the format **CPAOEXnn** where **nn** is the extract sequence number **01-99**. (See the sample JCL in JCL for generating CICS PA reports and extracts (part 1 of 2)).

DELIMIT

Specifies the field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set. The default is a semicolon **DELIMIT(';')**.

LABELS | NOLABELS

LABELS indicates that the first record to be written to the extract data set is to be a field labels record. This is the default.

NOLABELS indicates that CICS PA is not to write a field labels record to the extract data set.

FLOAT

Write numeric fields in the extract in S390 FLOAT format.

Specify FLOAT format if you plan to import the extract into a DB2 table. When the DB2 Load Utility is used, it will interpret all numerical fields reliably and consistently in FLOAT format.

If FLOAT is not specified, the numeric fields are written in a mixture of integer, real and exponential using character digits. This is the default and is suitable when importing the extract data into a PC spreadsheet tool.

EXTERNAL

Specifies the DDname for the work data set used by the external sort facility. If not specified, CICS PA assigns an External Work File from a pool of External Work Files with DDnames in the format **CPAXWnnnn** where **nnn** is the sequence number **001-999**. See "EXTERNAL" on page 385 for further information.

SUMMARY

Requests the System Logger Logstream Summary and Structure Summary reports. This is the default.

To present a single summary of records for the entire reporting period, omit the optional **SUMMARYINTERVAL** suboperand (this is the default). To summarize records at intervals within the reporting period, specify **SUMMARYINTERVAL** with a multiple of the SMF reporting interval, from 00:01 to 23:59. For example, if the SMF reporting interval was 5 minutes at the time that the logger records were written, then you can generate a System Logger Summary report that summarizes the logger records at any multiple of 5 minutes: 05:00, 10:00, 15:00 etc.

If you specify **SUMMARYINTERVAL**, then ensure that the value you specify is an exact multiple of the SMF reporting interval. Otherwise, each of the summaries in the report might not be calculated from the same number of records.

LIST Requests the System Logger List report, a detailed list of Logstream writes, Logstream deletes, and Logstream events.

Specify **ALTER** to also report Structure Alter events. These apply to Structures, not individual Logstreams, and are reported with a Logstream name of ***ALTER***.

By default, the List report entries are printed in Logstream or Structure name sequence according to the **SORT** operand. However, by specifying **TIMESEQ**, the entries are printed in Logstream or Structure name sequence within each Interval expiry period.

INTERVAL

Specifies the SMF global recording interval as specified in the **INTVAL** parameter of the **SMFPRMnn PARMLIB** member.

Specify an interval from 1 to 60 minutes. If not specified, CICS PA uses the recording interval in effect on the reporting system. The interval value is used by CICS PA for rate per second calculations in the System Logger Summary reports. If the interval used by CICS PA does not match the data, the total interval and rate calculations will be incorrect.

SORT Specifies the sort sequence for the List and Summary reports.

Specify **LOGSTREAM** to sort by Logstream name, MVS ID, Structure name, then time stamp. This is the default.

Specify **STRUCTURE** to sort by Structure name, Logstream name, MVS ID, then time stamp.

LOGSTREAM

Optional filter on Logstream name. Specify a name or pattern enclosed in quotes. Masking characters % and * are allowed. The percent (%) is for a single character substitution and the asterisk (*) is for many or none. For example:

LOGSTREAM('TEST.DFHLOG')

must match exactly

LOGSTREAM('PROD.*')

can match PROD.DFHLOG

LOGSTREAM('PROD.MVSA%')

can match PROD.MVSA1, but not PROD.MVSA1LOG

STRUCTURE

Optional filter on Structure name. Specify a name or pattern enclosed in quotes. Masking characters % and * are allowed. For example:

STRUCTURE('TEST.DFHLOG')

must match exactly

STRUCTURE('PROD.*')

can match PROD.DFHLOG

STRUCTURE('PROD.MVSA%')

can match PROD.MVS1, but not PROD.MVS1LOG

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT(LOGGER(INCLUDE|EXCLUDE

Specifies what data to include or exclude from the report or extract based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

LOGGER examples

Example 1: Default report

The default is the System Logger Summary report like that shown in Figure 255 on page 507, sorted by Logstream name, without Alter events, and using the system default interval.

CICSPA LOGGER

The following command achieves the same:

CICSPA LOGGER(SUMMARY),SORT(LOGSTREAMNAME)

```
V5R1M0
```

CICS Performance Analyzer
System Logger Report - Logstream Summary

LOGR0001 Printed at 12:03:45 04/17/2013 Data from 7:00:40:14 7/20/2004 to 9:59:40:16 7/20/2004 Page 7

| Logstream name | MVSID | Structure name | Group | First interval start | Last interval stop | Total Interval |
|-------------------|-------|----------------|-------|-----------------------|-----------------------|----------------|
| IYOT1.IY01.DFHJ03 | MVS5 | *DASDONLY* | | 06:45:00:00 7/20/2004 | 09:00:00:00 7/20/2004 | 02:15:00 |

| IXGWrites | | | | DELETIONS | | | | |
|------------|-------|-------------|---------------|--------------------------------|-----------------------|--------------------------|-----------------------------|-------------------------------|
| | Count | Total Bytes | Average Bytes | Bytes Writn to Interim Storage | Count With DASD Write | Count Without DASD Write | Bytes After Offload w. DASD | Bytes Int Stor w/o DASD Write |
| Total | 45 | 2506582 | 55702 | 2543616 | 20 | 0 | 1130496 | 0 |
| Rate(/Sec) | 0 | 309 | | 314 | 0 | 0 | 140 | 0 |
| Minimum | 45 | 2506582 | | 2543616 | 20 | 0 | 1130496 | 0 |
| Maximum | 45 | 2506582 | | 2543616 | 20 | 0 | 1130496 | 0 |

| EVENTS | | | | | | | | | |
|------------|----------|------------------|--------------------|--------------|--------------|------------|-------------|------------------------|---------------------------|
| | Offloads | Staging Threshld | Demand DASD Shifts | Block Length | Staging Full | Entry Full | Struct Full | Demand Init'd Offloads | Staging DS Async Buf Full |
| Total | 2 | 6 | 6 | | 0 | 0 | 0 | 0 | 0 |
| Rate(/Sec) | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| Minimum | 2 | 0 | 6 | 16998 | 0 | 0 | 0 | 0 | 0 |
| Maximum | 2 | 0 | 6 | 65372 | 0 | 0 | 0 | 0 | 0 |

| EVENTS | | | DASD Writes | | | | | | |
|------------|-------|-------|-------------|------------------------|---------------------------|-------|-------------|---------|-------|
| | Type1 | Type2 | Type3 | Struct Rebuilds Init'd | Struct Rebuilds Compl't'd | Count | Total Bytes | Average | Waits |
| Total | 0 | 0 | 0 | 0 | 0 | 8 | 1114992 | 0 | 0 |
| Rate(/Sec) | 0 | 0 | 0 | 0 | 0 | 0 | 138 | | 0 |
| Minimum | 0 | 0 | 0 | 0 | 0 | 8 | 1114992 | | 0 |
| Maximum | 0 | 0 | 0 | 0 | 0 | 8 | 1114992 | | 0 |

LOGR0001 Printed at 10:51:02 4/07/2006 Data from 7:00:40:14 7/20/2004 to 9:59:40:16 7/20/2004 Page 8

| Structure name | MVSID | Group | First interval start | Last interval stop | Total Interval |
|----------------|-------|-------|-----------------------|-----------------------|----------------|
| LOG_JG | MVS5 | | 07:00:00:00 7/20/2004 | 09:00:00:00 7/20/2004 | 02:00:00 |

| IXGWRITES | | | | DELETIONS | | | | |
|------------|-------|-------------|---------------|--------------------------------|-----------------------|--------------------------|-----------------------------|-------------------------------|
| | Count | Total Bytes | Average Bytes | Bytes Writn to Interim Storage | Count With DASD Write | Count Without DASD Write | Bytes After Offload w. DASD | Bytes Int Stor w/o DASD Write |
| Total | 9025 | 2549654 | 283 | 4622848 | 4892 | 3484 | 1379383 | 984622 |
| Rate(/Sec) | 1 | 315 | | 571 | 0 | 0 | 170 | 122 |
| Minimum | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| Maximum | 9022 | 2546799 | | 4619520 | 4891 | 3484 | 1379267 | 984622 |

| EVENTS | | | | | | | | | |
|------------|----------|------------------|--------------------|--------------|--------------|------------|-------------|------------------------|---------------------------|
| | Offloads | Staging Threshld | Demand DASD Shifts | Block Length | Staging Full | Entry Full | Struct Full | Demand Init'd Offloads | Staging DS Async Buf Full |
| Total | 3 | 257 | 1 | | 0 | 0 | 0 | 0 | 0 |
| Rate(/Sec) | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| Minimum | 0 | 0 | 0 | 116 | 0 | 0 | 0 | 0 | 0 |
| Maximum | 2 | 257 | 1 | 1422 | 0 | 0 | 0 | 0 | 0 |

| EVENTS | | | | | DASD Writes | | | | |
|------------|-------|-------|-------|------------------------|---------------------------|-------|-------------|---------|-------|
| | Type1 | Type2 | Type3 | Struct Rebuilds Init'd | Struct Rebuilds Compl't'd | Count | Total Bytes | Average | Waits |
| Total | 9025 | 0 | 0 | 0 | 0 | 9 | 1575063 | 0 | 5 |
| Rate(/Sec) | 1 | 0 | 0 | 0 | 0 | 0 | 194 | | 0 |
| Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| Maximum | 9022 | 0 | 0 | 0 | 0 | 8 | 1574907 | | 5 |

Figure 255. System Logger report (Summary report)

Example 2:

This example produces the System Logger List report like that shown in Figure 256 on page 508.

```
CICSPA LOGGER(LIST(ALTER))
```

LOGR0001 Printed at 12:03:45 04/17/2013 Data from 7:00:40:14 7/20/2004 to 9:59:40:16 7/20/2004 Page 1

| Logstream name | Structure name | MVSIID | Group | Flag | Interval expired at | Level |
|----------------|----------------|--------|-------|---------|-----------------------|---------|
| IYOT1.DFHLOG | LOG_JG | MVS5 | | Staging | 09:00:00:00 7/20/2004 | SP6.0.8 |

| IXGWRITES | | | DELETIONS | | | | |
|-----------|-------------|---------------|--------------------------------|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Count | Total Bytes | Average Bytes | Bytes Writn to Interim Storage | Count With DASD Write | Count Without DASD Write | Bytes After Offload w. DASD | Bytes Int Stor w/o DASD Write |
| 11248 | 4348827 | 386 | 6768128 | 0 | 9327 | 0 | 3348643 |

| EVENTS | | | | | | | | | |
|----------|------------------|--------------------|--------------|------------|-------------|------------------------|----------------------|----------------------|---------------------------|
| Offloads | Staging Threshld | Demand DASD Shifts | Staging Full | Entry Full | Struct Full | Demand Init'd Offloads | Minimum Block Length | Maximum Block Length | Staging DS Async Buf Full |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 116 | 1422 | 0 |

| EVENTS | | | | | DASD Writes | | | |
|--------|-------|-------|------------------------|---------------------------|-------------|-------------|---------|-------|
| Type1 | Type2 | Type3 | Struct Rebuilds Init'd | Struct Rebuilds Compl't'd | Count | Total Bytes | Average | Waits |
| 11216 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Logstream name | Structure name | MVSIID | Group | Level |
|----------------|----------------|--------|-------|---------|
| *ALTER* | LOG_JG | MVS5 | | SP6.0.8 |

----- STRUCTURE ALTER -----
SMF record time stamp 9:36:38:05 7/20/2004

| Current Bytes Written | Offloads | Current Avg Bufsz | Targeted Avg Bufsz | Struct Size (Blocks) | Log Data Writes | Log Streams Connectd |
|-----------------------|----------|-------------------|--------------------|----------------------|-----------------|----------------------|
| 0 | 2 | 768 | 768 | 5056 | 0 | 0 |

Figure 256. System Logger report (List report)

GRAPH - Graph reports

The **GRAPH** operand requests either of two graph reports:

- The Transaction Response Time Graph report. This report produces two graphs:
 - The Average Response Time (in seconds).
 - The Maximum Response Time (in seconds).
- The Transaction Rate Graph report. This report produces two graphs:
 - The Average Response Time (in seconds).
 - The Number of Transactions Completed.

The Transaction Rate Graph report produces two graphs:

The command format is:

```
CICSPA GRAPH(RESPONSE|TRANRATE,
              [OUTPUT(dname),]
              [RANGE1(nnnn),]
              [RANGE2(nnnn),]
              [INTERVAL(hh:mm:ss),]
              [LINECount(nnn),]
              [TITLE1('...up to 64 characters...'),]
              [TITLE2('...up to 64 characters...'),]
              [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
                                ...))])
```

The options are:

RESPONSE|TRANRATE

Specify **RESPONSE** to request the Transaction Response Time Graph. This is the default.

Specify **TRANRATE** to request the Transaction Rate Graph.

Only one can be specified per **GRAPH** operand.

OUTPUT

Controls the report output DDname. If not specified, CICS PA assigns a DDname in the format **xxxxnnnn** where **nnnn** is the report sequence number **0001-9999** and **xxxx** is the type of graph:

GRSP Transaction Response Time Graph

GRTE Transaction Rate Graph

See "OUTPUT" on page 384 for further information.

RANGE1

Specifies the high end of the horizontal axis of the first graph. This is the **Average Response Time** in seconds.

If not specified, CICS PA sets the scale of the horizontal axis to fit the highest recorded values.

RANGE2

Specifies the high end of the horizontal axis of the second graph.

- For the Transaction Response Time Graph, this is the **Maximum Response Time** in seconds.
- For the Transaction Rate Graph, this is the **Number of Transactions Completed**.

If not specified, CICS PA sets the scale of the horizontal axis to fit the highest recorded values.

INTERVAL

Specifies the time interval (in hours, minutes, and seconds) for the scale of the vertical axis of the graphs. The default is **00:05:00** (5 minutes).

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

1 becomes 00:01:00

1.1 becomes 00:01:00 (rounded down from 00:01:01)

1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

LINECOUNT

Controls the number of lines per page. See "LINECount" on page 386 for further information.

TITLE1, TITLE2

Controls the report title (left and right half of subheading line). See "TITLE1 and TITLE2" on page 386 for further information.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what CMF performance data to include or exclude from the report based on data field values. See "Using SELECT statements" on page 516 for a detailed explanation and examples.

GRAPH examples

Example 1: Response Times at minute intervals

This example produces the Transaction Response Time Graph like that shown in Figure 257. Each line of the graph represents those transactions that completed during that 1 minute interval.

CICSPA GRAPH(RESPONSE,INTERVAL(1))

```
V5R1M0                                CICS Performance Analyzer
                                         Response Time
GRSP0001 Printed at 12:03:45 04/17/2013   Data from 11:10:51 2/14/2005 to 11:34:00 2/14/2005   Page 1
2/14/2005
```

| Time HH.MM.SS | Value | Average Response Time in Secs | | | | | | | | | | Value | Maximum Response Time in Secs | | | | | | | | | |
|------------------|-------|-------------------------------|----|----|----|----|----|-----|-----|-----|-----|---------|-------------------------------|-----|-----|-----|-----|-----|-----|------|------|------|
| | | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | | 140 | 280 | 420 | 560 | 700 | 840 | 980 | 1120 | 1260 | 1400 |
| 11:11:00 | 0.6 | | | | | | | | | | | 1.4 | | | | | | | | | | |
| 11:12:00 | 1.4 | | | | | | | | | | | 16.1 | * | | | | | | | | | |
| 11:13:00 | 7.7 | *** | | | | | | | | | | 50.7 | ** | | | | | | | | | |
| 11:14:00 | 4.9 | ** | | | | | | | | | | 34.2 | * | | | | | | | | | |
| 11:15:00 | 14.9 | ***** | | | | | | | | | | 81.3 | *** | | | | | | | | | |
| 11:16:00 | 4.8 | ** | | | | | | | | | | 18.9 | * | | | | | | | | | |
| 11:17:00 | 5.0 | ** | | | | | | | | | | 46.5 | ** | | | | | | | | | |
| 11:18:00 | 1.4 | | | | | | | | | | | 9.4 | | | | | | | | | | |
| 11:19:00 | 3.8 | * | | | | | | | | | | 95.1 | *** | | | | | | | | | |
| 11:20:00 | 1.3 | | | | | | | | | | | 28.5 | * | | | | | | | | | |
| 11:21:00 | 14.2 | ***** | | | | | | | | | | 308.9 | ***** | | | | | | | | | |
| 11:22:00 | 3.7 | * | | | | | | | | | | 51.3 | ** | | | | | | | | | |
| 11:23:00 | 6.2 | ** | | | | | | | | | | 102.5 | **** | | | | | | | | | |
| 11:24:00 | 0.7 | | | | | | | | | | | 13.7 | | | | | | | | | | |
| 11:25:00 | 3.6 | * | | | | | | | | | | 66.4 | ** | | | | | | | | | |
| 11:26:00 | 3.3 | * | | | | | | | | | | 36.2 | * | | | | | | | | | |
| 11:27:00 | 3.3 | * | | | | | | | | | | 19.8 | * | | | | | | | | | |
| 11:28:00 | 4.5 | ** | | | | | | | | | | 16.1 | * | | | | | | | | | |
| 11:29:00 | 6.0 | ** | | | | | | | | | | 19.4 | * | | | | | | | | | |
| 11:30:00 | 2.7 | * | | | | | | | | | | 61.0 | ** | | | | | | | | | |
| 11:31:00 | 3.5 | * | | | | | | | | | | 52.1 | ** | | | | | | | | | |
| 11:32:00 | 3.7 | * | | | | | | | | | | 16.2 | * | | | | | | | | | |
| 11:33:00 | 0.0 | | | | | | | | | | | 0.0 | | | | | | | | | | |
| 11:34:00 | 145.6 | ***** | | | | | | | | | | 1,362.6 | ***** | | | | | | | | | |

Figure 257. Transaction Response Time Graph report

Example 2: Transaction Rates at 15 minute intervals

This example generates a Transaction Rate Graph with the interval set to 15 minutes.

CICSPA GRAPH(TRANRATE,INTERVAL(15))

EXTRACTPERFORMANCE - Performance data extract

The **EXTRACTPERFORMANCE** operand requests that a performance extract data set is to be created as a delimited text file from the CMF performance class data.

A more flexible alternative is the extract capability provided by the **LIST** and **SUMMARY** operands. For more information, see "LIST - Performance List report" on page 396 and "SUMMARY - Performance Summary report" on page 419.

A Recap report containing processing statistics is always printed at the end of extract processing.

The command format for the Performance Data extract is:

```

CICSPA EXTRACTPERFORMANCE(
    [OUTPUT(ddname),]
    [DDNAME(ddname),]
    [DELIMIT('field-delimiter'),]
    [LABELS|NOLABELS,]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
        ...))])

```

The options are:

OUTPUT

Controls the report output DDname for the Recap report. If not specified, CICS PA assigns a DDname in the format **EXPTnnnn** where nnnn is the report sequence number **0001-9999**

DDNAME

Specifies the DDname of the output data set where the performance extract is written. If not specified, the default DDname is **CPAOEXPT**. The CICS PA dialog, however, assigns DDnames in the format **CPAOEXnn** where nn is the extract sequence number **01-99**. (See the sample JCL in Figure 188 on page 361).

DELIMIT

Specifies the field delimiter, enclosed in quotes, to be used to separate each data field in the performance extract data set. The default is a semicolon **DELIMIT(';')**.

LABELS|NOLABELS

LABELS indicates that the first record to be written to the performance extract data set is to be a field labels record. This is the default.

NOLABELS indicates that CICS PA is not to write a field labels record to the performance extract data set.

SELECT(PERFORMANCE(INCLUDE|EXCLUDE

Specifies what CMF performance data to include or exclude from the extract based on data field values. See “Using SELECT statements” on page 516 for an explanation and examples.

EXTRACTPERFORMANCE examples

Example 1: Default extract

In this example, the extract records are written to the extract data set specified in the default DD statement **CPAOEXPT** and the Recap report is written to **EXPT0001**.

```
CICSPA EXTRACTPERFORMANCE
```

Example 2:

```

CICSPA EXTRACTPERFORMANCE(OUTPUT(EXPT0002),
    DDNAME(CPAOEX02),
    DELIMIT(', '))

```

In this example, a comma is specified for the field delimiter. The extract records are written to the data set specified in the DD statement **CPAOEX02** and the Recap report is written to **EXPT0002**.

RECSEL - Record Selection extract

The **RECSEL** or **RECORDSELECTION** operand requests that a subset of CMF records be extracted from a larger SMF file. Optionally, DB2 and MQ accounting records and MVS System Logger records can also be extracted. This smaller file containing only those records of interest to you can then be used for more efficient CICS PA reporting.

A Recap report containing processing statistics is always printed at the end of extract processing.

The command format for the Record Selection extract is:

```
[CICSPA APPLID(applid1,applid2,...)]
CICSPA RECSEL(
    [OUTPUT(ddname),]
    [DDNAME(ddname),]
    [PERFORMANCE,]
    [EXCEPTION,]
    [RESOURCE,]
    [IDENTITY,]
    [STATISTICS,]
    [LOGGER,]
    [OMEGAMON,]
    [DB2,]
    [MQ,]
    [SSID(id1,id2,...),]
    [COMPRESS|NOCOMPRESS,]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(value1),...),...),)]
    [SELECT(EXCEPTION(INCLUDE|EXCLUDE(field1(value1),...),...))]
    [SELECT(LOGGER(INCLUDE|EXCLUDE(field1(values1),...), ...))]
    [LOGSTREAM('name.or.pattern'),]
    [STRUCTURE('name.or.pattern'),])
```

The options are:

OUTPUT

Controls the report output DDname for the Recap report. If not specified, CICS PA assigns a DDname in the format **RSELnnnn** where nnnn is the report sequence number **0001-9999**.

DDNAME

Specifies the DDname of the output data set where the Record Selection extract is written. If not specified, the default DDname is **CPAORSEL**. The CICS PA dialog, however, assigns DDnames in the format **CPAORSnn** where nn is the extract sequence number **01-99**. See the sample JCL in Figure 188 on page 361.

PERFORMANCE

Include CMF Performance class records in the extract. This is the default.

EXCEPTION

Include CMF Exception class records in the extract.

RESOURCE

Include CMF Transaction Resource class records in the extract.

IDENTITY

Include CMF Identity class data records in the extract.

STATISTICS

Include CICS Statistics and Server statistics class records in the extract.

LOGGER

Include MVS System Logger records in the extract.

OMEGAMON

Include OMEGAMON XE for CICS records in the extract.

DB2 Include DB2 accounting records in the extract.

MQ Include WebSphere MQ accounting records in the extract.

SSID Requests that the Record Selection extract include DB2 accounting (SMF 101) records for the specified DB2 Subsystem IDs, and MQ accounting (SMF 116) records for the specified MQ Subsystem IDs . Masking characters are supported: % for one and only one character, and * for many or none. If no DB2 SSIDs are specified, then no DB2 accounting records are extracted. If no MQ SSIDs are specified, then no MQ accounting records are extracted.

COMPRESS | NOCOMPRESS

Determines whether CICS PA writes CICS SMF records to the extract file in compressed or uncompressed format. This option applies whether the records in the input SMF file are compressed or not.

If you specify **COMPRESS**, CICS PA writes compressed CICS SMF records, regardless of the CICS release level that created the input records. Although CICS only introduced support for writing compressed SMF records in CICS Transaction Server Version 3.2, you can use CICS PA to create an extract file of compressed CICS SMF records for any CICS release supported by CICS PA. You can use extract files containing compressed SMF records as input to CICS PA, just like any other SMF file, even though the CICS product level that originally created those SMF records cannot write them in compressed format.

SELECT(PERFORMANCE | EXCEPTION | LOGGER(INCLUDE | EXCLUDE

Specifies what CMF performance data, CMF exception data, or System Logger data to include or exclude from the extract based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

RECSEL examples

Example 1:

Extract only those CMF performance records with Transaction ID starting with R.

```
CICSPA RECSEL(SELECT(PERFORMANCE(INC(TRAN(R*))))))
```

Example 2:

This example produces a Record Selection extract data set and a Recap report like that in Figure 258 on page 514. The APPLID operand provides a filter on CICS generic APPLIDs, and the SSID operand provides a filter on DB2 Subsystem ID. You can see the effect of the filtering by comparing the DB2 accounting numbers in the End of File Record Counts and the Extract Recap.

```
CICSPA APPLID(CICS53A%),
      RECSEL(OUTPUT(RSEL0009),
            DDNAME(CPAORS09),
            SSID(DB2P))
```

```

CPAORS01 Extract has completed successfully
Data Set Name . . . . . CICSPA.RECSEL.EXTRACT
Record Counts:
Performance Dictionary . . . . . 8
Performance Class . . . . . 573
Exception Class . . . . . 0
Resource Class . . . . . 0
Statistics . . . . . 0
DB2 Accounting . . . . . 172
MQ Accounting . . . . . 0
Logger . . . . . 0
SMF Records . . . . . 20

```

Figure 258. Performance Record Selection extract (Recap report)

HDB(LOAD - HDB Load

The **HDB(LOAD** operand requests CICS PA to load historical performance data (List or Summary) or Statistics data from SMF data sets into an HDB.

A Recap report containing processing statistics is always printed at the end of extract processing.

The command format is:

```
CICSPA HDB(LOAD(hdbname)
          [,OUTPUT(ddname)])
```

The options are:

LOAD

Specifies the name of the HDB to be loaded. The HDB must be defined in the Repository (DDname **CPAHDBRG**).

OUTPUT

DDname for the Recap report output. CICS PA records the results of the Load operation in this File. If not specified, CICS PA assigns a DDname of **HDBLnnnn** where nnnn is the numerical sequence number **0001-9999**.

HDB(LOAD examples

The following job is provided as member CPAHDB in the sample library SCPASAMP. This JCL runs the SMF Dump process, followed by Shared System Take-up from an SMF file, HDB Load, and selected reports. By combining take-up, HDB load and reporting into a single job step, all CICS PA functions can be performed by a single pass of the SMF data.

```

//CPAHDB JOB ,CLASS=A,NOTIFY=&SYSUID
//* SMF Dump
//SMFDUMP EXEC PGM=IFASMFDP
//INDD DD DSN=SYS1.MAN1,DISP=SHR
//OUTDD1 DD DISP=(NEW,CATLG),DSN=CICSPROD.SMFDAILY(+1)
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
INDD(INDD,OPTIONS(ALL))
OUTDD(OUTDD1,TYPE(110))
/*
/*
/* CICS PA Take-up, HDB Load, and selected reports
//CICSPA EXEC PGM=CPAMAIN,REGION=4M,PARM=NOSTAE
//STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
//SYSPRINT DD SYSOUT=*

```

```

/* SMF Input Files
//SMFIN001 DD DISP=(SHR,KEEP),DSN=CICSPROD.SMFDAILY(+1)
/* Repository
//CPAHDBRG DD DISP=SHR,DSN=USER.CICSPA.XYX.REPOSTRY
/*
/* CICS PA command requests
//SYSIN DD *
CICSPA IN(SMFIN001),
APPLID(*),

* Take-up from SMF into Shared System Definitions
HDB(TAKEUP,SYSTEMS,FILESYSTEM,OUTPUT(TAKEUP)),

* HDB Load requests
HDB(LOAD(WEEKLY),OUTPUT(WEEKLY)),
HDB(LOAD(DAILY),OUTPUT(DAILY)),
HDB(LOAD(STATS),OUTPUT(STATS)),

* CMF Performance Report requests
SUMMARY(FIELDS(TRAN),OUTPUT(SUMM0001)),
WAITANAL(BY(TRAN),OUTPUT(WAIT0001))
/*

```

Successful completion of the Load request generates a Recap report that provides information about the HDB Load, including a list of container data sets created by the Load process.

```

V5R1M0                                CICS Performance Analyzer
                                        HDB Load Recap Report

WEEKLY  Printed at 9:28:48 8/08/2004  Data from 09:02:00 8/07/2004 to 16:29:00 8/07/2004  Page 1

LOAD requested for HDB: WEEKLY  Repository DSN: USER.CICSPA.XYX.REPOSTRY

The following Containers were created and loaded:
Container DSN: CPA.WEEKLY.D03219.T092846.HDB  No of Records: 54,567
Start Time Stamp: 2004-08-07-09.00.00  End Time Stamp: 2004-08-07-16.00.00

LOAD process complete.

```

Figure 259. HDB Load Recap report

In this example, CICS PA created container data set CPA.WEEKLY.D03219.T092846.HDB for HDB WEEKLY. It contains 54,567 records for the period 9:00am to 4:00pm on August 7, 2004.

EXTRACTSTATISTICS - Statistics extract

The **EXTRACTSTATISTICS** operand requests that one or more statistics extract data sets are to be created as delimited text files from CICS statistics.

A Recap report containing processing statistics is always printed at the end of extract processing.

The command format for the statistics extract is:

```

CICSPA EXTRACTSTATISTICS(
    [OUTPUT(ddname),]
    [DELIMIT('field-delimiter'),]
    [LABELS|NOLABELS,]
    [TYPE(EOD,INT,USS,REQ,RRT),]
    STSxxxx(ddname)|STTGxxxx(ddname),...)

```

The options are:

OUTPUT

Controls the report output DDname for the Recap report. If not specified, CICS PA assigns a DDname in the format **STEX***nnnn* where *nnnn* is the sequence number **0001-9999**

DELIMIT

Specifies the field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set. The default is a semicolon **DELIMIT(';')**.

LABELS | NOLABELS

LABELS indicates that the first record to be written to the extract is to be a field labels record. This is the default.

NOLABELS indicates that CICS PA is not to write a field labels record to the extract data set.

TYPE(...)

The types of statistics intervals to extract.

STTS*xxxx* | STTG*xxxx*

Specifies the DDname of the output data set where each statistics extract is written: **STTS***xxxx* for CICS Transaction Server (TS) statistics or **STTG***xxxx* for CICS Transaction Gateway (TG) statistics, where *xxxx* is the statistics ID. The CICS PA dialog defines DDnames in the format **TS***xxxxnm* or **TG***xxxxnm*, respectively, where *nm* is a 2-digit sequence number that ensures each DDname is unique.

EXTRACTSTATISTICS examples

Example 1: Extract Transaction Manager and Domain Subpools statistics

```
CICSPA EXTRACTSTATISTICS(OUTPUT(STEX0001),
                           DELIMIT(','),
                           LABELS,
                           TYPE(EOD,INT),
                           STTS010A(TS010A01),
                           STTS005A(TS005A01))
```

This example creates two extract data sets: it writes Transaction Manager statistics (ID: 010A) to the extract data set specified in the DD statement TS010A01, and Domain Subpools statistics (ID: 005A) to the extract data set specified in the DD statement TS005A01.

Commas delimit the statistics field values in the extracts. The first record of each extract contains field headings. The extracts contain end-of-day (EOD) and interval (INT) statistics. The Recap report is written to STEX0001.

Using SELECT statements

SELECT statements are optionally specified for report and extract processing to filter CMF records or System Logger records based on the values in particular fields.

The **SELECT** statement is used to **INCLUDE** or **EXCLUDE** data for the requested reports and extracts. Data is selected according to the type of record (CMF **PERFORMANCE**, CMF **EXCEPTION**, **LOGGER**) and within that, the values in certain fields.

The format of the statement is:

```
SELECT(PERFORMANCE|EXCEPTION|LOGGER(
    INCLUDE|EXCLUDE(field1(values1),...),
    INCLUDE|EXCLUDE(field2(values2),...),
    ...))
```

For the complete list of operands which can be used with SELECT to control the selection of records, see “SELECT(PERFORMANCE” on page 523 and “SELECT(EXCEPTION” on page 524.

SELECT(PERFORMANCE and SELECT(EXCEPTION can be used as a *global* operand to control multiple reports and extracts, or as a *report-level* operand to control an individual report or extract. Any number of global or report-level SELECT statements can be used together in a command stream. SELECT(LOGGER can be used only to control an individual report or extract.

Note: The global SELECT criteria is not reset with the next CICS PA command, however:

- A report-level SELECT takes precedence over global selection criteria for that specific report or extract only, after which the selection criteria specified on the global SELECT again takes effect.
- The next global SELECT statement *adds* the new selection criteria to the previous selection criteria (it does not replace it).

Specifying Selection Criteria in Report Forms

When Selection Criteria are specified both in a Report Form and in a report that uses the Report Form, two operands **SELECT2** and **SELECT** are required, one for the Form and one for the report. If both SELECT and SELECT2 are specified, the record must match both for the record to be processed.

PERFORMANCE|EXCEPTION|LOGGER record types

A separate SELECT statement is used for each CMF record type.

SELECT(PERFORMANCE is used when requesting any of the reports, graphs, and extracts that process:

- CMF performance class records
- CMF transaction resource class records
- DB2 accounting records
- MQ accounting records

For more information, see “Selecting DB2 accounting records” on page 167, “Selecting MQ accounting records” on page 167 and Transaction Resource Class “Performance Selection Criteria” on page 220.

SELECT(EXCEPTION is used when requesting reports that process CMF exception class records.

No error occurs if a CMF record type is specified but is not otherwise used in the report operands. This allows all SELECTs to be specified as global operands and then used by CICS PA where appropriate.

SELECT(LOGGER is used when requesting reports or extracts that process System Logger records.

INCLUDE/EXCLUDE actions

INCLUDE and EXCLUDE are used with SELECT to specify criteria for including or excluding certain records in a report.

INCLUDE issues an order to *include* records that match the specified criteria.

EXCLUDE issues an order to *exclude* records that match the specified criteria.

CICS PA examines each SELECT statement, comparing its specified criteria against the data in the input record, until this results in one of three outcomes:

1. The record is *included* (and no more SELECT statements will affect it).
2. The record is *excluded* (and no more SELECT statements will affect it).
3. The record is *passed forward* for checking against the next SELECT statement. If there are no more SELECT statements, either of two things can happen:
 - a. If SELECT statements (global and local) specified INCLUDEs, the record is *excluded*.
 - b. If SELECT statements (global and local) specified EXCLUDEs, the record is *included*.

A single SELECT statement can contain multiple INCLUDE/EXCLUDE clauses, each specifying a list of fields and values for these fields. The data in the input record is compared against the specified values for each field in the INCLUDE/EXCLUDE list. The record must match *all* the criteria coded under one INCLUDE or EXCLUDE, for the record to be accordingly included or excluded.

If there are multiple INCLUDE operands in one SELECT statement, the record must match *all* the INCLUDEs for the record to be included. Similarly, if there are multiple EXCLUDE operands in one SELECT statement, the record must match *all* the EXCLUDEs for the record to be excluded. If there are both INCLUDEs and EXCLUDEs in one SELECT statement, the final outcome depends on which of the criteria the record matches.

The decision matrix in Table 13 shows which action is taken after examining a **single** SELECT statement against a record.

Table 13. SELECT Decision Table

| SELECT Statement Contains... | Result of Examination Against Record | Outcome |
|------------------------------|---|------------------------------|
| INCLUDEs only | All fields matched | Record included |
| INCLUDEs only | Not all fields matched | Record passed to next SELECT |
| EXCLUDEs only | All fields matched | Record excluded |
| EXCLUDEs only | Not all fields matched | Record passed to next SELECT |
| INCLUDEs and EXCLUDEs | All INCLUDE fields matched, but not all EXCLUDE fields matched | Record included |
| INCLUDEs and EXCLUDEs | All EXCLUDE fields matched | Record excluded |
| INCLUDEs and EXCLUDEs | Not all INCLUDE fields matched and not all EXCLUDE fields matched | Record passed to next SELECT |

Within a *single* SELECT statement, the order of the INCLUDEs and EXCLUDEs and the order of the fields specified within them does not matter, as each is analyzed to determine the outcome. However, the order of the INCLUDEs and EXCLUDEs can make a difference with *multiple* SELECT statements. For some examples, see “Examples: INCLUDE and EXCLUDE sensitivity” on page 527.

Specifying values for different field types

The CMF record data fields are defined as specific types:

- For CICS-defined fields, the field types are:
 - character
 - time stamp
 - count
 - clock, containing two parts:
 - elapsed time (TIME)
 - number of times condition occurred (COUNT)
 - decimal
- For user fields, the field types are:
 - CHARACTER
 - COUNT
 - clock, containing two parts:
 - elapsed time (CLOCKTIME)
 - number of times condition occurred (CLOCKCOUNT)

System Logger record data fields, the field types are:

- character
- time stamp
- count
- flag (1 to indicate yes, 0 to indicate no)

Each field type has a particular format for specifying in SELECT statements. User fields also require the additional operand: **VALUE**.

The following sections discuss the field types and how their values must be specified. For the format of the command for specifying each field type, and the relevant field names, see “SELECT(PERFORMANCE” on page 523, “SELECT(EXCEPTION” on page 524, and “.SELECT(LOGGER” on page 526.

Character fields

The command format is:

```
SELECT(PERFORMANCE|EXCEPTION(
    INCLUDE|EXCLUDE(charfld1(values1),...),...))
```

The syntax of the values for these fields is a series of words separated by commas. The length of the words is determined by the field lengths. If the word is too short, it is padded with blanks at the end. If it is too long, a command error occurs. For each character field name, a maximum of 200 characters is allowed.

For example, the following command includes the performance records for transactions TR01, TR02, and TR03 on terminal TM01.

```
SELECT(PERFORMANCE(
    INCLUDE(TRAN(TR01,TR02,TR03),
    TERM(TM01))))
```

CICS PA recognizes generic values. The masking characters % and * are supported. The percent (%) is for a single character substitution and the asterisk (*) is for many or none.

For example, to exclude all performance records from all 50 terminals whose terminal IDs start with PR, you could specify all 50 terminal ID values, or instead you could specify the pattern PR* as follows:

```
SELECT(PERFORMANCE(EXCLUDE(TERM(PR*))))
```

Time Stamp fields

The command format is:

```
SELECT(PERFORMANCE|EXCEPTION|LOGGER(  
    INCLUDE|EXCLUDE(  
        START|STOP|ACTIVE(FROM(date,time),TO(date,time)),...),...))
```

Three time stamp fields can be specified with the **SELECT(PERFORMANCE** and **SELECT(EXCEPTION** operands:

START

Refers to when the transaction was attached or when processing continued from a conversational transaction.

STOP Refers to when the transaction was detached or a conversational transaction waited for terminal input.

ACTIVE

Refers to the entire time span between the Start and Stop times. **ACTIVE** can be used to make sure long-running transactions are included when their Start or Stop times fall out of the selection range.

Only the **STOP** time stamp field can be specified with the **SELECT(LOGGER** operand.

FROM and **TO** together specify the report interval, and represent either a *date/time range* or a *time slot* (times only). The operands are positional, with **FROM** preceding **TO**. Up to 14 report intervals can be specified.

The *date* is either a calendar date in the format *yyyy/mm/dd* or a relative date. Relative dates are specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both **FROM** and **TO** dates are specified, they must be in the same format.

The *time* is a time-of-day in the format *hh:mm:ss.th*.

For a date/time range:

- Either **FROM** or **TO** can be omitted to indicate that the range is open-ended. If **FROM** is omitted, it defaults to the first input record. If **TO** is omitted, it defaults to the end of file.
- If the **FROM** date is specified with no time, a time of zero is assumed (start of day)
- If the **TO** date is specified with no time, a time of 23:59:59.99 is assumed (end of day).

For a time slot, both times must be specified with no dates to signify the same time slot every day. The times can span midnight.

For example, the following command includes performance records for transactions running between 8:00 in the morning and 6:00 in the evening:

```
SELECT(PERFORMANCE(INCLUDE(ACTIVE(FROM(08:00),TO(18:00)))))
```

To specify both date and time, the format is:

Calendar date: FROM(yyyy/mm/dd,hh:mm:ss.th)

Relative date: FROM(-n,hh:mm:ss.th)

To specify a date only, the format is:

Calendar date: FROM(yyyy/mm/dd,)

Relative date: FROM(-n,)

Note: The comma following the date is required to designate the missing time value.

To specify a time only, the format is FROM(,hh:mm:ss.th) or FROM(hh:mm:ss.th). The comma preceding the time is optional.

For further information on specifying date and time values, see “Operand value formats” on page 379.

Count fields

The command format is:

```
SELECT(PERFORMANCE|EXCEPTION(INCLUDE|EXCLUDE(countfld1(values1),...),...))
```

The syntax is a string of 1 to 30 decimal ranges, separated by commas. A single number is valid. It is treated as a range that only includes itself. The acceptable values of the numbers in the ranges are the positive integers from 0 to 999999999. This allows selection on all the values that the count fields in the monitoring data can hold.

For example, the following command includes all performance records for transactions that issued 1 to 20 File Control ADD functions:

```
SELECT(PERFORMANCE(INCLUDE(FCADD(1-20))))
```

Clock (Time-Count) fields

The command format is:

```
SELECT(PERFORMANCE|EXCEPTION(
    INCLUDE|EXCLUDE(clockfld1(TIME|COUNT(values1),...))
```

The Clock type fields contain two parts: an elapsed time and a count of the number of times a condition occurred. When specified in the SELECT operand, the part being referenced must be identified by using the **TIME** or **COUNT** operands. Unlike references in the FIELDS operand, there is no default.

The TIME part of clock fields is a count in units of thousandths of a second. Therefore, the rules for specifying the value are the same for both TIME and COUNT parts of clock type fields.

Specify a value, or a list of up to 30 ranges of values, separated by commas. A single number is valid (it is treated as a range that only includes itself). Specify the values in the range as positive integers from 0 to 999999999. This allows selection on all the values that the clock type fields in the monitor data can hold.

Alternatively you can precede the From value with a comparison operator. For example, specify >=1 for a comparison of greater than or equal to 1. Allowed operators are:

= > >= < <=

Specify time values in seconds (using a decimal point) or milliseconds. For example, we can request RESPONSE in the range 1.12 to 1.25 seconds or the equivalent 1120 to 1250 milliseconds.

For example:

- The following command identifies transactions whose elapsed suspend time is between 0 and 3 seconds:

```
SELECT(PERFORMANCE(INCLUDE(SUSPEND(TIME(0-3000))))))
```

- The following command identifies transactions that have been suspended no more than 3000 times:

```
SELECT(PERFORMANCE(INCLUDE(SUSPEND(COUNT(0-3000))))))
```

Flag fields

Flag fields occur only in System Logger selection criteria. The command format is:

```
SELECT(LOGGER(INCLUDE|EXCLUDE(flagfld1(0|1),...),...))
```

where 0 indicates “no” and 1 indicates “yes”.

Decimal fields

Decimal fields such as CPUSU require a value to be entered that includes the decimal point, for example 12.5 or 10.0. The command format is:

```
SELECT(PERFORMANCE(INCLUDE(CPUSU(>12.5))))
```

User fields

CICS PA can access user fields in the CMF performance records. The user fields are defined in the CICS Monitoring Control Table (MCT) as either character type, count type, or clock type.

The command format is:

```
SELECT(PERFORMANCE(EXCLUDE|INCLUDE(
  CHARACTER(
    OWNER(owner),
    SUBSTR(offset,length),
    VALUE(value list)),
  COUNT|CLOCKTIME|CLOCKCOUNT(
    OWNER(owner),
    NUMBER(nnn),
    VALUE(value list))))))
```

All the FIELDS operands documented in “Suboperands for User fields” on page 388 are required with SELECT. These are:

- For character user fields: **OWNER**, **SUBSTR** and **VALUE**
- For numeric user fields: **OWNER**, **NUMBER** and **VALUE**

OWNER

The 1-8 character name of the owner of the user field. This is the entry name in the DFHMCT ID= macro specification for the user field, or the CICS-assigned default name of *USER*.

SUBSTR

Specifies that only part of the field is to be checked, from the *offset* position for the given *length*. For example, if the character user field contains ANIMALS, then SUBSTR(4,3) is MAL.

NUMBER

The three-digit integer that identifies a specific count or clock type field.

VALUE

Identifies the value used in the selection criteria. The syntax for the values for user fields is the same as that for character, clock, and count fields.

Example:

If user fields are defined in the MCT, consider a user character field that is set to INQUIRY whenever an INQUIRY function of the TEST transaction is run. The following command then generates a Performance List report containing only data for the TEST transaction INQUIRY function where:

- Count 1 has a value between 1 and 10
- Clock 1 has an elapsed time greater than 1 second
- Clock 1 was stopped and restarted at least once

```
CICSPA SELECT(PERFORMANCE(INCLUDE(
    TRAN(TEST),
    CHARACTER(OWNER(USEREMP),SUBSTR(1,7),VALUE(INQUIRY)),
    COUNT(OWNER(USEREMP),
        NUMBER(001),
        VALUE(1-10)),
    CLOCKTIME(OWNER(USEREMP),
        NUMBER(001),
        VALUE(1000-999999999)),
    CLOCKCOUNT(OWNER(USEREMP),
        NUMBER(001),
        VALUE(2-999999999))))),
    LIST
```

SELECT(PERFORMANCE

The general format of the SELECT statement for CMF performance class records is:

```
SELECT(PERFORMANCE(EXCLUDE|INCLUDE(
    [ACTIVE|START|STOP(FROM(date,time),TO(date,time)),]
    [char-fieldname(text string),]
    [count-fieldname(value list),]
    [decimal-fieldname(value list),]
    [clock-fieldname(TIME|COUNT(value list)),]
    [CHARACTER(
        OWNER(owner),SUBSTR(offset,length),VALUE(value list)),]
    [CLOCKTIME|CLOCKCOUNT|COUNT(
        OWNER(owner),NUMBER(nnn),VALUE(value list))])))
```

CMF record data fields are defined as specific types. Each field type has a particular format in the SELECT statement:

1. ACTIVE, START, STOP time stamp fields require at least one FROM or TO operand. The format of *(date,time)* can be either:
(yyyy/mm/dd,hh:mm:ss.th) or *(-n,hh:mm:ss.th)* or
(yyyy/mm/dd,) or *(-n,)* or
(hh:mm:ss.th)

If both FROM and TO dates are specified, they must be in the same format; both must be calendar dates or both must be relative dates.

2. Values for character fields are specified as *text strings*.

For each character field, a maximum of 200 characters can be specified. A text string can be entered either alone or in a list:

(text) or
(text1,text2,text3)

3. Values for count and time fields are specified as *value lists*.

For count fields, specify positive integers from 0 to 999999999. For time fields, specify values as thousandths of a second (or seconds if you specify the number with a decimal point).

A value list can be made up of individual values, ranges, or both. Up to 30 values or ranges can be specified. For example:

```
(value)
(value1-value2)
(value1,value2,value3)
(value1-value2,value3-value4,value5-value6)
(value1,value2-value3,value4)
```

Alternatively you can precede the From value in the range with a comparison operator. For example, specify >=1 for a comparison of greater than or equal to 1. Allowed operators are:

```
= > >= < <=
```

Specify time values in seconds (using a decimal point) or milliseconds. For example, we can request RESPONSE in the range 1.12 to 1.25 seconds or the equivalent 1120 to 1250 milliseconds.

4. CICS-defined clock type fields require either the TIME or COUNT operand.
5. CHARACTER user fields require the OWNER, SUBSTR, and VALUE operands.
6. Decimal fields such as CPUSU require a value to be entered that includes the decimal point, for example 12.5 or 10.0.
7. CLOCKTIME, CLOCKCOUNT, COUNT user fields require the OWNER, NUMBER, and VALUE operands.
8. See Chapter 29, "Fields by forms, HDB templates," on page 771 for the name and format of the CICS-defined fields that can be specified in **SELECT(PERFORMANCE** statements.

SELECT(EXCEPTION

The general format of the SELECT statement for CMF exception class records is:

```
SELECT(EXCEPTION(EXCLUDE|INCLUDE(
    [ACTIVE|START|STOP(FROM(date,time),TO(date,time)),]
    [char-fieldname(text string),]
    [numeric-fieldname(value list])))
```

CMF record data fields are defined as specific types. Each field type has a particular format in the SELECT statement:

1. ACTIVE, START, STOP time stamp fields require at least one FROM or TO operand. The format of *(date,time)* can be either:
 - (yyyy/mm/dd,hh:mm:ss.th)* or *(-n,hh:mm:ss.th)* or
 - (yyyy/mm/dd,)* or *(-n,)* or
 - (hh:mm:ss.th)*

If both FROM and TO dates are specified, they must be in the same format; both must be calendar dates or both must be relative dates.

2. Values for character fields are specified as *text strings*.

For each character field, a maximum of 200 characters can be specified. A text string can be entered either alone or in a list:

```
(text) or
(text1,text2,text3)
```

3. Values for count and time fields are specified as *value lists*.

For count fields, specify positive integers from 0 to 999999999. For time fields, specify values as thousandths of a second (or seconds if you specify the number with a decimal point).

A value list can be made up of individual values, ranges, or both. Up to 30 values or ranges can be specified. For example:

(value)
(value1-value2)
(value1,value2,value3)
(value1-value2,value3-value4,value5-value6)
(value1,value2-value3,value4)

Alternatively you can precede the From value with a comparison operator. For example, specify ≥ 1 for a comparison of greater than or equal to 1. Allowed operators are:

= > \geq < \leq

Specify time values in seconds (using a decimal point) or milliseconds. For example, we can request RESPONSE in the range 1.12 to 1.25 seconds or the equivalent 1120 to 1250 milliseconds.

SELECT(EXCEPTION fields

The name and format of the fields that can be specified in **SELECT(EXCEPTION** statements are:

CFDTSLOT(text)

Coupling facility data table name that incurred a wait for a locking or non-locking request slot

FSTRINGW(text)

File name that waited for a string

LUNAME(text)

VTAM logical unit name

RESOURCE(text)

Type of resource that caused the wait exception (CFDTRLRSW, CFDTPOOL, STORAGE, TEMPSTOR, LSRPOOL, or FILE)

RESPONSE(values)

Response time

STORAGEW(text)

DSA (Dynamic Storage Area) that caused a wait (CDSA, RDSA, SDSA, UDSA, ECDSA, ERDSA, ESDSA, or EUDSA)

TASKNO(values)

Task number

TCLASS(text)

Transaction Class name

TERM(text)

Terminal ID

PRTY(values)

Transaction priority

TRAN(text)

Transaction ID

TSBUFFER(text)

Temporary Storage queue name that waited for a buffer

TSSTRING(text)

Temporary Storage queue name that waited for a string

USERID(text)

User ID

VBUFFERW(text)

File name that incurred a wait for a VSAM buffer

VSTRINGW(text)

File name that incurred a wait for a VSAM string

SELECT(LOGGER

The general format of the SELECT statement for System Logger records is:

```
SELECT (LOGGER (EXCLUDE | INCLUDE (
    [STOP (FROM (date, time), TO (date, time)),]
    [char-fieldname (text string),]
    [count-fieldname (value list),]
    [flag-fieldname (0|1),]
```

CMF record data fields are defined as specific types. Each field type has a particular format in the SELECT statement:

1. STOP time stamp fields require at least one FROM or TO operand. The format of *(date,time)* can be either:
(yyyy/mm/dd,hh:mm:ss.th) or *(-n,hh:mm:ss.th)* or
(yyyy/mm/dd,) or *(-n,)* or
(hh:mm:ss.th)

If both FROM and TO dates are specified, they must be in the same format; both must be calendar dates or both must be relative dates.

2. Values for character fields are specified as *text strings*.

For each character field, a maximum of 200 characters can be specified. A text string can be entered either alone or in a list:

(text) or
(text1,text2,text3)

3. Values for count fields are specified as *value lists*.

Specify positive integers from 0 to 999999999.

A value list can be made up of individual values, ranges, or both. Up to 30 values or ranges can be specified. For example:

(value)
(value1-value2)
(value1,value2,value3)
(value1-value2,value3-value4,value5-value6)
(value1,value2-value3,value4)

Alternatively you can precede the From value in the range with a comparison operator. For example, specify ≥ 1 for a comparison of greater than or equal to

1. Allowed operators are:

= > >= < <=

4. For the name and format of the System Logger fields that can be specified in **SELECT(LOGGER** statements, see the prompt list in the CICS PA online dialog. For details, see "Specifying Selection Criteria" on page 158.

SELECT examples

This section illustrates various ways of using SELECT.

Examples: Using SELECT as a global operand

The following examples illustrate the use of SELECT as a global operand applying to all reports and extracts that follow it.

1. In this example, the performance class records from transactions that were active between 08:00 and 16:00 are included in both the Performance List and Performance Summary reports.

```
CICSPA SELECT(PERFORMANCE(INCLUDE(
    ACTIVE(FROM(08:00:00),TO(16:00:00))))) ,
    LIST,
    SUMMARY
```

2. In this example, the Performance List report will only contain the performance class records from transactions with file (FC) wait time between 1 and 1000 seconds, except transactions that are attached from terminal TRM1.

```
CICSPA SELECT(PERFORMANCE(
    EXCLUDE(TERM(TRM1)),
    INCLUDE(FCWAIT(TIME(1000-1000000))))) ,
    LIST
```

3. In this example, the exception class records from transactions that were active between 08:00 and 16:00 are included in both the Exception List and Exception Summary reports.

```
CICSPA SELECT(EXCEPTION(INCLUDE(
    ACTIVE(FROM(08:00:00),TO(16:00:00))))) ,
    LISTEXC,
    SUMEXC
```

Examples: Using SELECT as a report or extract suboperand

The following examples illustrate the use of SELECT as a report-level operand associated only with the particular report or extract it is coded with. Report-level SELECT statements take precedence over any global SELECT statements.

1. This example shows SELECT used as a suboperand to the LIST operand. The Performance List report will only contain performance class records from transactions TRA1 and TRA2 that were attached from terminal TRM1.

```
CICSPA LIST(SELECT(PERFORMANCE(INCLUDE(TERM(TRM1),TRANS(TRA1,TRA2)))))
```

2. This example shows SELECT used as a suboperand to the LIST operand. The Performance List report will only contain performance class records which have the value ADD in the character user field TESTFUNC.

```
CICSPA LIST(SELECT(PERFORMANCE(INCLUDE(
    CHARACTER(OWNER(TESTFUNC),SUBSTR(1,3),
    VALUE(ADD)))))
```

3. This example shows SELECT used as a suboperand to LISTEXCException. The Exception List report will only contain the exception class records from transactions TRA1 and TRA2 that were attached from terminal TRM1.

```
CICSPA LISTEXC(SELECT(EXCEPTION(INCLUDE(
    TERM(TRM1),TRANS(TRA1,TRA2)))))
```

Examples: INCLUDE and EXCLUDE sensitivity

The following report examples show how slight variations to SELECT statements can change report content.

1. This command generates a Performance Summary report for all records except those with terminal TM01.

```
CICSPA IN(SMFIN001),
    SELECT(PERFORMANCE(EXCLUDE(TERM(TM01))))) ,
    SUMMARY
```

2. This command generates a Performance Summary report with data from performance class records for terminals TM01 and TM02.

```
CICSPA IN(SMFIN003),
    SELECT(PERFORMANCE(INCLUDE(TERM(TM01))))) ,
    SELECT(PERFORMANCE(INCLUDE(TERM(TM02))))) ,
    SUMMARY
```

The two SELECT statements could have been combined as SELECT(PERFORMANCE(INCLUDE(TERM(TM01,TM02))))). However, this command shows a method that can be used if more values need to be listed than CICS PA will allow for one character field.

Be careful, as all selection criteria stay in effect when specifying more than one SELECT statement for a single field.

The following command generates a Performance Summary report for only transaction XXXX on terminal TM01 and for all transactions on terminal TM02.

```
CICSPA IN(SMFIN004),
      SELECT(PERFORMANCE(INCLUDE(TRAN(XXXX),
                                TERM(TM01)))),
      SELECT(PERFORMANCE(INCLUDE(TERM(TM02)))),
      SUMMARY
```

The following command generates a Performance Summary report for transaction XXXX on all terminals, and all other transactions on terminals TM01 and TM02.

```
CICSPA IN(SMFIN004),
      SELECT(PERFORMANCE(INCLUDE(TRAN(XXXX)))),
      SELECT(PERFORMANCE(INCLUDE(TERM(TM01)))),
      SELECT(PERFORMANCE(INCLUDE(TERM(TM02)))),
      SUMMARY
```

The following command generates a Performance Summary report for transaction XXXX on terminals TM01 and TM02.

```
CICSPA IN(SMFIN004),
      SELECT(PERFORMANCE(INCLUDE(TRAN(XXXX),
                                TERM(TM01)))),
      SELECT(PERFORMANCE(INCLUDE(TRAN(XXXX),
                                TERM(TM02)))),
      SUMMARY
```

3. INCLUDE and EXCLUDE parameters can be specified in any order within one SELECT statement. However, with multiple SELECT statements, the order is important.

- The following two commands generate the same Performance Summary report.

```
CICSPA IN(SMFIN005),
      SELECT(PERFORMANCE(INCLUDE(TERM(TM01)),
                        EXCLUDE(TRAN(XXXX)))),
      SUMMARY
```

```
CICSPA IN(SMFIN005),
      SELECT(PERFORMANCE(EXCLUDE(TRAN(XXXX)),
                        INCLUDE(TERM(TM01)))),
      SUMMARY
```

- The following command also generates the same Performance Summary report

```
CICSPA IN(SMFIN005),
      SELECT(PERFORMANCE(EXCLUDE(TRAN(XXXX)))),
      SELECT(PERFORMANCE(INCLUDE(TERM(TM01)))),
      SUMMARY
```

- However, the following command generates a different Performance Summary report. This one includes all transactions for terminal TM01, including transaction XXXX.

```
CICSPA IN(SMFIN005),
      SELECT(PERFORMANCE(INCLUDE(TERM(TM01)))),
      SELECT(PERFORMANCE(EXCLUDE(TRAN(XXXX)))),
      SUMMARY
```

4. Remember that global SELECT operands cannot be removed. The following commands generate three Performance List reports:

- a. The first report contains data for transaction XXXX on terminal TM01
- b. The second report contains the same data as the first report as well as data for transaction YYYY on terminal TM02
- c. The third report contains the same data as the second report as well as data for transaction ZZZZ on terminal TM03

```
CICSPA IN(SMFIN006),
        SELECT(PERFORMANCE(INCLUDE(TERM(TM01),
                                     TRAN(XXXX)))),
        LIST,
        SELECT(PERFORMANCE(INCLUDE(TERM(TM02),
                                     TRAN(YYYY)))),
        LIST
CICSPA IN(SMFIN006),
        SELECT(PERFORMANCE(INCLUDE(TERM(TM03),
                                     TRAN(ZZZZ)))),
        LIST
```

If three exclusive reports are wanted, specify the SELECT statements as operands. The following command generates three Performance List reports:

- a. The first report contains data for transaction XXXX on terminal TM01
- b. The second report contains data for transaction YYYY on terminal TM02
- c. The third report contains data for transaction ZZZZ on terminal TM03

```
CICSPA IN(SMFIN006),
        LIST(SELECT(PERFORMANCE(INCLUDE(TERM(TM01),
                                     TRAN(XXXX))))) ,
        LIST(SELECT(PERFORMANCE(INCLUDE(TERM(TM02),
                                     TRAN(YYYY))))) ,
        LIST(SELECT(PERFORMANCE(INCLUDE(TERM(TM03),
                                     TRAN(ZZZZ)))))
```

Example: Specifying a time period

1. The following command generates a Performance List report like that shown in Figure 260 on page 530. It includes transactions that both started and stopped within the specified time period. It does *not* include any long-running transactions that started before the interval or stopped after the interval.

```
CICSPA LIST(SELECT(PERFORMANCE(INCLUDE(
        START(FROM(11:15:00),TO(11:20:00)),
        STOP(FROM(11:15:00),TO(11:20:00)))))
```

2. However, the following command generates a Performance List report that includes transactions that either:

- a. Started before and ended during or after the time period selected, or
- b. Started during and ended during or after the time period selected

```
CICSPA LIST(SELECT(PERFORMANCE(INCLUDE(
        ACTIVE(FROM(11:15:00),TO(11:20:00)))))
```

| Tran | SC | Term | Userid | RSID | Program | TaskNo | Stop | Response | Dispatch | User | CPU | Suspend | DispWait | FC Wait | FCAMRq | IR Wait |
|------|----|------|---------|------|---------|--------|----------|----------|----------|-------|---------|---------|----------|---------|--------|---------|
| | | | | | | Time | Time | Time | Time | Time | Time | Time | Time | Time | | Time |
| CEMT | TO | S208 | BRENNER | | DFHEMTP | 66 | 11:15:15 | 3.7618 | .0028 | .0022 | 3.7590 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:17 | .0041 | .0040 | .0035 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S208 | BRENNER | | DFHEMTP | 66 | 11:15:22 | 6.5224 | .0068 | .0032 | 6.5156 | .0000 | .0000 | .0000 | 0 | .0000 |
| CATA | U | | CBAKER | | DFHZATA | 69 | 11:15:29 | .0157 | .0099 | .0048 | .0058 | .0002 | .0000 | .0000 | 0 | .0000 |
| CQRY | S | TC26 | CBAKER | | DFHQRY | 70 | 11:15:30 | .2049 | .0022 | .0008 | .2027 | .0000 | .0000 | .0000 | 0 | .0000 |
| CQRY | S | TC26 | CBAKER | | DFHQRY | 70 | 11:15:30 | .0177 | .0020 | .0008 | .0156 | .0000 | .0000 | .0000 | 0 | .0000 |
| CESN | S | TC26 | CBAKER | | DFHSNP | 71 | 11:15:30 | .0028 | .0027 | .0016 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:31 | 13.9899 | .0040 | .0037 | 13.9860 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:15:35 | .6794 | .6522 | .1020 | .0272 | .0102 | .0115 | 48 | .0000 | |
| CESN | TP | TC26 | CBAKER | | DFHSNP | 73 | 11:15:38 | .0392 | .0388 | .0106 | .0004 | .0003 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:50 | 18.8996 | .0037 | .0035 | 18.8959 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:51 | .8010 | .0038 | .0035 | .7972 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:51 | .7062 | .0045 | .0035 | .7016 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:52 | .3508 | .0044 | .0035 | .3464 | .0000 | .0000 | .0000 | 0 | .0000 |
| CATR | S | | CBAKER | | DFHZATR | 74 | 11:16:09 | .0284 | .0280 | .0047 | .0003 | .0003 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:13 | .0350 | .0101 | .0030 | .0248 | .0001 | .0000 | .0000 | 0 | .0195 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:17 | 3.0835 | .0022 | .0009 | 3.0813 | .0000 | .0000 | .0000 | 0 | .9967 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:19 | 2.2629 | .0017 | .0009 | 2.2612 | .0000 | .0000 | .0000 | 0 | 1.0999 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:21 | 46.5125 | .0010 | .0008 | 46.5115 | .0000 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:22 | 2.7597 | .0020 | .0008 | 2.7577 | .0000 | .0000 | .0000 | 0 | .0014 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:24 | 2.2127 | .0008 | .0006 | 2.2118 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:27 | 3.0046 | .0013 | .0006 | 3.0033 | .0000 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:27 | 5.6824 | .0010 | .0008 | 5.6814 | .0000 | .0000 | .0000 | 0 | .0016 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:28 | 1.1025 | .1151 | .0119 | .9874 | .0012 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:33 | 41.2444 | .0045 | .0036 | 41.2398 | .0000 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:33 | 5.9165 | .0008 | .0007 | 5.9157 | .0000 | .0000 | .0000 | 0 | .0013 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:34 | .6993 | .0044 | .0040 | .6949 | .0000 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:34 | 1.2040 | .0017 | .0009 | 1.2023 | .0000 | .0000 | .0000 | 0 | .0015 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:34 | .7242 | .0037 | .0034 | .7205 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:35 | .6737 | .0040 | .0035 | .6696 | .0000 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:35 | 1.0298 | .0023 | .0010 | 1.0275 | .0000 | .0000 | .0000 | 0 | .7713 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:37 | 1.8029 | .0067 | .0036 | 1.7962 | .0000 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:37 | 1.8807 | .0007 | .0007 | 1.8799 | .0000 | .0000 | .0000 | 0 | .0013 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:39 | 2.0341 | .0011 | .0008 | 2.0330 | .0000 | .0000 | .0000 | 0 | .0012 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:45 | 5.3195 | .0100 | .0008 | 5.3095 | .0000 | .0000 | .0000 | 0 | .0012 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:46 | 1.0277 | .0015 | .0008 | 1.0262 | .0000 | .0000 | .0000 | 0 | .0016 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:46 | .3153 | .0017 | .0009 | .3136 | .0000 | .0000 | .0000 | 0 | .1009 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:47 | .6316 | .0018 | .0009 | .6298 | .0000 | .0000 | .0000 | 0 | .1073 |
| RMST | TO | TC26 | GBURGES | CJB3 | | 75 | 11:16:47 | .3110 | .0020 | .0010 | .3090 | .0000 | .0000 | .0000 | 0 | .0016 |
| CALL | TO | TC26 | GBURGES | | CALLJT1 | 76 | 11:16:53 | 2.1039 | .0453 | .0070 | 2.0586 | .0145 | .0000 | .0000 | 0 | .0000 |
| CALL | TO | TC26 | GBURGES | | CALLJT1 | 77 | 11:16:58 | 2.0733 | .0018 | .0015 | 2.0715 | .0004 | .0000 | .0000 | 0 | .0000 |
| CALL | TO | TC26 | GBURGES | | CALLJT1 | 78 | 11:17:01 | 2.0612 | .0027 | .0017 | 2.0585 | .0007 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 79 | 11:17:04 | 1.2533 | .0141 | .0048 | 1.2392 | .0129 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 79 | 11:17:04 | .0002 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 79 | 11:17:06 | 2.0987 | .0044 | .0011 | 2.0943 | .0038 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 80 | 11:17:09 | 1.2650 | .0007 | .0006 | 1.2643 | .0002 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 80 | 11:17:09 | .0002 | .0002 | .0000 | .0000 | .0000 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 80 | 11:17:11 | 2.0989 | .0021 | .0012 | 2.0968 | .0006 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 81 | 11:17:12 | 1.0461 | .0007 | .0005 | 1.0454 | .0003 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 81 | 11:17:12 | .0002 | .0002 | .0000 | .0000 | .0000 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | TC26 | GBURGES | | CALLCB1 | 81 | 11:17:14 | 2.0971 | .0025 | .0010 | 2.0946 | .0004 | .0000 | .0000 | 0 | .0000 |
| CBTR | TO | TC26 | GBURGES | | ##### | 82 | 11:17:14 | .0334 | .0328 | .0044 | .0006 | .0006 | .0000 | .0000 | 0 | .0000 |

Figure 260. Sample report using SELECT (List transactions in a specified period)

Example: Including specified transactions only

The following command produces a Performance List report like that shown in Figure 261 on page 531 that only includes the performance records for specific transaction identifiers.

```
CICSPA LIST(SELECT(PERFORMANCE(INCLUDE(
TRAN(ABRW,AMNU,AUPD))))))
```

| Tran | SC | Term | Userid | RSID | Program | TaskNo | Stop | Response | Dispatch | User | CPU | Suspend | DispWait | FC Wait | FCAMRq | IR Wait |
|------|----|------|---------|------|----------|--------|----------|----------|----------|-------|-------|---------|----------|---------|--------|---------|
| | | | | | | Time | Time | Time | Time | Time | Time | Time | Time | Time | | Time |
| AMNU | TO | S23D | BRENNER | | DFHSAMNU | 50 | 11:11:53 | .1724 | .1720 | .0091 | .0004 | .0004 | .0000 | | 0 | .0000 |
| ABRW | TO | S23D | BRENNER | | DFHSABRW | 53 | 11:12:19 | .5819 | .0783 | .0121 | .5037 | .0127 | .0000 | | 0 | .4908 |
| AUPD | TO | S208 | BRENNER | | DFHSAALL | 54 | 11:12:27 | .0488 | .0335 | .0046 | .0154 | .0153 | .0000 | | 0 | .0000 |
| AUPD | TO | S208 | BRENNER | | DFHSAALL | 57 | 11:12:34 | .0321 | .0301 | .0050 | .0019 | .0002 | .0000 | | 0 | .0016 |
| ABRW | TP | S23D | BRENNER | | DFHSABRW | 59 | 11:13:17 | .0070 | .0034 | .0029 | .0036 | .0000 | .0000 | | 0 | .0036 |
| ABRW | TP | S23D | BRENNER | | DFHSABRW | 61 | 11:13:20 | .0080 | .0028 | .0024 | .0052 | .0000 | .0000 | | 0 | .0051 |
| ABRW | TP | S23D | BRENNER | | DFHSABRW | 62 | 11:13:21 | .0064 | .0027 | .0023 | .0036 | .0000 | .0000 | | 0 | .0036 |
| ABRW | TP | S23D | BRENNER | | DFHSABRW | 63 | 11:13:24 | .0018 | .0017 | .0014 | .0001 | .0000 | .0000 | | 0 | .0000 |
| AUPD | TO | S208 | BRENNER | | DFHSAALL | 64 | 11:13:38 | .0665 | .0160 | .0141 | .0505 | .0012 | .0000 | | 0 | .0056 |
| AMNU | TO | TC26 | GBURGES | | DFHSAMNU | 108 | 11:19:33 | .0023 | .0022 | .0011 | .0001 | .0000 | .0000 | | 0 | .0000 |
| ABRW | TO | TC26 | GBURGES | | DFHSABRW | 109 | 11:19:44 | .0071 | .0040 | .0027 | .0030 | .0000 | .0000 | | 0 | .0030 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 110 | 11:19:49 | .0064 | .0031 | .0021 | .0033 | .0000 | .0000 | | 0 | .0032 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 111 | 11:19:50 | .0065 | .0032 | .0022 | .0033 | .0000 | .0000 | | 0 | .0033 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 112 | 11:19:50 | .0071 | .0035 | .0023 | .0036 | .0000 | .0000 | | 0 | .0036 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 113 | 11:19:50 | .0066 | .0032 | .0022 | .0034 | .0000 | .0000 | | 0 | .0034 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 114 | 11:19:51 | .0022 | .0021 | .0012 | .0001 | .0000 | .0000 | | 0 | .0000 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 115 | 11:19:51 | .0070 | .0034 | .0023 | .0036 | .0000 | .0000 | | 0 | .0035 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 116 | 11:19:51 | .0068 | .0032 | .0022 | .0036 | .0000 | .0000 | | 0 | .0035 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 117 | 11:19:52 | .0094 | .0036 | .0024 | .0058 | .0000 | .0000 | | 0 | .0057 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 118 | 11:19:52 | .0064 | .0031 | .0021 | .0033 | .0000 | .0000 | | 0 | .0032 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 119 | 11:19:53 | .0084 | .0032 | .0024 | .0052 | .0000 | .0000 | | 0 | .0051 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 120 | 11:19:53 | .0070 | .0033 | .0022 | .0036 | .0000 | .0000 | | 0 | .0036 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 121 | 11:19:53 | .0053 | .0028 | .0018 | .0024 | .0000 | .0000 | | 0 | .0024 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 122 | 11:19:56 | .0065 | .0034 | .0021 | .0030 | .0000 | .0000 | | 0 | .0030 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 123 | 11:19:56 | .0069 | .0033 | .0023 | .0036 | .0000 | .0000 | | 0 | .0035 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 124 | 11:19:56 | .0082 | .0035 | .0024 | .0047 | .0000 | .0000 | | 0 | .0046 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 125 | 11:19:57 | .0070 | .0032 | .0023 | .0037 | .0000 | .0000 | | 0 | .0037 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 126 | 11:19:57 | .0080 | .0042 | .0024 | .0037 | .0000 | .0000 | | 0 | .0037 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 127 | 11:19:57 | .0083 | .0034 | .0024 | .0048 | .0000 | .0000 | | 0 | .0048 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 128 | 11:19:57 | .0156 | .0028 | .0024 | .0128 | .0000 | .0000 | | 0 | .0127 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 129 | 11:19:57 | .0069 | .0032 | .0022 | .0037 | .0000 | .0000 | | 0 | .0036 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 130 | 11:19:58 | .0066 | .0031 | .0022 | .0035 | .0000 | .0000 | | 0 | .0034 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 131 | 11:19:58 | .0065 | .0032 | .0021 | .0033 | .0000 | .0000 | | 0 | .0033 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 132 | 11:19:58 | .0074 | .0033 | .0023 | .0041 | .0000 | .0000 | | 0 | .0040 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 133 | 11:19:58 | .0059 | .0032 | .0018 | .0026 | .0000 | .0000 | | 0 | .0026 |
| AUPD | TO | TC26 | GBURGES | | DFHSAALL | 141 | 11:20:25 | .0045 | .0024 | .0015 | .0021 | .0000 | .0000 | | 0 | .0020 |
| ABRW | TO | TC26 | GBURGES | | DFHSABRW | 142 | 11:20:32 | .0063 | .0032 | .0022 | .0031 | .0000 | .0000 | | 0 | .0031 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 143 | 11:20:34 | .0025 | .0024 | .0014 | .0001 | .0000 | .0000 | | 0 | .0000 |
| ABRW | TO | TC26 | GBURGES | | DFHSABRW | 146 | 11:20:38 | .0066 | .0036 | .0023 | .0030 | .0000 | .0000 | | 0 | .0029 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 147 | 11:20:40 | .0075 | .0033 | .0023 | .0042 | .0000 | .0000 | | 0 | .0041 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 148 | 11:20:40 | .0022 | .0022 | .0012 | .0001 | .0000 | .0000 | | 0 | .0000 |
| ABRW | TO | TC26 | GBURGES | | DFHSABRW | 150 | 11:20:45 | .0076 | .0046 | .0021 | .0031 | .0000 | .0000 | | 0 | .0030 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 151 | 11:20:49 | .0075 | .0035 | .0023 | .0040 | .0000 | .0000 | | 0 | .0039 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 152 | 11:20:50 | .0080 | .0042 | .0026 | .0037 | .0000 | .0000 | | 0 | .0037 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 153 | 11:20:50 | .0074 | .0032 | .0022 | .0041 | .0000 | .0000 | | 0 | .0041 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 154 | 11:20:50 | .0071 | .0037 | .0022 | .0034 | .0000 | .0000 | | 0 | .0033 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 155 | 11:20:51 | .0059 | .0022 | .0020 | .0037 | .0000 | .0000 | | 0 | .0037 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 156 | 11:20:51 | .0080 | .0037 | .0024 | .0043 | .0000 | .0000 | | 0 | .0042 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 157 | 11:20:53 | .0079 | .0041 | .0025 | .0037 | .0000 | .0000 | | 0 | .0036 |
| AMNU | TO | R11 | CBAKER | | DFHSAMNU | 158 | 11:20:54 | .0228 | .0227 | .0012 | .0000 | .0000 | .0000 | | 0 | .0000 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 160 | 11:20:54 | .0074 | .0034 | .0022 | .0039 | .0000 | .0000 | | 0 | .0039 |
| ABRW | TP | TC26 | GBURGES | | DFHSABRW | 161 | 11:20:55 | .0060 | .0023 | .0021 | .0037 | .0000 | .0000 | | 0 | .0036 |

Figure 261. Sample report using SELECT (list specified transactions only)

Example: Satisfying combined criteria (“AND”)

The following command produces a Performance List report like that shown in Figure 262 on page 532. It shows how to combine fields under the same INCLUDE statement. The performance data included contains the terminal ID S23D and also has a userid of BRENNER.

```
CICSPA LIST(SELECT(PERFORMANCE(
INCLUDE(TERM(S23D),USERID(BRENNER)))))
```

LIST0001 Printed at 12:03:45 04/17/2013 Data from 11:11:53 2/14/2005 APPLID IYK2Z1V1 Page 1

| Tran | SC | Term | Userid | RSID | Program | TaskNo | Stop | Response | Dispatch | User | CPU | Suspend | DispWait | FC Wait | FCAMRq | IR Wait |
|------|----|------|---------|------|----------|--------|----------|----------|----------|-------|---------|---------|----------|---------|--------|---------|
| | | | | | | Time | Time | Time | Time | Time | Time | Time | Time | Time | | Time |
| AMNU | TO | S23D | BRENNER | | DFHSAMNU | 50 | 11:11:53 | .1724 | .1720 | .0091 | .0004 | .0004 | .0000 | .0000 | 0 | .0000 |
| ABRW | TO | S23D | BRENNER | | DFHSABRW | 53 | 11:12:19 | .5819 | .0783 | .0121 | .5037 | .0127 | .0000 | .0000 | 0 | .4908 |
| ABRW | TP | S23D | BRENNER | | DFHSABRW | 59 | 11:13:17 | .0070 | .0034 | .0029 | .0036 | .0000 | .0000 | .0000 | 0 | .0036 |
| ABRW | TP | S23D | BRENNER | | DFHSABRW | 61 | 11:13:20 | .0080 | .0028 | .0024 | .0052 | .0000 | .0000 | .0000 | 0 | .0051 |
| ABRW | TP | S23D | BRENNER | | DFHSABRW | 62 | 11:13:21 | .0064 | .0027 | .0023 | .0036 | .0000 | .0000 | .0000 | 0 | .0036 |
| ABRW | TP | S23D | BRENNER | | DFHSABRW | 63 | 11:13:24 | .0018 | .0017 | .0014 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:15:35 | .6794 | .6522 | .1020 | .0272 | .0102 | .0115 | .0000 | 48 | .0000 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:21 | 46.5125 | .0010 | .0008 | 46.5115 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:24 | 2.2127 | .0008 | .0006 | 2.2118 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:27 | 3.0046 | .0013 | .0006 | 3.0033 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:28 | 1.1025 | .1151 | .0119 | .9874 | .0012 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 140 | 11:20:24 | .0042 | .0041 | .0037 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 140 | 11:20:32 | 8.3481 | .0037 | .0032 | 8.3444 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 140 | 11:21:24 | 51.3442 | .0013 | .0010 | 51.3429 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 174 | 11:21:27 | .0041 | .0040 | .0038 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 174 | 11:21:28 | 1.1930 | .0013 | .0010 | 1.1917 | .0000 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | S23D | BRENNER | CJB3 | | 178 | 11:21:31 | .0110 | .0017 | .0014 | .0093 | .0000 | .0000 | .0000 | 0 | .0093 |
| RMST | TO | S23D | BRENNER | CJB3 | | 178 | 11:21:39 | 7.8027 | .0017 | .0014 | 7.8009 | .0000 | .0000 | .0000 | 0 | .0102 |
| RMST | TO | S23D | BRENNER | CJB3 | | 178 | 11:21:49 | 10.0524 | .0012 | .0008 | 10.0512 | .0000 | .0000 | .0000 | 0 | .9641 |
| RMST | TO | S23D | BRENNER | CJB3 | | 178 | 11:22:38 | 48.9210 | .0136 | .0012 | 48.9074 | .0000 | .0000 | .0000 | 0 | .0024 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 195 | 11:22:41 | .0018 | .0017 | .0015 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 195 | 11:22:50 | 8.9745 | .3774 | .3537 | 8.5972 | .0006 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 195 | 11:22:52 | 2.0203 | .0015 | .0012 | 2.0188 | .0000 | .0000 | .0000 | 0 | .0000 |
| CALL | TO | S23D | BRENNER | | CALLJT1 | 196 | 11:22:57 | 2.1853 | .0022 | .0015 | 2.1831 | .0005 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | S23D | BRENNER | | CALLCB1 | 197 | 11:23:00 | 1.0821 | .0007 | .0006 | 1.0814 | .0003 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | S23D | BRENNER | | CALLCB1 | 197 | 11:23:00 | .0002 | .0002 | .0000 | .0000 | .0000 | .0000 | .0000 | 0 | .0000 |
| TRUE | TO | S23D | BRENNER | | CALLCB1 | 197 | 11:23:02 | 2.0959 | .0020 | .0012 | 2.0940 | .0005 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 198 | 11:23:03 | .0022 | .0022 | .0015 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 198 | 11:23:10 | 6.4074 | .0014 | .0009 | 6.4060 | .0024 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 198 | 11:23:14 | 4.6891 | .0010 | .0008 | 4.6880 | .0000 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 198 | 11:23:15 | 1.0024 | .0020 | .0011 | 1.0004 | .0000 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 198 | 11:23:29 | 13.6565 | .0259 | .0230 | 13.6306 | .0001 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 198 | 11:24:18 | 48.7524 | .0015 | .0012 | 48.7509 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 218 | 11:25:37 | .0044 | .0043 | .0040 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 218 | 11:25:50 | 13.4984 | .0028 | .0025 | 13.4956 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 218 | 11:25:52 | 2.0055 | .0042 | .0038 | 2.0013 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 218 | 11:25:56 | 3.1811 | .0035 | .0029 | 3.1776 | .0742 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 218 | 11:25:57 | 1.2135 | .0034 | .0031 | 1.2101 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 218 | 11:25:59 | 1.9512 | .0013 | .0010 | 1.9499 | .0000 | .0000 | .0000 | 0 | .0000 |
| CBAM | TO | S23D | BRENNER | | DFHECBAM | 231 | 11:26:11 | .0670 | .0502 | .0051 | .0168 | .0167 | .0000 | .0000 | 0 | .0000 |
| CBAM | TO | S23D | BRENNER | | DFHECBAM | 231 | 11:26:13 | 2.5339 | .0012 | .0008 | 2.5327 | .0000 | .0000 | .0000 | 0 | .0000 |
| CBAM | TO | S23D | BRENNER | | DFHECBAM | 231 | 11:26:14 | 1.0145 | .0014 | .0010 | 1.0131 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:27:43 | .0041 | .0039 | .0037 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:27:50 | 6.8877 | .0027 | .0023 | 6.8849 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:27:51 | 1.3002 | .0037 | .0034 | 1.2965 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:27:58 | 7.3975 | .0038 | .0027 | 7.3937 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:28:15 | 16.1091 | .0076 | .0045 | 16.1016 | .0002 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:28:16 | 1.3915 | .0031 | .0028 | 1.3884 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:28:32 | 15.6272 | .0100 | .0046 | 15.6172 | .0002 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:28:33 | .9771 | .0032 | .0027 | .9739 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:28:46 | 13.1519 | .0060 | .0022 | 13.1459 | .0001 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 234 | 11:28:47 | 1.4551 | .0044 | .0027 | 1.4507 | .0000 | .0000 | .0000 | 0 | .0000 |

Figure 262. Sample report Using SELECT (List Transactions for Specified TERM and USERID)

Example: Satisfying either criteria ("OR")

The following command produces a Performance List report like that shown in Figure 263 on page 533: It shows how data can be included in a report based on records that satisfy at least one of a number of conditions. In this example, a record is included in the report if it either shows a response time greater than 30 seconds or shows a terminal ID of P056.

```
CICSPA LIST(SELECT(PERFORMANCE(
    INCLUDE(RESPONSE(>30.0))),
    SELECT(PERFORMANCE(
    INCLUDE(TERM(P056)))))
```

| Tran | SC | Term | Userid | RSID | Program | TaskNo | Stop | Response | Dispatch | User | CPU | Suspend | DispWait | FC Wait | FCAMRq | IR Wait |
|------|----|------|---------|------|----------|--------|----------|----------|----------|-------|---------|---------|----------|---------|--------|---------|
| | | | | | | Time | Time | Time | Time | Time | Time | Time | Time | Time | | Time |
| CQRY | S | P056 | CBAKER | | DFHQRY | 47 | 11:11:44 | .0030 | .0029 | .0007 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CQRY | S | P056 | CBAKER | | DFHQRY | 47 | 11:11:44 | .3890 | .0016 | .0007 | .3874 | .0000 | .0000 | .0000 | 0 | .0000 |
| CESN | S | P056 | CBAKER | | DFHSNP | 48 | 11:11:44 | .0028 | .0028 | .0018 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CESN | TP | P056 | CBAKER | | DFHSNP | 49 | 11:11:50 | .0173 | .0167 | .0105 | .0007 | .0006 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 51 | 11:11:53 | .0065 | .0065 | .0019 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 51 | 11:11:57 | 4.2096 | .0063 | .0018 | 4.2034 | .0001 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 51 | 11:12:02 | 4.3841 | .0018 | .0010 | 4.3823 | .0001 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 52 | 11:12:07 | .0044 | .0043 | .0029 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 52 | 11:12:58 | 50.6951 | .0029 | .0027 | 50.6922 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 52 | 11:13:32 | 34.1747 | .0030 | .0027 | 34.1717 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 52 | 11:14:53 | 81.3172 | .0043 | .0031 | 81.3129 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 52 | 11:14:56 | 2.1921 | .0034 | .0030 | 2.1888 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 52 | 11:14:58 | 2.2332 | .0056 | .0033 | 2.2276 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 52 | 11:15:12 | 14.5575 | .1887 | .0894 | 14.3688 | .2938 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:17 | .0041 | .0040 | .0035 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:31 | 13.9899 | .0040 | .0037 | 13.9860 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:50 | 18.8996 | .0037 | .0035 | 18.8959 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:51 | .8010 | .0038 | .0035 | .7972 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:51 | .7062 | .0045 | .0035 | .7016 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:15:52 | .3508 | .0044 | .0035 | .3464 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEDA | TO | S23D | BRENNER | | DFHEDAP | 72 | 11:16:21 | 46.5125 | .0010 | .0008 | 46.5115 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:33 | 41.2444 | .0045 | .0036 | 41.2398 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:34 | .6993 | .0044 | .0040 | .6949 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:34 | .7242 | .0037 | .0034 | .7205 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:35 | .6737 | .0040 | .0035 | .6696 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:16:37 | 1.8029 | .0067 | .0036 | 1.7962 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:18:12 | 95.0977 | .0042 | .0035 | 95.0935 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S208 | BRENNER | | DFHEMTP | 66 | 11:20:31 | 308.883 | .0021 | .0012 | 308.881 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:20:33 | 141.000 | .0045 | .0032 | 140.996 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:20:43 | 10.3037 | .0037 | .0031 | 10.3001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:20:44 | .5915 | .0038 | .0031 | .5877 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:21:13 | 29.5022 | .0035 | .0032 | 29.4988 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:21:15 | 1.1033 | .0040 | .0034 | 1.0992 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | S23D | BRENNER | | DFHEMTP | 140 | 11:21:24 | 51.3442 | .0013 | .0010 | 51.3429 | .0000 | .0000 | .0000 | 0 | .0000 |
| RMST | TO | S23D | BRENNER | CJBS | | 178 | 11:22:38 | 48.9210 | .0136 | .0012 | 48.9074 | .0000 | .0000 | .0000 | 0 | .0024 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:22:57 | 102.494 | .0034 | .0027 | 102.490 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:23:07 | 10.1192 | .0062 | .0036 | 10.1130 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:23:10 | 2.4865 | .0030 | .0025 | 2.4836 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:24:16 | 66.3943 | .0033 | .0031 | 66.3909 | .0000 | .0000 | .0000 | 0 | .0000 |
| STAT | TO | S23D | BRENNER | | DFH0STAT | 198 | 11:24:18 | 48.7524 | .0015 | .0012 | 48.7509 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:24:44 | 28.3001 | .0030 | .0027 | 28.2971 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:24:56 | 11.8088 | .0017 | .0015 | 11.8071 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:25:32 | 36.1909 | .0039 | .0034 | 36.1870 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | TO | P056 | CBAKER | | DFHEMTP | 67 | 11:25:56 | 23.7983 | .0783 | .0617 | 23.7200 | .0004 | .0000 | .0000 | 0 | .0000 |
| CSAC | TO | P056 | CBAKER | | DFHACP | 233 | 11:27:34 | .0021 | .0014 | .0013 | .0007 | .0000 | .0000 | .0000 | 0 | .0000 |

Figure 263. Sample report using SELECT (list transactions for specified RESPONSE or TERM)

Example: Excluding data

You can use the EXCLUDE operand to omit the data that you are not interested in. The following command produces a Performance List report like that shown in Figure 264 on page 534. In this example, transactions associated with terminal ID P052 and S028 are not reported.

```
CICSPA LIST(SELECT(PERFORMANCE(EXCLUDE(TERM(P052,S028))))))
```

| Tran | SC | Term | Userid | RSID | Program | TaskNo | Stop | Response | Dispatch | User | CPU | Suspend | DispWait | FC Wait | FCAMRq | IR Wait |
|------|---------|------|---------|------|----------|--------|----------|----------|----------|--------|---------|---------|----------|---------|--------|---------|
| | | | | | | | Time | Time | Time | Time | Time | Time | Time | Time | | Time |
| CSSY | U | | CBAKER | | DFHAPATT | 16 | 11:10:51 | .0139 | .0007 | .0006 | .0133 | .0000 | .0000 | .0000 | 0 | .0000 |
| CSSY | U | | CBAKER | | DFHAPATT | 17 | 11:10:51 | .0185 | .0010 | .0014 | .0175 | .0001 | .0000 | .0000 | 0 | .0000 |
| CSSY | U | | CBAKER | | DFHAPATT | 18 | 11:10:51 | .0674 | .0196 | .0027 | .0479 | .0269 | .0000 | .0000 | 0 | .0000 |
| CGRP | U | | CBAKER | | DFHZCGRP | 12 | 11:10:52 | .4123 | .0420 | .0074 | .3702 | .3223 | .0000 | .0000 | 0 | .0000 |
| CSSY | U | | CBAKER | | DFHAPATT | 15 | 11:10:52 | .4204 | .0568 | .0100 | .3636 | .1744 | .0000 | .0000 | 0 | .0000 |
| CSSY | U | | CBAKER | | DFHAPATT | 13 | 11:10:52 | .6743 | .0728 | .0134 | .6015 | .4000 | .0000 | .0000 | 0 | .0000 |
| CSSY | U | | CBAKER | | DFHAPATT | 10 | 11:10:52 | .7498 | .1910 | .0228 | .5588 | .1997 | .0000 | .0000 | 0 | .0000 |
| CSSY | U | | CBAKER | | DFHAPATT | 14 | 11:10:53 | 1.3344 | .3202 | .0378 | 1.0142 | .2626 | .0000 | .0000 | 1 | .0000 |
| CSSY | U | | CBAKER | | DFHAPATT | 11 | 11:10:53 | 1.4292 | .1497 | .0313 | 1.2794 | .3461 | .0000 | .0000 | 0 | .0000 |
| CPLT | U | | CBAKER | | DFHSIPLT | 7 | 11:11:07 | 15.9915 | .3383 | .0369 | 15.6532 | .0155 | .0000 | .0000 | 0 | .0000 |
| CSSY | U | | CBAKER | | DFHAPATT | 111 | 11:11:07 | 16.0761 | 9.3488 | 2.3435 | 6.7273 | 1.1645 | .9522 | 2059 | .0000 | .0000 |
| CWBG | S | | CBAKER | | DFHWBGB | 24 | 11:11:08 | .0262 | .0248 | .0041 | .0013 | .0012 | .0000 | .0000 | 0 | .0000 |
| CRSQ | S | | CBAKER | | DFHCRQ | 25 | 11:11:08 | .0818 | .0449 | .0040 | .0369 | .0367 | .0000 | .0000 | 0 | .0000 |
| CXRE | S | | CBAKER | | DFHZXRE | 27 | 11:11:09 | .2255 | .0243 | .0049 | .2011 | .2009 | .0000 | .0000 | 0 | .0000 |
| CLR2 | R11 | | CBAKER | | DFHLUP | 29 | 11:11:10 | .0263 | .0030 | .0020 | .0232 | .0000 | .0000 | .0000 | 0 | .0232 |
| CSFU | S | | CBAKER | | DFHFCU | 26 | 11:11:10 | 1.6968 | 1.5899 | .1136 | .1069 | .0294 | .0000 | .0000 | 0 | .0000 |
| CSAC | T SAMA | | CBAKER | | DFHACP | 31 | 11:11:13 | .5217 | .0028 | .0011 | .5189 | .0002 | .0000 | .0000 | 0 | .0000 |
| CLQ2 | U | | CBAKER | | DFHLUP | 28 | 11:11:13 | 3.8259 | .0818 | .0068 | 3.7441 | .0035 | .0000 | .0000 | 0 | 3.7344 |
| CEMT | T SAMA | | CBAKER | | DFHEMTP | 32 | 11:11:13 | .1877 | .1842 | .0264 | .0035 | .0030 | .0000 | .0000 | 0 | .0000 |
| CEMT | T SAMA | | CBAKER | | DFHEMTP | 33 | 11:11:14 | .0091 | .0068 | .0026 | .0023 | .0001 | .0000 | .0000 | 0 | .0000 |
| CEMT | T SAMA | | CBAKER | | DFHEMTP | 34 | 11:11:15 | .0092 | .0068 | .0025 | .0024 | .0000 | .0000 | .0000 | 0 | .0000 |
| CSAC | T SAMA | | CBAKER | | DFHACP | 35 | 11:11:16 | .5109 | .0042 | .0012 | .5067 | .0001 | .0000 | .0000 | 0 | .0000 |
| CSAC | T SAMA | | CBAKER | | DFHACP | 36 | 11:11:17 | .5150 | .0011 | .0011 | .5139 | .0001 | .0000 | .0000 | 0 | .0000 |
| CSTE | U | | CBAKER | | DFHTACP | 37 | 11:11:17 | .1420 | .1381 | .0126 | .0039 | .0037 | .0000 | .0000 | 0 | .0000 |
| CATA | U | | CBAKER | | DFHZATA | 38 | 11:11:27 | .0537 | .0394 | .0121 | .0143 | .0003 | .0000 | .0000 | 0 | .0000 |
| CATA | U | | CBAKER | | DFHZATA | 41 | 11:11:28 | .0309 | .0048 | .0045 | .0261 | .0003 | .0000 | .0000 | 0 | .0000 |
| CQRY | S S23D | | CBAKER | | DFHQRY | 42 | 11:11:29 | .2951 | .0013 | .0008 | .2938 | .0000 | .0000 | .0000 | 0 | .0000 |
| CQRY | S S23D | | CBAKER | | DFHQRY | 42 | 11:11:29 | .4037 | .0012 | .0008 | .4024 | .0000 | .0000 | .0000 | 0 | .0000 |
| CESN | S S23D | | CBAKER | | DFHSNP | 43 | 11:11:29 | .0030 | .0029 | .0020 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CESN | TP S23D | | CBAKER | | DFHSNP | 45 | 11:11:41 | .0203 | .0197 | .0114 | .0006 | .0006 | .0000 | .0000 | 0 | .0000 |
| CATA | U | | CBAKER | | DFHZATA | 46 | 11:11:43 | .0288 | .0133 | .0047 | .0155 | .0001 | .0000 | .0000 | 0 | .0000 |
| CQRY | S P056 | | CBAKER | | DFHQRY | 47 | 11:11:44 | .0030 | .0029 | .0007 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CQRY | S P056 | | CBAKER | | DFHQRY | 47 | 11:11:44 | .3890 | .0016 | .0007 | .3874 | .0000 | .0000 | .0000 | 0 | .0000 |
| CESN | S P056 | | CBAKER | | DFHSNP | 48 | 11:11:44 | .0028 | .0028 | .0018 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CESN | TP P056 | | CBAKER | | DFHSNP | 49 | 11:11:50 | .0173 | .0167 | .0105 | .0007 | .0006 | .0000 | .0000 | 0 | .0000 |
| AMNU | T S23D | | BRENNER | | DFHSAMNU | 50 | 11:11:53 | .1724 | .1720 | .0091 | .0004 | .0004 | .0000 | .0000 | 0 | .0000 |
| CEMT | T P056 | | CBAKER | | DFHEMTP | 51 | 11:11:53 | .0065 | .0065 | .0019 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | T P056 | | CBAKER | | DFHEMTP | 51 | 11:11:57 | 4.2096 | .0063 | .0018 | 4.2034 | .0001 | .0000 | .0000 | 0 | .0000 |
| CEMT | T P056 | | CBAKER | | DFHEMTP | 51 | 11:12:02 | 4.3841 | .0018 | .0010 | 4.3823 | .0001 | .0000 | .0000 | 0 | .0000 |
| CEMT | T P056 | | CBAKER | | DFHEMTP | 52 | 11:12:07 | .0044 | .0043 | .0029 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| ABRW | T S23D | | BRENNER | | DFHSABRW | 53 | 11:12:19 | .5819 | .0783 | .0121 | .5037 | .0127 | .0000 | .0000 | 0 | .4908 |
| CATA | U | | CBAKER | | DFHZATA | 55 | 11:12:29 | .0329 | .0048 | .0044 | .0281 | .0001 | .0000 | .0000 | 0 | .0000 |
| CQRY | S P012 | | CBAKER | | DFHQRY | 56 | 11:12:32 | .0008 | .0007 | .0006 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CQRY | S P012 | | CBAKER | | DFHQRY | 56 | 11:12:53 | 21.2950 | .0013 | .0008 | 21.2938 | .0000 | .0000 | .0000 | 0 | .0000 |
| CESN | S P012 | | CBAKER | | DFHSNP | 58 | 11:12:54 | .0034 | .0033 | .0020 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | T P056 | | CBAKER | | DFHEMTP | 52 | 11:12:58 | 50.6951 | .0029 | .0027 | 50.6922 | .0000 | .0000 | .0000 | 0 | .0000 |
| ABRW | TP S23D | | BRENNER | | DFHSABRW | 59 | 11:13:17 | .0070 | .0034 | .0029 | .0036 | .0000 | .0000 | .0000 | 0 | .0036 |
| CESN | TP P012 | | CBAKER | | DFHSNP | 60 | 11:13:19 | .0166 | .0159 | .0103 | .0007 | .0006 | .0000 | .0000 | 0 | .0000 |
| ABRW | TP S23D | | BRENNER | | DFHSABRW | 61 | 11:13:20 | .0080 | .0028 | .0024 | .0052 | .0000 | .0000 | .0000 | 0 | .0051 |
| ABRW | TP S23D | | BRENNER | | DFHSABRW | 62 | 11:13:21 | .0064 | .0027 | .0023 | .0036 | .0000 | .0000 | .0000 | 0 | .0036 |
| ABRW | TP S23D | | BRENNER | | DFHSABRW | 63 | 11:13:24 | .0018 | .0017 | .0014 | .0001 | .0000 | .0000 | .0000 | 0 | .0000 |
| CEMT | T P056 | | CBAKER | | DFHEMTP | 52 | 11:13:32 | 34.1747 | .0030 | .0027 | 34.1717 | .0000 | .0000 | .0000 | 0 | .0000 |

Figure 264. Sample report using SELECT (EXCLUDE)

COPY instruction

You can use **COPY** or **INCLUDE** to instruct CICS PA at run time to obtain precoded commands from a command library and include them in your CICS PA job stream as command input. In this way, often-used sequences of commands can be readily reused. The command library is identified in the **CMDLIB DD** statement in your JCL.

The format of the COPY instruction is:

| Name | Command | Operands | Comments |
|-----------------|-------------------------------|------------------------------|---------------------|
| name (or blank) | COPY or INCLUDE | member[,member1,...,membern] | comments (or blank) |

Figure 265 on page 535 shows an example of the COPY command. In this example, precoded commands necessary to produce a Performance List report and

Performance Summary report are obtained from the two command library members and placed in the job stream.

```
//CICSPA JOB (Job Accounting)
//CPA      EXEC PGM=CPAMAIN
//CMDLIB   DD  DSN=CICSPA.CMDLIB,DISP=SHR
.
.
.
//SYSIN    DD  *
COPY LISTTPRF
COPY SUMMTPRF
/*
//
```

Figure 265. Sample JCL using COPY

Chapter 17. Sample library

The CICS PA Sample Library (SCPASAMP) contains sample members to demonstrate CICS PA features, such as JCL to generate most of the CICS PA reports and extracts.

| Member Name | Description |
|-------------|--|
| CPAAOR | Runs the Performance List and Summary reports for an AOR (Application-Owning Region). |
| CPACTGRP | Runs the CICS Transaction Gateway Statistics Activity Summary and Usage and Capacity reports. |
| CPADBCTL | Runs the Performance List and Summary reports for IMS (DBCTL). |
| CPADB2 | Runs the DB2 reports (list, short summary, long summary). |
| CPADB2# | Runs the Performance List and Summary reports for a region using DB2. |
| CPADB2AD | Runs the DB2 utility to delete a row from the Statistics Alerts DB2 table. |
| CPADB2HK | Runs the DB2 utility to delete DB2 table rows based on relative date and time. |
| CPADB2PD | Runs the DB2 utility to delete a block of rows from the Performance Summary table using start and end date and time. |
| CPADB2SD | Runs the DB2 utility to delete all rows in the Dispatcher TCB Modes DB2 table for a specific TCB Mode Name and APPLID. |
| CPAFOR | Runs the Performance List and Summary reports for an FOR (File-Owning Region). |
| CPAHDB | Runs the SMF Dump process, followed by Take-up, HDB Load, and selected reports. By combining take-up, HDB load and reporting into a single job step, all CICS PA functions can be performed by a single pass of the SMF data. For more information on this process, see "Take-up from SMF File" on page 133. |
| CPALGDDL | Runs the DDL to define a DB2 table for the system logger extract data. |
| CPALGLOD | Runs the DB2 Load Utility statements to load the system logger extract data into a predefined DB2 table. |
| CPALOGR | Runs the System Logger reports (list and summary). |
| CPALOGR | Runs the System Logger reports (list and summary). |
| CPALSTSU | Runs the Performance List report specifying file CPU service unit conversion factor. |
| CPAOMEGA | Runs the OMEGAMON List and Summary reports for all supported DBMS types. <ol style="list-style-type: none"> 1. OMEGAMON List report of Total and Database segments 2. OMEGAMON List report of Total segment 3. OMEGAMON List report of Database segment for transaction codes starting with FNL* 4. OMEGAMON Transaction Summary report with Average and Maximum statistics for Total and Database segments 5. OMEGAMON Database Summary report with Average and Maximum statistics for Total and Database segments 6. OMEGAMON Transaction and Database Summary reports with Total, Maximum and 90% Peak Percentile for Database segments |

| Member Name | Description |
|-------------|---|
| CPAPALST | Runs the Performance Alerts list report: <ol style="list-style-type: none"> Using a FORM to generate the FIELDS. SEVERITY(ALL) indicates that all transactions are reported regardless of whether they are eligible or not and whether they generate an alert or not. Using the Alert Template to specify the fields in the report instead of a FORM. Operand SEVERITY(CRITICAL) indicates that only transactions with severity of Critical are reported. Using the Alert Template to specify the fields in the report instead of a FORM. Operand SEVERITY(WARNING) indicates that only transactions with severity of Warning or Critical are reported. Using the Alert Template to specify the fields in the report instead of a FORM. SEVERITY(INFO) indicates that only transactions with severity of Informational, Warning and Critical are reported. Using the Alert Template to specify the fields in the report instead of a FORM. SEVERITY(ELIGIBLE) indicates that only transactions that are eligible for alert processing are reported. Eligible transactions are those that have field values that match the Resource values defined in the Alert definition. Eligible transactions with and without alerts are reported. |
| CPAPASUM | Runs the Performance Alerts summary report: <ol style="list-style-type: none"> Using a FORM to generate the FIELDS. Specifying SEVERITY(ELIGIBLE) to include only transactions that are eligible for alert processing. Eligible transactions are those that have field values that match the resource values defined in the alert definition. Eligible transactions with and without alerts are reported. |
| CPAPAXTI | Runs the Performance Alerts list extract using a FORM to generate the FIELDS operand. SEVERITY(ALL) indicates that all transactions will be included in the extract. |
| CPAPAXTS | Runs the Performance Alerts summary extract using a Form to generate the FIELDS operand. SEVERITY(ELIGIBLE) indicates that only transactions that are eligible for alert processing are reported. Eligible transactions are those that have field values that match the resource values defined in the alert definition. All eligible transactions with and without alerts are reported. |
| CPAPCBTS | Runs the BTS (CICS Business Transaction services) report. |
| CPAPEXP | Runs the Performance data extract. |
| CPAPGRPH | Runs the Performance graph reports. |
| CPAPLIST | Runs the Performance List report with default FIELDS settings. |
| CPAPLSFC | Runs the Performance List and Summary reports, tailored to present file control information. |
| CPAPLSPC | Runs the Performance List and Summary reports, tailored to present program control information. |
| CPAPLSTX | Runs the Performance List extended report with default FIELDS settings. |
| CPAPROFH | Runs the Transaction Profiling report comparing SMF report data against HDB baseline data. |
| CPAPROFS | Runs the Transaction Profiling report comparing SMF report data against SMF baseline data. |
| CPAPSUM | Runs the Performance Summary report with default FIELDS settings and sorted by Transaction ID and User ID. |
| CPAPTOT | Runs the Performance Totals report with default FIELDS settings. |

| Member Name | Description |
|-------------|--|
| CPAPTRGP | Runs the Transaction Group report. |
| CPAPWAIT | Runs the Performance Wait Analysis report. |
| CPAPWLM | Runs the Workload Activity reports (list, summary by service class, and summary by report class). |
| CPAPXSYS | Runs the Cross-System report and extract. The second job step (STEP2) runs the Performance List report against the extract created in the first job step. |
| CPASAHDB | Runs the Statistics HDB Alert report in various sort orders. |
| CPASASMF | Runs the Statistics Alert report (from SMF data) in various sort orders. |
| CPASPSM1 | Uses sysout2pdf, to convert the Performance Summary report to PDF and save file in a z/OS UNIX directory. |
| CPASPSM2 | Uses sysout2pdf, to convert a Performance Summary report containing many fields to a PDF with a custom page size. The report is sent as PDF and text attachments by email. |
| CPASPWT1 | Uses sysout2pdf, to convert a Wait Analysis report to PDF, using a wait analysis report-specific filter that creates a bookmark for each transaction code. The report is sent as PDF and text attachments by e-mail. |
| CPASUREX | REXX used to calculate the service unit conversion factor for the current LPAR. |
| CPATOD | Runs the Performance Summary report analyzing transaction activity by Time of Day. |
| CPATOR | Runs the Performance List and Summary reports for a TOR (Terminal-Owning Region). |
| CPATRU | Runs the Transaction Resource Usage reports (list and summary) for files and temporary storage. |
| CPATTLST | Runs the Transaction Tracking List report. |
| CPATTSUM | Runs the Transaction Tracking Summary report. |
| CPAWEB | Runs the Performance List and Summary reports showing web activity. |
| CPAXCEPT | Runs the Exception List and Summary reports. |

CICS PA has a powerful command language to request reports. This language allows you to tailor your report requests to address the many aspects of measuring CICS performance. The JCL samples demonstrate reporting for some of the more common CICS facilities.

In addition, the CICS PA dialog provides a comprehensive set of sample report forms for formatting your reports and extracts. See Table 6 on page 293 for the list of sample report forms provided by CICS PA.

Part 5. Statistics reporting using the dialog

These topics show how to use the interactive Statistics Reporting facilities to produce reports from CICS statistics and server statistics, and also CICS Transaction Gateway statistics.

For a brief description of each field in the reports, see the CICS PA ISPF dialog online help. For more information on understanding and interpreting the CICS statistics data in the reports, see “Using CICS statistics” in the *CICS Transaction Server for z/OS Performance Guide*. For more information on understanding and interpreting the CICS Transaction Gateway statistics data in the reports, see “Monitoring and Statistics” in *CICS Transaction Gateway: z/OS Administration*.

Chapter 18. Using the Statistics reporting dialog

The CICS PA dialog provides comprehensive reporting for the following types of statistics:

- CICS statistics and server statistics in SMF 110 records with the following subtypes:
 - 2 CICS Statistics
 - 3 Shared Temporary Storage Server Statistics
 - 4 Coupling Facility Data Table Server Statistics
 - 5 Named Counter Sequence Number Server Statistics
- CICS Transaction Gateway statistics in SMF 111 records

Short-term in-depth analysis or long-term trend analysis for your CICS statistics is available via the CICS PA Historical Database (HDB) and Statistics Reporting facilities.

The CICS PA statistics reporting complements the CICS utilities DFH0STAT and DFHSTUP. CICS PA presents CICS statistics in a similar way to DFH0STAT, the CICS sample statistics program. It does not accumulate and report statistics intervals like DFHSTUP.

All statistics reporting is available from the dialog. The procedure is:

1. Specify an SMF File or HDB. A list of CICS statistics intervals for all systems is displayed.
2. Select the interval. A menu of statistics categories and reports is displayed.
3. Select the report. The statistics report is displayed. There are two types of reports: label reports or tabular reports:
 - In label-based reports, fields are reported vertically. This is used when there is only one record for the report, typically an overview report.
 - In tabular reports, fields are reported horizontally. This format is displayed when there can be multiple records in the report, typically for CICS resources.
4. Sort on any column in the report, ascending or descending, using point-and-shoot column heading underlines.
5. Hyperlink to related reports using point-and-shoot field values.
6. Press Help (F1) to display descriptions of all fields in the report, together with their CICS field name and DB2 column name.
7. Press Form (F6) to edit the Report Form which controls the fields that are displayed in the report.

For more information on understanding and interpreting the CICS statistics data in the reports, see “Using CICS statistics” in the *CICS Transaction Server for z/OS Performance Guide*. For more information on understanding and interpreting the CICS Transaction Gateway statistics data in the reports, see “Monitoring and Statistics” in *CICS Transaction Gateway: z/OS Administration*.

In addition to reporting statistics using the dialog, you can also process statistics in Statistics Alert batch reports and extract statistics to delimited text files. For details, see Chapter 14, “Statistics alert reporting,” on page 353 and “Statistics extract” on page 272.

CICS Statistics Reporting Menu

CICS PA provides a flexible and powerful interactive viewer for CICS statistics, either directly from SMF files or from historical data collected in an HDB.

To invoke the Statistics reporting dialog, select option 6 **Statistics** from the Primary Option Menu. Alternatively, you can enter **STATS** from the command line anywhere in the CICS PA dialog. The CICS Statistics Reporting Menu is displayed.

```
File Options Help
-----
CICS Statistics Reporting Menu
Command ==> _____

Select an option then press Enter.

- 1. SMF Files defined in Personal System Definitions
  2. SMF Files defined in Shared System Definitions
  3. Historical Databases for CICS Statistics
  4. Process SMF File
  _____ +
  5. Define Alerts

Filter Criteria:
APPLID . . . . _____ Start . . _____ YYYY/MM/DD HH:MM:SS
Image . . . . _____ Stop . . _____

Type . . . . _ EOD _ INT _ USS _ REQ _ RRT

Options 2, 3 and 5:
Repository . . . . 'CICSPA.XYX.REPOSTRY' _____ +

F1=Help   F3=Exit   F4=Prompt   F6=Resize   F10=Actions   F12=Cancel
```

Figure 266. CICS Statistics Reporting Menu

The statistics reporting interface is the same, regardless of whether the data source is an SMF file or an HDB. Select from the following options to display a list of eligible SMF files or HDBs:

1. The list of SMF files in your Personal System Definitions.
2. The list of Daily SMF Files and log streams defined in Shared System Definitions.
3. The list of Statistics HDBs defined in the Repository.
4. An SMF File, whose data set name you specify in the accompanying field.

Option 5 **Define Alerts** allows you to create and maintain Alert Definitions for Statistics Alert reports.

Notes:

- For options 1 - 4 you can specify filter criteria to limit the CICS statistics intervals that are displayed.
You can activate, deactivate, or change the filter later, when CICS PA displays the list of CICS statistics intervals. For details, see “Set Filter” on page 548.
- For options 1 and 2, only the SMF files that meet the APPLID and Image filter criteria are selected. Then when you browse the file, the remaining filter criteria are applied to limit the statistics intervals.
- For options 2, 3, and 5, specify the **Repository** data set name that contains the Shared System Definitions or Statistics HDB definitions.

SMF File list

You can display a list of SMF Files from either your Personal or Shared System Definitions. Similarly, you can display a list of container data sets from Statistics HDBs.

Option 1 from the Statistics Reporting Menu displays the list of SMF Files in your Personal System Definitions.

```
File Edit Options Help
-----
Personal SMF Files                               Row 1 to 7 of 7
Command ==> _____ Scroll ==> PAGE

Select one or more data sets to view reports.

SMF Data Set Name                               Volume
S  CICSPA.CICS640.STATS.SERVER.TS.SMF           DATA01
_  CICSPA.CICS650.DB2.SMF                       DATA02
_  CICSPA.CICS650.DB2.SMF.TEST001              DATA02
_  CICSPA.MQS520.SMFDATA.MQ.TEST001            DATA04
_  CICSPA.CICS640.TRU.SMF                      DATA00
_  CICSPA.CICS640.TRU.SMF1                    DATA02
_  CICSPA.CICS650.LOGGER.SMF2                 DATA02
***** Bottom of data *****
```

Figure 267. Personal SMF Files

Option 2 from the Statistics Reporting Menu displays the list of SMF Files in the Shared System Definitions in the specified Repository.

```
File Edit Options Help
-----
Shared SMF Files                               Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE

Select one or more data sets to view reports.

SMF Data Set Name                               Time Period
_  CICPRO.SMF.G1450V00                          Start 2005-03-14 20.30.00
                                           Stop 2005-03-15 00.00.00
-----
S  CICPRO.SMF.G1451V00                          Start 2005-03-14 20.45.57
                                           Stop 2005-03-15 00.00.00
-----
***** Bottom of data *****
```

Figure 268. Shared SMF Files

Enter line action **S** (or any non-blank character) to select one or more data sets for statistics reporting. A list of all the statistics collection intervals in the requested SMF Files is displayed. See Figure 271 on page 547.

Statistics HDB list

Option 3 from the Statistics Reporting Menu displays the list of Statistics HDBs in the specified Repository.

```

File  Options  Help
-----
Report HDBs                               Row 1 to 6 of 6
Command ==> _____ Scroll ==> PAGE

Select to run report.

   Name      Type      Description      Changed      ID
- #STAT01  STATS      2005/02/25 16:58 SLC1
- #STAT02  STATS      2005/02/11 13:19 AWS3
- #STAT03  STATS      2005/02/08 20:10 SQU3
- #WEB01   STATS      Web information 01 2005/02/09 08:55 JZH1
- #WEB02   STATS      Web information 02 2005/02/09 08:58 CPB2
S #020902  STATS      Sample Statistics 2005/02/09 18:01 TOM1

```

Figure 269. Statistics HDBs

Enter line action **S** (or any non-blank character) to select a Statistics HDB for reporting. A pop-up menu prompts you to select either online reporting or batch Alert reporting. For information on batch Alert reporting, see “Run Statistics HDB Alerts report” on page 660. If you select online reporting, a list of the container data sets in the HDB is displayed.

```

File  Options  Help
-----
Run STATS HDB Report - #020902           Row 1 to 4 of 4
Command ==> _____ Scroll ==> PAGE

Specify run options then press Enter.

Select data sets by:      ----- Report Interval ----- HDB contains data
- 1. Report Interval      YYYY/MM/DD HH:MM:SS.TH in the range:
- 2. Data Set Name        From _____ 2004/12/16 07:39:23
                          To   _____ 2004/12/16 11:28:17

Filter Criteria NO      Type  . . / EOD / INT / USS / REQ / RRT
APPLID . . . . _____
Image  . . . . _____

Data Set Name              ----- Start ----- Volume
- CPA.#020902.D05040.T180209.HDB 2004/12/16 07:39:23 USER02
- CPA.#020902.D05040.T180212.HDB 2004/12/16 09:00:00 USER02
- CPA.#020902.D05040.T180215.HDB 2004/12/16 10:08:20 USER02
- CPA.#020902.D05040.T180218.HDB 2004/12/16 11:10:00 USER01
***** Bottom of data *****

```

Figure 270. Run Statistics HDB report

This panel shows the time period spanned by the data in the HDB and lists the container data sets.

Select one of the methods of reporting:

1. By report interval.
2. By data set name.

Then specify the report interval or enter line action **S** (or any non-blank character) to select an HDB data set for reporting.

When you have completed your selection, press Enter to continue with the report request. A list of all the statistics collection intervals in the selected data set is displayed. See Figure 271 on page 547.

Statistics intervals

CICS PA scans the specified SMF Files for statistics intervals and presents the list of intervals for further analysis.

```

File Edit Filter Options Help
-----
                                Statistics Intervals                                Row 18 from 38
Command ==> _____ Scroll ==> PAGE

Select the required CICS Statistics interval.

/ System Image VRM Type --- Collection Time --- Reset Duration
- CCVT31M FTS1 640 TS USS 2009/10/14 20:40:51 Wed 07:03:05
- CCVT31M FTS1 640 TS USS 2009/10/14 20:44:16 Wed 07:03:05
- CCVWSRP FTS1 640 TS USS 2009/10/14 20:50:02 Wed 08:50:25
- CCVWSRP FTS1 640 TS USS 2009/10/14 20:52:24 Wed 08:50:25
- CCVT31M FTS1 640 TS USS 2009/10/14 20:53:14 Wed 07:03:05
- CCVT32T FTS1 650 TS EOD 2009/10/15 00:00:00 Thu 18:16:09
- CCVT31T FTS1 640 TS EOD 2009/10/15 00:00:00 Thu 16:13:42
- CCVT31C FTS1 640 TS EOD 2009/10/15 00:00:00 Thu 00:00:00
- CCVT32C FTS1 650 TS EOD 2009/10/15 00:00:00 Thu 16:51:56
- CCVT32M FTS1 650 TS EOD 2009/10/15 00:00:00 Thu 00:00:00
- CCVT32CX FTS1 650 TS EOD 2009/10/15 00:00:00 Thu 00:00:00
- CICSTG01 FTS1 710 TG EOD 2009/10/15 00:00:00 Thu 00:00:00
- CCVT31M FTS1 640 TS EOD 2009/10/15 00:00:00 Thu 07:03:05
- CCVWSRP FTS1 640 TS EOD 2009/10/15 00:00:00 Thu 08:50:25
- CCVT32T FTS1 650 TS EOD 2009/10/15 00:00:00 Thu 16:15:32
- CCVT31C FTS1 640 TS EOD 2009/10/15 00:00:00 Thu 00:00:00
- CCVT31T FTS1 640 TS EOD 2009/10/15 00:00:00 Thu 18:16:33
S CCVT31CX FTS1 640 TS EOD 2009/10/15 00:00:00 Thu 12:24:27
- CCVT32M FTS1 650 TS EOD 2009/10/15 00:00:00 Thu 00:00:00
- CCVT31M FTS1 640 TS EOD 2009/10/15 00:00:00 Thu 00:00:00
- CCVT32CX FTS1 650 TS EOD 2009/10/15 00:00:00 Thu 00:00:00
***** Bottom of data *****

```

Figure 271. CICS Statistics Intervals

Note: The Type column indicates both the *system* type, such as TS for CICS Transaction Server or TG for CICS Transaction Gateway, and the *collection* type, such as INT or EOD. For a CICS TG system, the VRM column indicates the CICS TG VRM.

Line Actions

- / Display the menu of line actions
- S View statistics reports for the specified interval
- P Print statistics reports for the specified interval
- D Delete the collection interval (from the display only)

Primary Commands

RESET

This command (or **RES**) removes all unprocessed line actions and reinstates deleted intervals.

Also available from **Edit** in the action bar.

SORT SYSTEM|TYPE|COLLECT

This command sorts the list of CICS Statistics intervals:

SYSTEM

Sorts intervals by system name (the System column). Intervals for the same system name are sorted by collection time in reverse chronological order (most recent first). This is the default sort order.

TYPE Sorts intervals by the Type column: the *system* type, such as TS for CICS Transaction Server or TG for CICS Transaction Gateway, then the *collection* type, such as INT or EOD. Intervals for the same system type and collection type are sorted by collection time in reverse chronological order.

COLLECT

Sorts intervals by collection time in reverse chronological order.

You can also sort by selecting a point-and-shoot column heading.

FILTER [ON | OFF]

Filters allow you to control the information displayed. When filtering is in effect **Filter Mode - More:** is displayed after the panel title.

There are three forms of the command:

- **FILTER** displays the active Filter where you can view or change the filtering criteria. See Figure 272.
- **FILTER OFF** suspends filtering and displays all the intervals.
- **FILTER ON** resumes filtering.

Also available from **Filter** in the action bar.

Set Filter

The Set Filter panel is displayed when you select **Filter->Set filter** in the action bar of the Statistics Intervals panel or enter the **FILTER** command. This facility allows you to filter the intervals displayed in the current view. A statistics interval will only be displayed in the filtered view when all the specified filtering options are matched. All others are hidden (they are not deleted).

```
----- Set Filter -----
Command ==> _____

Specify filtering criteria then press Enter.

APPLID . . . _____ (Blank or pattern)
Image . . . _____ (Blank or pattern)

Type . . . . / EOD / INT / USS / REQ / RRT
                YYYY/MM/DD HH:MM:SS
Start . . . _____
Stop . . . . _____
```

Figure 272. Statistics Intervals: Set Filter

Specify the filtering criteria, then press Enter to set the filter.

When filtering is in effect, **Filter Mode - More:** is displayed after the panel title. On initial entry to Statistics Intervals, no filtering is in effect, except when reporting from HDB with Report Interval specified.

To reset the filter and redisplay all intervals and the row count, select **Filter->Set filter off** in the action bar. The filtering criteria will remain dormant in the Set Filter panel.

You can use the **FILTER ON** and **FILTER OFF** commands to swap between the filtered view and the full view of the data.

Statistics categories and reports

For a selected interval, CICS Statistics are displayed in a tree structure of categories and reports. The menu is release-specific. There are slight differences between the reports that are available in each CICS release.

Table 14. Statistics categories and reports

| Category | Subcategory or Report | ID | Minimum CICS TS VRM (640, unless otherwise stated) |
|-------------------------------------|---------------------------|----------------------|--|
| CICS Performance Analyzer - CICS TS | Alert | OSA 1 | |
| Regions | Transaction Manager | 010 | |
| | CICS Dispatcher | | |
| | Dispatcher Overview | 060/062 2 | |
| | Dispatcher TCB Modes | 060/062 2 | |
| | Dispatcher TCB Pools | 060/062 2 | |
| | MVS TCB Overview | 064 | |
| | MVS TCBs | 065 | |
| | CICS Storage | | |
| | Storage Overview | 002/014/029 2 | |
| | DSAs | 002/014/029 2 | |
| | Domain Subpools | 005/019 2 | |
| | Task Subpools | 006/020 2 | |
| | CICS Dumps | | |
| | Transaction Dump Overview | 087 | |
| | Transaction Dumps | 085 | |
| | System Dump Overview | 090 | |
| | System Dumps | 088 | |
| | Enqueue Pools | 097 | |
| | BUNDLE Resources | 100 | 660 |
| Connectivity | VTAM | 021 | |
| | Terminal Autoinstall | 024 | |
| | Terminals | 034 | |
| | ISC/MRO Connections | 052 | |
| | LU62 Mode Names | 076 | |
| | ISC Security | 054 | |
| | TCP/IP Overview | 107 | |
| | TCPIPSERVICE Resources | 108 | |
| | IPCONN Resources | 109 | 650 |
| | FEPI Connections | 017 | |
| | FEPI Pools | 016 | |
| | FEPI Targets | 018 | |
| Files and Databases | Files | 067 | |
| | VSAM LSR Pools | 039 | |
| | VSAM LSR Pool Buffers | 039 | |
| | VSAM LSR Pool Files | 040 | |
| | DB2 Connections | 102 | |

Table 14. Statistics categories and reports (continued)

| Category | Subcategory or Report | ID | Minimum CICS TS VRM (640, unless otherwise stated) |
|---------------------------------|---------------------------------|--------------|--|
| | DB2 Entries | 103 | |
| | IMS DBCTL Subsystems | 028 | |
| | WebSphere MQ Connections | 074 | 650 |
| Logging | Logstream Overview | 092 | |
| | MVS Logstreams | 094 | |
| | Journal Names | 093 | |
| | Recovery Manager | 099 | |
| Queues | Temporary Storage Overview | 048 | |
| | Transient Data Overview | 045 | |
| | Transient Data Queues | 042 | |
| Transactions | Transactions | 011 | |
| | Transaction Classes | 012 | |
| | Request Models | 111 3 | |
| Programs | Programs | 025 | |
| | Program Autoinstall | 023 | |
| | Loader Activity | 030 | |
| | Loader DSAs | 030 | |
| | LIBRARY Resources | 031 | 650 |
| | LIBRARY Data Set Names 4 | 031 | 650 |
| | PROGRAMDEF Resources | 120 | 660 |
| Event Processing | Event Capture | 140 | 660 |
| | EVENTBINDING Resources | 141 | 660 |
| | Event Processing | 142 | 660 |
| | CAPTURESPEC Resources | 143 | 660 |
| | EPADAPTER Resources | 144 | 670 |
| CICS Web Support | URIMAP Global | 101 | |
| | URIMAP Resources | 104 | |
| | PIPELINE Resources | 105 | |
| | WEBSERVICE Resources | 106 | |
| | DOCTEMPLATE Resources | 112 | 650 |
| | ATOMSERVICE Resources | 110 | 660 |
| | XMLTRANSFORM Resources | 113 | 660 |
| Java and Enterprise Java | JVM Pool and Class Cache | 117 3 | |
| | JVM Profiles | 118 3 | |
| | JVM Profile Modes | 118 3 | |
| | JVM Programs | 119 | |
| | JVMSERVER Resources | 116 | |
| | CorbaServers | 114 3 | |
| | Enterprise Java Beans | 115 3 | |

Table 14. Statistics categories and reports (continued)

| Category | Subcategory or Report | ID | Minimum CICS TS VRM (640, unless otherwise stated) | |
|-------------------------------|--------------------------------------|------------------------|--|---------------------------|
| Miscellaneous | Monitoring | 081 | | |
| | Statistics | 066 | | |
| | Table Manager | 063 | | |
| | User Domain | 061 | | |
| CICS Server | Temporary Storage | | | |
| | List Structures | 121 | | |
| | Queue Buffer Pools | 122 | | |
| | Server Storage | 123 | | |
| | Named Counters | | | |
| | List Structures | 124 | | |
| | Server Storage | 125 | | |
| | Coupling Facility Data Tables | | | |
| | List Structures | 126 | | |
| | Table Access | 127 | | |
| | Requests | 128 | | |
| | Server Storage | 129 | | |
| | CICS Performance Analyzer - CICS TG | Alert | OSA 1 | |
| | CICS Transaction Gateway 5 | Connection Manager | 000 | (Minimum CICS TG VRM 710) |
| | | CICS Server Statistics | 001 | |
| CICS Server Instance for EXCI | | 002 | | |
| CICS Server Instance for IPIC | | 007 | | |
| Gateway Daemon | | 003 | | |
| Protocol Handler | | 004 | | |
| Worker Thread | | 005 | | |
| System Environment | | 006 | | |

- 1** The Alert report is only available for Statistics HDB reporting, not when processing SMF files. It displays the statistics collected in the HDB that complied with the conditions in the Alert definition. For similar batch reporting from the original SMF files, use the Statistics Alert report available in the Report Sets facility.
- 2** Statistics record ID 002 applies only to CICS version 640 and earlier. Statistics record ID 014 applies only to CICS version 650 and 660. Statistics record ID 005 applies only to CICS version 660 and earlier. Statistics record ID 006 applies only to CICS version 660 and earlier. Statistics record ID 060 applies only to CICS version 670 and earlier.
- 3** Statistics record IDs 111, 114, 115, 117, and 118 apply only to CICS version 670 and earlier.
- 4** The Library Data Set Names statistics report appears in the tree structure only when you are selecting the reports you want to collect in an HDB or export to DB2. This report does not appear in the tree structure for viewing or printing reports. To view this report:
 1. View the LIBRARY Resources report.

2. Move the cursor to a library name, and then press Enter (the library name is a point-and-shoot field). The report displays the data set names in the concatenation for that library.

5 CICS Transaction Gateway statistics were introduced in CICS TG V7.1. Selecting an interval from the Statistics Intervals list panel displays the Statistics Reports list panel, showing the appropriate reports for the system type: CICS TS or CICS TG.

When defining or maintaining a statistics HDB, the Statistics Reports list panel shows both CICS TS and CICS TG reports, enabling you to specify whether the HDB collects CICS TS statistics, CICS TG statistics, or both. Similarly, when exporting or extracting from a statistics HDB, this panel shows reports for both system types, so that you can export or extract data for both system types in a single pass.

Statistics report tree

The reports for one statistics interval are presented in a tree structure (folder style) where the reports are grouped by category.

There are two tree structures: one for CICS Transaction Server statistics intervals, another for CICS Transaction Gateway intervals. The tree structure displayed depends on the system type of the selected interval.

```

File Edit Options View Help
-----
REPORT                               Statistics Reports
Command ===> _____ Scroll ===> PAGE

System: IYK3Z4/MV2C      Type: INT Interval: 2009/05/15 07:42:00 Friday

---
-   ** Reports **                      Size
-   -   Regions                          416
      -   Transaction Manager              1
      -   CICS Dispatcher                  37
          -   Dispatcher Overview          1
          -   Dispatcher TCB Modes         18
          -   Dispatcher TCB Pools         4
          -   MVS TCB Overview             1
          -   MVS TCBs                     13
      -   CICS Storage                     355
          -   Storage Overview             1
          -   DSAs                         8
          -   Domain Subpools              342
          -   Task Subpools                 4
      -   CICS Dumps                       5
          -   Transaction Dump Overview    1
          -   Transaction Dumps           3
          -   System Dump Overview         1
          -   System Dumps                 0
          -   Enqueue Pools                18
          -   BUNDLE Resources              0
-   -   Connectivity                      31
      -   VTAM                            1
      -   Terminal Autoinstall             1
      -   Terminals                        25
      -   ISC/MRO Connections              2
      -   LU62 Mode Names                  0
      -   ISC Security                     1
      -   TCP/IP Overview                  1

```

Figure 273. Statistics report menu tree for CICS Transaction Server

The Size column indicates the number of records in each report.

Enter line action **S** to select a report to display it, or print using the **P** line action.

Line Actions

- / Display the selection list of line actions
- S Depends on the position in the tree:
 - ** Reports ****
 - Expand all categories, or collapse all categories if already expanded
 - Category**
 - Expand/Collapse the category
 - Report**
 - Display the report. You can use a Form to dynamically change the format of the report according to your requirements.
- I Display information about the report
- P Print the report, or all reports in the category. You are prompted for print options.
- D Delete the category or report. The **RESET** command reinstates them.

Primary Commands

RESET

This command (or **RES**) clears outstanding line actions. It also expands all categories and reinstates deleted reports.

Also available from **Edit** in the action bar.

VIEW [INClude | EXClude]

This command allows you to exclude from the tree structure any categories and reports that contain no data (indicated by a Size column value of 0).

To toggle between including and excluding these categories and reports, enter **VIEW** without a parameter.

Also available from **View** in the action bar.

Expand and collapse the report tree

The reports for one Statistics Interval are presented in a tree structure (folder style) where the reports are grouped by category. This is similar to the way in which some PC tools display folders and their contents. The categories can be expanded (to show) or collapsed (to hide) the reports contained within them.

Tip: If your terminal emulation software permits, it is recommended that you configure your Mouse Options to activate the Lightpen function. Then you can flip the display status of report categories by (left button) clicking the + (to expand) and - (to collapse) characters with your mouse. Use of your mouse as a lightpen might vary depending on your terminal emulation software.

Use your mouse or enter line action **S** to collapse one or all categories.

```

File Edit Options View Help
-----
REPORT                               Statistics Reports
Command ==>>> _____ Scroll ==>>> PAGE

System: IYK3Z4/MV2C      Type: INT  Interval: 2009/05/15 07:42:00 Friday

---      ** Reports **                Size
+ ---    Regions                      416
+ ---    Connectivity                  31
+ ---    Files and Databases           23
+ ---    Logging                       6
+ ---    Queues                        64
+ ---    Transactions                  203
+ ---    Programs                      1,504
+ ---    Event Processing               0
+ ---    CICS Web Support               1
+ ---    Enterprise Java                5
+ ---    Miscellaneous                 13
+ ---    CICS Server                    0
---      ** End of Reports **

```

Figure 274. Statistics report menu tree for CICS Transaction Server: all categories collapsed

Then use your mouse or line action **S** to expand the category of interest.

```

File Edit Options View Help
-----
REPORT                               Statistics Reports                               Line 1 of 11
Command ==>>> _____ Scroll ==>>> PAGE

System: IYK3Z4/MV2C      Type: INT  Interval: 2004/12/16 07:42:00 Thursday

---      ** Reports **                Size
+ ---    Regions                      416
      + ---    Transaction Manager      1
      + ---    CICS Dispatcher           37
      - ---    CICS Storage              355
          + ---    Storage Overview      1
          S ---    DSAs                  8
          + ---    Domain Subpools       342
          + ---    Task Subpools         4
      + ---    CICS Dumps                 5
          + ---    Enqueue Pools         18
+ ---    Connectivity                  31
+ ---    Files and Databases           23
+ ---    Logging                       6
+ ---    Queues                        64
+ ---    Transactions                  203
+ ---    Programs                      1,504
+ ---    CICS Web Support               1
+ ---    Enterprise Java                5
+ ---    Miscellaneous                 13
+ ---    CICS Server                    0
---      ** End of Reports **

```

Figure 275. Statistics report menu tree for CICS Transaction Server: partially expanded

Enter line action **S** to select a report to display it, or print using the **P** line action. For more information on printed reports, see “Printing Statistics reports” on page 560.

Display report information

Enter line action **I** to display report information.

Three levels of information about the report are provided:

1. **Interval Identification.** Identifies the Statistics interval from control information contained in the SMF statistics record.
2. **Report Identification.** Identifies the category and report name from the Statistics report tree.
3. **CICS Identification.** Identifies the CICS Domain that generated the data. Additional information ties the report back to the CICS macro that maps the Statistics data.

```

Report Information
Command ==> _____

Interval Identification:
System . . . : IYK3Z4A1 Image . . . : MV2C
VRM . . . . : 640
Type . . . . : EOD
Reset . . . :          07:41:14
Duration . . :
Interval . . : 2004/12/16 07:44:24 Thursday

Report Identification:
Category . . : Connectivity
Report . . . : ISC/MRO Connections

CICS Identification:
Domain . . . : AP          Macro . . . : DFHA14DS
Stats ID . . : 052        DSECT . . . : DFHA14DS

```

Figure 276. Statistics report information

Display label reports for global statistics

In label-based reports, fields are reported vertically. This is used when there is only one record for the report, typically an overview report.

```

REPORT      Storage Overview                               Line 00000001
Command ==>                                         Scroll ==> PAGE

System: IYK3Z4/MV2C          Type: INT Interval: 2004/12/16 07:42:00 Thursday

Page Pools . . . . . : 8
Storage Protection . . . . . : NO
Reentrant Programs Protected . . : YES
Transaction Isolation . . . . . : NO
Current Unique Subspace Users . . : 0
Total Unique Subspace Users . . . : 0
Peak Unique Subspace Users . . . : 0
Current Common Subspace Users . . : 0
Total Common Subspace Users . . . : 0
Peak Common Subspace Users . . . : 0
:
:

```

Figure 277. Statistics report for CICS Transaction Server: Storage Overview (label format)

Display tabular reports for resource statistics

In tabular reports, fields are reported horizontally. This format is displayed when there can be multiple records in the report, typically for CICS resources.

```

REPORT      Domain Subpools                               Line 00000001 Col 002 008  >
Command ==>>> _____ Scroll ==>>> PAGE

System: IYK3Z4/MV2C      Type: INT  Interval: 2004/12/16 07:42:00 Thursday

```

| Subpool Name | DSA Name | Element Type | Fixed Length | Element Chaining | Element Boundary | Location | Access |
|--------------|----------|--------------|--------------|------------------|------------------|----------|--------|
| >LGJMC | ECDSA | FIXED | 60 | NO | 4 | ABOVE | CICS |
| AITM_TAB | ECDSA | FIXED | 584 | NO | 8 | ABOVE | CICS |
| AP_TCA24 | CDSA | FIXED | 1536 | NO | 128 | BELOW | CICS |
| AP_TCA31 | ECDSA | FIXED | 1536 | NO | 128 | ABOVE | CICS |
| AP_TXDEX | ECDSA | FIXED | 72 | NO | 8 | ABOVE | CICS |
| APAID31 | ECDSA | FIXED | 152 | NO | 8 | ABOVE | CICS |
| APBMS | ECDSA | VARIABLE | 0 | YES | 16 | ABOVE | CICS |
| APCOMM31 | ECDSA | VARIABLE | 0 | NO | 16 | ABOVE | CICS |
| APDWE | ECDSA | FIXED | 32 | NO | 8 | ABOVE | CICS |
| APECA | SDSA | FIXED | 8 | NO | 8 | BELOW | CICS |
| APICE31 | ECDSA | FIXED | 208 | NO | 8 | ABOVE | CICS |
| APURD | ECDSA | VARIABLE | 0 | NO | 16 | ABOVE | CICS |
| ASYNCBUF | ECDSA | FIXED | 4096 | NO | 4 | ABOVE | CICS |
| BAGENRAL | ECDSA | VARIABLE | 0 | NO | 16 | ABOVE | CICS |
| BAOFBUSG | ECDSA | FIXED | 24 | NO | 8 | ABOVE | CICS |
| BAOFT_ST | ECDSA | FIXED | 136 | NO | 8 | ABOVE | CICS |
| BR_BFBFBE | ECDSA | FIXED | 80 | NO | 16 | ABOVE | CICS |
| BR_BFNFB | ECDSA | FIXED | 96 | NO | 16 | ABOVE | CICS |

Figure 278. Statistics report for CICS Transaction Server: Domain Subpools (tabular format)

Scroll **Right** (F11) to display the remaining field columns in the report, or scroll **Left** (F10) to display the previous.

Sorting

In Statistics tabular reports, you can sort on any column. To sort on a column, tab to the point-and-shoot underline of the column heading and press Enter. Repeated point-and-shoot sorting flips the sequencing between ascending and descending.

To reset the report to the original sort order, select **Edit->Reset** in the action bar or enter the **RESET** or **RES** command.

Hyperlink

You can hyperlink from one report to another. Selected fields in the report will hyperlink to a related report. The hyperlink candidate fields are point-and-shoot fields. Position your cursor on the field value of interest and press Enter to link to that value in the related report.

Here is an example of how you can use hyperlink to trace data values.

1. Select DSAs to display the list of DSA types.

```

REPORT                               Statistics Reports                               Line 1 of 87
Command ==>> _____ Scroll ==>> CSR

System: IYK3ZAC1/MV2C   Type: EOD   Interval: 2004/12/16 07:39:30 Thursday

---      ** Reports **
-  ---   Regions                               Size
      ---   Transaction Manager                1
-  ---   CICS Dispatcher                       35
      ---   Dispatcher Overview                1
      ---   Dispatcher TCB Modes              18
      ---   Dispatcher TCB Pools              4
      ---   MVS TCB Overview                  1
      ---   MVS TCBs                          11
-  ---   CICS Storage                          359
      ---   Storage Overview                  1
      S   DSA's                               8
      ---   Domain Subpools                   346
      ---   Task Subpools                     4

```

Figure 279. Select DSAs report

2. The list of DSAs is displayed.

```

REPORT   DSAs                               Line 00000001 Col 002 008  >
Command ==>> _____ Scroll ==>> CSR_

System: IYK3ZAC1/MV2C   Type: EOD   Interval: 2004/12/16 07:39:30 Thursday

DSAs
-----
DSAs
Name  Location  Access  DSA Index  Current DSA Size  Peak DSA Size  Current Cushion Size
-----
CDSA  BELOW    CICS    1       512K    512K    64K
UDSA  BELOW    CICS    2        0K     0K     0K
SDSA  BELOW    CICS    3       256K    256K    64K
RDSA  BELOW    CICS    4       512K    512K    64K
ECDSA ABOVE    CICS    5      6144K   6144K   128K
EUDSA ABOVE    CICS    6     11264K  11264K    0K
ESDSA ABOVE    CICS    7      1024K   1024K   128K
ERDSA ABOVE    CICS    8     20480K  20480K   256K

```

Figure 280. Hyperlink on DSA name ESDSA

3. Use hyperlink to view the list of SUBPOOLS that belong to an individual DSA. Position the cursor at the required DSA name and then press Enter. The list of Domain Subpools that belong to the selected DSA is displayed, in this case ESDSA.

```

REPORT      Domain Subpools                               Line 00000001 Col 002 008  >
Command ==>>> _____ Scroll ==>>> CSR

System: IYK3ZAC1/MV2C      Type: EOD  Interval: 2004/12/16 07:39:30 Thursday

Subpool    DSA      Element      Fixed  Element      Element
Name       Name       Type         Length Chaining     Boundary  Location
-----
IE_BUFF    ESDSA     VARIABLE     0      NO           16      ABOVE
IIBUFFER   ESDSA     VARIABLE     0      NO           16      ABOVE
LDEPGM     ESDSA     VARIABLE     0      NO           16      ABOVE
LDERES     ESDSA     VARIABLE     0      NO           16      ABOVE
SJSJPT     ESDSA     FIXED        408    NO           8       ABOVE
SJSJSTK    ESDSA     FIXED         8      NO           8       ABOVE
SJSJTCB    ESDSA     FIXED       1336   NO           8       ABOVE
SJSJVMS    ESDSA     FIXED       2200   NO           8       ABOVE
SJSUSERKY  ESDSA     VARIABLE     0      NO           16      ABOVE
SMShRU31   ESDSA     VARIABLE     0      YES          16      ABOVE
WEBINB     ESDSA     FIXED      32768  YES          8       ABOVE

```

Figure 281. Domain Subpools report for DSA name ESDSA

Statistics Report Forms

The Statistics Report Forms allow you to tailor the format of each Statistics report. Each line in the Form represents a row heading in the label report or a column heading in the tabular report.

```

FORM      Transaction Manager                               Line 1 of 12
Command ==>>> _____ Scroll ==>>> PAGE

/ Heading                                     Usage
- Transactions                               _____
- Current MAXTASK                            _____
- Current Active User Transactions            _____
- Current Queued User Transactions            _____
- Times at MAXTASK                           _____
- Peak Active User Transactions                _____
- Peak Queued User Transactions                _____
- Total Active User Transactions                _____
- Total Delayed User Transactions              _____
- Total Queuing Time for MAXTASK              OMIT_
- Current Queuing Time for MAXTASK            OMIT_
- Total Transactions to Last Reset            _____
***** End of Form *****

```

Figure 282. Statistics Report Form (label format): Transaction Manager

```

FORM      TCPIPSERVICE Resources                               Line 1 of 23
Command ==>> _____ Scroll ==>> PAGE

----- Width -----
/  Heading                Usage Column  Max Report
-  TCP/IP Service         FIX_         8         8
A  Transactions Attached   _____  12        22
-  Current Connections    _____  11        35
-  Peak Connections       _____  11        48
-  Time Opened GMT        _____  19        69
-  Time Opened Local      _____  19        90
-  Time Closed GMT        _____  19       111
-  Time Closed Local      _____  19       132
M  Port Number            _____  10       144
-  SSL Support Level      _____  8        154
-  Port Backlog           _____  10       166
-  Send Requests          _____  10       178
-  Bytes Sent             _____  10       190
-  Receive Requests       _____  10       202
-  Bytes Received         _____  10       214
-  WLM DNS Group          _____  10       234
-  Protocol                _____  8        244
-  Authenticate           _____  12       258
-  Privacy                 _____  8        268

```

Figure 283. Statistics Report Form (tabular format): TCPIPSERVICE Resources

The order of the fields in the Form dictates the order of the fields in the report. You can move the fields to the required position. You can **OMIT** fields that you do not want reported. You can also **FIX** fields at the start of the report so that they remain in view when you scroll right. For long character fields in tabular reports, you can truncate the field in the report by specifying a **column width**.

When you save the Form (F3), the report changes to reflect the current Form.

Statistics field help

Field descriptions are available for all statistics reports.


```

Print Statistics Report
Command ==> _____

Specify Statistics Report print options.

Report Destination:
 1 1. Data Set  2. SYSOUT

Output Data Set:
Data Set Name . . . STAS.REPORT_____
Disposition . . . 1 1. OLD  2. MOD  (If cataloged)

Enter "/" to select option
/  Browse output data set

Report Output:
SYSOUT Class . . . A  Print Lines per Page . . . 60_ (0-255)

F1=Help  F3=Exit  F6=Resize  F12=Cancel

```

Figure 285. Print Statistics report

The data set can be PDS (with member) or PS (including GDG).

DCB information: RECFM=VBM LRECL=1024 BLKSIZE=6160

The following report is an example of a printed Statistics report.

V5R1M0

CICS Performance Analyzer
CICS TS Statistics - Domain Subpools

System: IYK3Z7FA/MV2C VRM: 680 Type: EOD Interval: 2012/07/24 02:33:10 Tuesday Reset: 05:12:40 Duration:

| Subpool Name | DSA Name | Element Type | Fixed Length | Element Chaining | Element Boundary | Location | Access | DSA Index | Free Area | Initial GETMAIN Requests | FREEMAIN Requests |
|--------------|----------|--------------|--------------|------------------|------------------|----------|--------|-----------|-----------|--------------------------|-------------------|
| >LGJMC | ECDSA | FIXED | 60 | NO | 4 | ABOVE | CICS | ECDSA | 4K | 3 | 0 |
| ATM_TAB | ECDSA | FIXED | 584 | NO | 8 | ABOVE | CICS | ECDSA | 4K | 20 | 0 |
| AP_TCA24 | CDSA | FIXED | 1536 | NO | 128 | BELOW | CICS | CDSA | 16K | 230 | 227 |
| AP_TCA31 | ECDSA | FIXED | 1536 | NO | 128 | ABOVE | CICS | ECDSA | 96K | 3983 | 3980 |
| AP_TXDEX | ECDSA | FIXED | 72 | NO | 8 | ABOVE | CICS | ECDSA | 4K | 133 | 5 |
| APAI031 | ECDSA | FIXED | 152 | NO | 8 | ABOVE | CICS | ECDSA | 4K | 2 | 2 |
| APBMS | ECDSA | VARIABLE | 0 | YES | 16 | ABOVE | CICS | ECDSA | 0K | 0 | 0 |
| APCOMM31 | ECDSA | VARIABLE | 0 | NO | 16 | ABOVE | CICS | ECDSA | 0K | 3727 | 3727 |
| APDWE | ECDSA | FIXED | 32 | NO | 8 | ABOVE | CICS | ECDSA | 4K | 50 | 50 |
| APECA | SDSA | FIXED | 8 | NO | 8 | BELOW | CICS | SDSA | 0K | 0 | 0 |
| APICE31 | ECDSA | FIXED | 200 | NO | 8 | ABOVE | CICS | ECDSA | 4K | 50 | 47 |
| APURD | ECDSA | VARIABLE | 0 | NO | 16 | ABOVE | CICS | ECDSA | 0K | 0 | 0 |
| ASYNCBUF | ECDSA | FIXED | 4096 | NO | 4 | ABOVE | CICS | ECDSA | 0K | 0 | 0 |
| BAGENRAL | ECDSA | VARIABLE | 0 | NO | 16 | ABOVE | CICS | ECDSA | 0K | 7 | 0 |
| BAOFBUSG | ECDSA | FIXED | 24 | NO | 8 | ABOVE | CICS | ECDSA | 0K | 0 | 0 |
| BAOFT_ST | ECDSA | FIXED | 136 | NO | 8 | ABOVE | CICS | ECDSA | 0K | 0 | 0 |
| BR_BFB | ECDSA | FIXED | 80 | NO | 16 | ABOVE | CICS | ECDSA | 0K | 0 | 0 |

Figure 286. Statistics report print

Part 6. Using the Historical Database (HDB)

These topics tell you how to use the CICS PA Historical Database (HDB) facility for performance trend analysis.

Chapter 19. Guided Tour: Performance HDB

CICS PA Historical Database is a repository of statistics and performance related data for your CICS systems.

CICS PA Historical Database uses SMF records to build a history of statistics and performance-related data that can be customized to meet your various reporting requirements. Your Historical Database environment is controlled from the CICS PA ISPF dialog. It provides a fully managed environment from where you can control all aspects of CICS statistics and performance data, including collection and reporting.

Implementing a statistics and performance data warehouse requires a considerable investment. Careful planning is required to ensure that the data you collect today is useful in the long term to measure CICS performance trends and workloads to help you plan for the future. Therefore it is important that you are familiar with the features and capabilities of the CICS PA Historical Database before embarking on implementation.

This chapter introduces the CICS PA Historical Database (HDB) facility and describes the concepts. It then takes you on a Guided Tour to show you how to use the CICS PA dialog to define and maintain your Performance HDBs, produce reports and export the HDB data to DB2 tables.

What is an HDB?

An HDB (Historical Database) is a definition that allows you to collect, report and manage CICS statistics and transaction performance data. In the CICS PA Historical Database environment, you can create as many HDBs as required.

An HDB has the following components:

- Options that allow you to tailor the HDB to meet your requirements.
- A Template that defines the CICS performance data to be included in the HDB. Templates allow you to customize what information is to be contained in the HDB. They are similar to Report Forms. Templates are relevant only to Performance HDBs (List and Summary), they are not required for Statistics HDBs.
- Selection Criteria that allow you to filter the CMF Performance Class data used to build the HDB.
- Container data sets that contain either the HDB performance data or the HDB statistics data.

There are two types of Performance HDB, List and Summary, where the HDB type is determined by the Template. There is a third type of HDB, Statistics, for CICS Statistics and Server statistics data and CICS Transaction Gateway statistics data. For a Statistics HDB, instead of a Template, you select from a menu the statistics categories and reports that identify the data that you want collected.

List HDB

Records in a List HDB represent single events. For example, the execution of a single transaction with its associated performance characteristics. Typically, one

CMF Performance record creates one List record. The List HDB is analogous to the CICS PA Performance List report, for more information, see “Performance List report”.

The following figure shows an example of a List HDB:

| Start Time | Tran ID | Userid | Response Time | CPU Time | Dispatch Time | Dispatch Count | Suspend Time | Suspend Count | File Calls |
|--------------------------|---------|--------|---------------|----------|---------------|----------------|--------------|---------------|------------|
| 2002-05-31-12.56.47.9763 | MENU | JOHN | 0.9956 | 0.1020 | 0.7567 | 2 | 0.2012 | 1 | 7 |
| 2002-05-31-12.56.49.1223 | STOK | CHRIS | 1.5464 | 0.4943 | 1.1028 | 3 | 0.4376 | 2 | 12 |

Figure 287. Example of a List HDB

List HDBs typically have a short lifespan and are used to provide detailed ad-hoc reporting or to diagnose performance problems.

Summary HDB

Records in a Summary HDB represent a summarization (or average) of one or more events over time. For example, the performance characteristics of a Transaction ID over a 15 minute interval. Typically, many CMF Performance records create one Summary record. The Summary HDB is analogous to the CICS PA Performance Summary report (see Performance Summary report).

The following figure shows an example of a Summary HDB:

| Start Time | Tran ID | Task Count | Average Response Time | Average CPU Time | Average Dispatch Time | Average Dispatch Count | Average Suspend Time | Average Suspend Count | Average File Calls |
|---------------------|---------|------------|-----------------------|------------------|-----------------------|------------------------|----------------------|-----------------------|--------------------|
| 2002-05-31-12.00.00 | MENU | 12 | 0.9956 | 0.1020 | 0.7567 | 2 | 0.2012 | 1 | 7 |
| 2002-05-31-12.00.00 | STOK | 17 | 1.5464 | 0.4943 | 1.1028 | 3 | 0.4376 | 2 | 12 |

Figure 288. Example of a Summary HDB

Summary HDBs typically have a longer lifespan and are built up over time to provide historical reporting and trend analysis.

Statistics HDB

A Statistics HDB provides the ability to warehouse and analyze CICS statistics data via powerful online viewing and reporting facilities. Short-term in-depth analysis or long-term trend analysis for your CICS statistics is possible.

The following figure shows an example of a Statistics HDB:

```

Command ===> _____ Statistics Reports _____ Line 1 of 87
                                                    Scroll ===> PAGE

--- ** Report **
- --- Regions Collect Load
    --- Transaction Manager Yes No
- D --- CICS Dispatcher No No
    --- Dispatcher Overview No No
    --- Dispatcher TCB Modes No No
    --- Dispatcher TCB Pools No No
    --- MVS TCB Overview No No
    --- MVS TCBs No No
- A --- CICS Storage Yes Yes
    --- Storage Overview Yes Yes
    --- DSAs Yes Yes
    --- Domain Subpools Yes Yes
    --- Task Subpools Yes Yes
- --- CICS Dumps Yes No
    --- Transaction Dump Overview Yes No
    --- Transaction Dumps Yes No

```

Figure 289. Example of a Statistics HDB definition

Statistics data is collected for activated categories and reports with **Collect=Yes**.

```

REPORT _____ Statistics Reports _____ Line 1 of 87
Command ===> _____ Scroll ===> PAGE

System: IYK3Z4/MV2C Type: INT Interval: 2004/12/16 07:42:00 Thursday

--- ** Reports ** Size
- --- Regions 379
    --- Transaction Manager 1
- --- CICS Dispatcher 0
    --- Dispatcher Overview 0
    --- Dispatcher TCB Modes 0
    --- Dispatcher TCB Pools 0
    --- MVS TCB Overview 0
    --- MVS TCBs 0
- --- CICS Storage 355
    --- Storage Overview 1
    --- DSAs 8
    --- Domain Subpools 342
    S --- Task Subpools 4
- --- CICS Dumps 5
    --- Transaction Dump Overview 1
    --- Transaction Dumps 3
    --- System Dump Overview 1
    --- System Dumps 0

```

Figure 290. Example of a Statistics HDB data collection

Size indicates the number of records collected.

System: IYK3Z4/MV2C Type: INT Interval: 2004/12/16 07:42:00 Thursday

| DSA Name | Location | Access | DSA Index | GETMAIN Requests | FREEMAIN Requests | Element Storage | Page Storage | Elements | Peak Page Storage |
|----------|----------|--------|-----------|------------------|-------------------|-----------------|--------------|----------|-------------------|
| CDSA | BELOW | CICS | CDSA | 97 | 92 | 5680 | 20K | 5 | 56K |
| UDSA | BELOW | CICS | UDSA | 0 | 0 | 0 | 0K | 0 | 0K |
| ECDSA | ABOVE | CICS | ECDSA | 5661 | 5654 | 8064 | 16K | 7 | 52K |
| EUDSA | ABOVE | CICS | EUDSA | 1 | 1 | 0 | 0K | 0 | 64K |

Figure 291. Example of a Statistics HDB report

HDB data

An HDB keeps its data in sequential data sets called containers. A new data set is created every time a request is submitted to load data into the HDB.

Saving data in small data sets rather than one monolithic table or data set makes management of the environment simpler:

- You can start using an HDB immediately without worrying whether enough DASD space is available to hold many year's worth of data.
- DFHSM can migrate old data, ensuring only the most recent or required data is retained online for immediate reporting, saving expensive DASD resources.
- ABENDX37 conditions are avoided. In the event of a data set full condition, CICS PA simply closes the full data set and continues loading into a new one.
- Individual data sets can be loaded directly into a DB2 table or CSV extract data set for further analysis.

How to analyze HDB data

Three facilities are provided to help you analyze HDB data:

1. Reporting.

The HDB Reporting facility provides flexible reporting of HDBs via Report Forms.

You can also use the Transaction Profiling report to compare data in a Performance HDB with data in SMF files, data in the same HDB, or data in another Performance HDB.

2. Exporting to DB2.

HDB data can be loaded directly into a DB2 table for further analysis. HDB data is saved in a format that is suitable for direct load. The HDB Export facility automates this process for you.

3. Extracting to CSV.

HDB data can be exported into an extract data set in CSV format (comma separated values) for further analysis by PC spreadsheet tools.

HDB tour outline

Every aspect of the CICS PA Historical Database is controlled via the ISPF dialog.

This section takes you through the process of defining and using an HDB for CMF performance class data.

Setup. Initially, your HDB environment requires a minimal one-time setup. HDB definitions are saved in the Repository, a VSAM KSDS. CICS PA automatically defines the repository for you when you first try to use it.

Then the required steps are:

1. **Template.**

Defining an HDB is a two-step process: first define a Template and then define an HDB based on that Template. The Template identifies which CMF performance fields are to be kept in the HDB.

2. **Definition.**

After the Template is defined, then define the HDB and its options, such as the characteristics of the HDB data sets and the retention period of the data.

3. **Load.**

Loading data into the HDB is performed by the standard CICS PA batch reporting utility. The command that requests the utility to load an HDB is:

```
HDB(LOAD(...
```

CICS PA reads the CMF performance class data and builds the HDB data sets. Because the HDB Load process is part of the normal batch reporting process, you can run CICS PA reports and load HDBs together with a single pass of the SMF data.

4. **Report.**

Reporting against an HDB is performed by the standard CICS PA batch reporting utility. The command that requests the utility to report against an HDB is:

```
HDB(REPORT(...
```

You can tailor HDB reporting by using a Report Form. This allows you to select which fields in the HDB are reported and how they are presented.

5. **Export.**

Export allows you to load HDB data into a DB2 table. CICS PA automates this process with two simple steps:

- a. First define the DB2 table to house the data. CICS PA generates JCL to do this for you by creating the necessary DDL to define the table.
- b. Then load the data into the table. CICS PA generates JCL to do this for you by creating the necessary DB2 Load Utility statements to load the data.

6. **Extract.**

The HDB Extract facility allows you to export data from your HDB data sets to an extract data set in CSV format, suitable for import into PC-based spreadsheet applications for further analysis.

7. **Maintain.**

HDB maintenance allows you to change your HDB definition and manage the HDB container data sets.

8. **Housekeeping.**

HDB housekeeping should be run periodically to clean up your HDB environment. Housekeeping performs these tasks:

- a. Deletes HDB container data sets that have expired or have delete pending.
- b. Deletes expired DB2 table rows.
- c. Removes definitions from the Repository that are no longer required.

For more information, see *Housekeeping*.

Historical Database Menu

Option 5 **Historical Database** from the CICS PA Primary Option Menu takes you to the Historical Database Menu. The HDB menu is presented in typical processing sequence.

```
File Options Help
-----
                                Historical Database Menu
Option ==> _____

1 Templates      Design HDB Templates
2 Define         Define a new HDB
3 Load          Load data into the HDBs
4 Report         Submit HDB report requests
5 Export         Export HDB data sets to DB2
6 Extract        Extract HDB data sets to CSV
7 Maintenance    Maintain HDB definitions and data sets
8 Housekeeping   Perform HDB housekeeping

Repository . . . . 'CICSPROD.CICSPA.HDB.REPOSTRY' _____ +

CICS versions (VRM):
Transaction Server . . . . 680
Transaction Gateway . . . . 900

F1=Help      F3=Exit      F4=Prompt      F10=Actions      F12=Cancel
```

Figure 292. Historical Database (HDB) Menu

Specify the repository data set name. Remember that you might want to share this repository with other users. This will ensure that HDB data can be generated once and made available to everyone.

Repository

Your HDB environment is controlled by the Repository. The Repository is a VSAM KSDS that acts as a repository for all definitions associated with your HDB environment:

- Templates (Performance HDBs only)
- HDB Definitions
- Selection Criteria (Performance HDBs only)
- Container data set information
- Audit information about Load requests

The Repository is also a repository for the following definitions that are not associated with HDBs:

- Shared System Definitions
- Application Groups
- Statistics Alert Definitions
- Resource Lists
- Performance Alert Definitions

It is recommended that you share the repository with other CICS PA users so that you only need to generate history data once, allowing multiple users to report against it. There is no limit to the number of repositories you can define.

If your repository is not cataloged, the dialog will first prompt you to define it when you select an option from the menu.

```

Define Repository
Command ==> _____
Enter "/" to select option
_ Edit IDCAMS command
_ Browse errors only
Repository Name . . . 'CICSPROD.CICSPA.XYZ.REPOSTRY' _____

Cluster Level Information:
Space Units . . . . . 1 1. Cylinders Primary Quantity . . . 1 _____
                          2. Tracks Secondary Quantity . . 1 _____
                          3. Records
                          4. Kilobytes
                          5. Megabytes
Volume . . . . . _____
Data Class . . . . . _____
Management Class . . . _____
Storage Class . . . . _____

F1=Help   F3=Exit   F6=Resize   F12=Cancel

```

Figure 293. Define Repository

Specify the required allocation settings and then press **Enter** to define the repository data set. Typically a space allocation of 1 primary cylinder and 1 secondary cylinder is sufficient.

When the repository is defined, you are ready to start using HDB.

HDB Templates

Templates specify the performance information that is to be contained in an HDB. Templates are used by List and Summary HDBs. They are not required for Statistics HDBs which instead use a menu-selection facility.

Customize the Templates to specify the data that you want to be contained in the HDB. Templates are similar to Report Forms which are used to customize reports.

Select option 1 **Templates** from the HDB menu to define (or update) Templates.

```

File Options Help
-----
HDB Templates
Command ==> NEW _____ Scroll ==> CSR_
Select to edit Template. Enter NEW command to define a new Template.
/ Name      Type      Description      Changed      ID
***** End of list *****
F1=Help   F3=Exit   F7=Backward F8=Forward F10=Actions F12=Cancel

```

Figure 294. HDB Templates

The NEW command is used to define a new Template.

```

File Systems Options Help
-----
                          New HDB Template
Command ==> _____

Specify new Template options.

Name . . . . . PRODSUM_  Version (VRM) . . . ____ +

System Selection:          Field Categories:
APPLID . . . . . _____ +  _ Select to specify Field Categories
MVS Image . . _____

Template Type:
2 1. List
_ 2. Summary

```

Figure 295. New HDB Template

You need to specify the Template name and type. Other options affect which CMF Fields the Template will initially be defined with. They can be used to reduce the amount of fields contained in the Template.

In this example, a Summary Template called PRODSUM is created. Press **Enter** to proceed with defining the Template.

```

File Edit Confirm Upgrade Options Help
-----
                          EDIT Summary Template - PRODSUM                      More: >
Command ==> _____ Scroll ==> CSR_

Description . . . Summary HDB Template_____ Version (VRM): 680

Selection Criteria:
_ Performance          Time Interval . . 00:15:00 (hh:mm:ss)

Field
/ Name + K Description
__ START__ A Task start time
__ MVSID__ A MVS SMF ID
__ APPLID__ A CICS Generic APPLID
__ TRAN__ A Transaction identifier
__ TASKCNT_ Total Task count
__ RESPONSE_ Transaction response time
__ DISPATCH_ Dispatch time
__ CPU_____ CPU time
__ SUSPEND__ Suspend time
__ DISPWAIT_ Redispach wait time
__ FCWAIT__ File I/O wait time
D_ FCAMCT__ File access-method requests
__ IRWAIT__ MRO link wait time
__ SC24UHWM_ UDSA HWM below 16MB
I_ SC31UHWM_ EUDSA HWM above 16MB
__ TSWAIT__ VSAM TS I/O wait time
__ EOD_____ ----- End of HDB -----
__ TERM__ A Terminal ID
__ APPLTRAN_ A Application naming Tran ID
__ APPLPROG_ A Application naming Program
__ STOP__ A Task stop time
F1=Help F3=Exit F4=Prompt F5=Rfind F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

Figure 296. Edit Summary Template

Templates are similar to Report Forms. Where Report Forms define the fields to be included in a report or extract, Templates define the fields to be included in an HDB.

When you define a new Template, the default fields list is initially displayed. Edit the Template to include the required fields.

The **EOD** marker in the Template signifies the end of fields that is included in the HDB. Fields after the EOD marker will not be included in the HDB. You can move required fields above the EOD marker to include them in the HDB.

The example in Figure 296 on page 572 displays the default Summary Template. Key fields are positioned at the top and the most common performance indicators like response, dispatch and suspend times are included.

Edit the Template to meet your reporting requirements. In the example above, FCAMCT is deleted and TSWAIT is inserted.

Specify Performance Selection Criteria and the Report Interval to control the data you want in your HDBs:

Selection Criteria

Templates have optional Selection Criteria that allows you to filter the CMF performance class records used to build the HDB. For example, the HDB only includes data for transactions that use File Control services (FCTOTAL>0).

Select Performance to specify Selection Criteria.

Report Interval

Summary Templates specify a recording time interval. The default is 1 minute which indicates that summary data is accumulated and recorded in 1 minute intervals. Select the interval carefully because it will impact on HDB processing as follows:

1. **Loading.** Shorter recording intervals write more records, increasing the size of your HDB data sets.
2. **Reporting.** Longer recording intervals restrict reporting. For example, if you specify a recording interval of 1 hour then you can only report on 1 hour (or higher) intervals, and 15 minute interval reporting is not possible.

Therefore selecting the correct interval is a balance between not loading too much data and not restricting reporting. In the example above the interval has been changed to 15 minutes.

Exit (F3) to save the Template. You are now ready to define an HDB that uses this Template.

Attention: After the Template has been initially saved, you are permitted to edit the Template to change its field list. However if the Template is already being used to load data into a HDB, then changing the Template can potentially cause reporting problems in the future. CICS PA supports the alteration of Template fields, but a few simple rules will ensure that HDB processing is not compromised:

1. Do not change the key fields of a Summary Template.
2. Do not change the focus of a Template. For example, if the Template includes Temporary Storage fields only, do not delete those fields and insert File Control fields in their place. You should create another Template with a focus on File Control.

Defining a Performance HDB

Defining a Performance HDB allows you to collect (load) and report historical performance data. The definition alone does not cause any action by CICS PA.

Select option 2 **Define** from the HDB menu to define a new HDB. Then when prompted, select option 1 to create a Performance HDB.

```

New HDB Definition Menu

Select an HDB type then press Enter.
_ 1. Performance - CMF List or Summary
_ 2. Statistics - CICS Statistics

```

Figure 297. New HDB Definition Menu

In the following example, we have given the HDB a name of CICSP1H and a description of Summary HDB for CICSP1.

```

File Systems Options Help
-----
New HDB Definition
Command ==>> _____

Specify new HDB definition options then press EXIT to save.

Name . . . . . CICSP1H_ APPLID CICSP1_ + Image _____
Qualifier . . . _____ Explorer
Description . . Summary HDB for CICSP1_____

HDB Format:                               Selection Criteria:
Template . . . PRODSUM_ +                 _ Performance

Data Retention Period:
HDB: Years ___ Months 2_ Weeks ___ Days ___ Hours ___
DB2: Years ___ Months ___ Weeks ___ Days ___ Hours ___

Data Set Allocation Settings:
DSN Prefix . . . . . JCH_____
Management class . . . _____ (Blank for default management class)
Storage class . . . . . _____ (Blank for default storage class)
Volume serial . . . . . _____ (Blank for system default volume)
Device type . . . . . _____ (Generic unit or device address)
Data class . . . . . _____ (Blank for default data class)
Space Units . . . . . CYLS_____ (TRKS, CYLS)
Primary quantity . . 10_____ (In above units)
Secondary quantity . 10_____ (In above units)

F1=Help F3=Exit F4=Prompt F7=Backward F8=Forward F10=Actions F12=Cancel

```

Figure 298. New HDB Definition

The other options are:

APPLID

APPLID is optional and specifies the CICS system that the HDB applies to. You can use **Prompt** (F4) to select from a list of CICS systems defined in your System Definitions.

Specify APPLID to ensure that only data for this CICS system is loaded into the HDB. At Load time, CICS PA will generate JCL that includes this APPLID in the command deck and DD statements for this system's SMF Files.

Qualifier

If Qualifier is specified, the value is used as the DB2 schema in place of the Database as specified in DB2 Settings. It is also incorporated into the DB2 table name:

qualifier.CPA_hdbname

Qualifier is mandatory if Explorer is selected, and optional otherwise. If Qualifier and Explorer are both entered then details of this HDB will be included in the manifest for the CICS PA plug-in the next time it is rebuilt for this qualifier.

Explorer

Select the Explorer option to make this HDB eligible for inclusion in the manifest for the CICS PA plug-in.

Template

The format and type of the HDB is determined by the Template.

In Figure 298 on page 574 we have specified PRODSUM, the Template created in the previous step. You can use **Prompt** (F4) to select from a list of defined Templates. PRODSUM is a Summary Template and HDB CICSP1H inherits its attributes.

If you have selected the Explorer option, you must choose an internal template that has been predefined for use with the CICS PA plug-in.

Selection Criteria

HDBs have optional Selection Criteria that allows you to filter the CMF performance class records used to build the HDB. For example, the HDB only includes data for a particular application's transaction ids, such as TRAN=MY*. Select Performance to specify Selection Criteria.

Templates can also specify Selection Criteria. If the Template and HDB both have active Selection Criteria then both are checked and *both* must match for the record to be processed.

Template Selection Criteria typically focuses on the type of data being recorded. For example, if your Template is monitoring File Control activity then its Selection Criteria can specify FCTOTAL>0 to include only transactions that used File Control services.

HDB Selection Criteria typically focuses on the application targeted by the HDB. For example, if the HDB is for MY application then its Selection Criteria can specify TRAN = MY* to include only transactions in MY application.

The resultant HDB will include data for transactions matching MY* that use File Control services.

Data Retention Period

These fields separately specify the length of time that HDB data sets and associated DB2 table rows are kept before they expire. Typically:

- Summary HDBs need to keep their container data sets for many years for long-term trend analysis.
- List HDBs used for ad hoc reporting might only need to keep their container data sets for a couple of hours or days.

Specify each retention period as a whole number of years, months, weeks, days, or hours. Only one choice is allowed.

If the HDB container data sets are no longer required after their data has been exported to DB2, you can specify a retention period of 0 in any of the HDB periods to make the HDB data sets expire immediately.

Container data sets and DB2 data are deleted by **HDB Housekeeping** after they have passed their expiry date. If you do not specify a retention period, the corresponding HDB data sets or DB2 data will never expire.

Use **HDB Maintenance** to check container data set status or to alter the HDB or DB2 retention period.

Data Set Allocation Settings

Data Set Allocation Settings specify the allocation attributes of the data sets that contain data for this HDB. CICS PA dynamically allocates container data sets at load time.

The format of the data set name is:

DSN-prefix.HDB-name.Dyyddd.Thmmss.HDB

where the DSN prefix is the data set name high level qualifier.

Specify allocation settings that satisfy your installation requirements. The size of container data sets is not critical. Typically you would specify a size that accommodates a single load request. For example, if you load data into the HDB daily, then 10 cylinders might be sufficient. However if CICS PA encounters an out-of-space condition (ABENDx37) during load, then it simply closes the data set and recommences loading in a new data set. You can decide to specify a larger size initially and adjust it later using **HDB Maintenance**.

Exit (F3) to save the HDB. You are now ready to use this HDB.

Loading data into a Performance HDB

After defining the HDB, you can start to collect (load) the historical performance data.

Select option 3 **Load** from the HDB menu to generate JCL to load an HDB.

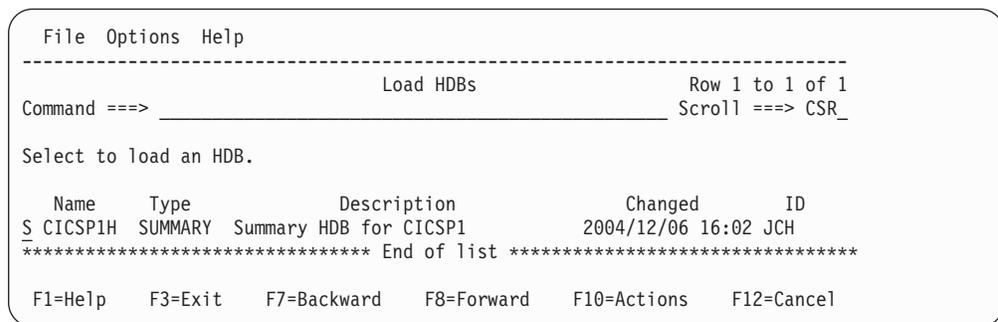


Figure 299. Load HDBs

Select the required HDB from the list to display the Load panel.

```

File Systems Options Help
-----
Load SUMMARY HDB CICSP1H
Command ==>> _____

Specify HDB load options then press Enter to continue submit.

System Selection:                _____ Report Interval _____
APPLID . . CICSP1H_ +           YYYY/MM/DD HH:MM:SS.TH
Image . . _____ +         From 0 _____ 09:00:00.00
Group . . _____ +         To 0 _____ 16:30:00.00

DB2 Export Options:             Table Load Options
_ Load DB2 Table                1 1. Resume 2. Replace

Include Clock Field Components  Summary Options
1 1. Time and Count              _ Include Sums of Squares
_ 2. Time only
  3. Count only                  Enter "/" to select option
                                  / Edit JCL before submit

F1=Help   F3=Exit   F4=Prompt   F6=Resize   F10=Actions   F12=Cancel

```

Figure 300. Load Summary HDB

The options are:

System Selection

System Selection specifies the CICS system(s) whose data is to be loaded into the HDB. It is initialized to the CICS system APPLID that you specified during HDB definition.

In Figure 300, CICS PA generates an APPLID(CICSP1) operand in the command deck and includes DD statements for the SMF Files defined in System Definitions for CICSP1.

Report Interval

Specify the time range of data to be included in the HDB. You can specify an explicit date, such as 2004-12-05, or a relative date to indicate today (0), yesterday (-1), two days ago (-2), and so on. We have used a relative date of zero (0) to indicate that we are processing today's SMF data, from 9:00am to 4:30pm.

It is recommended that you specify relative dates if you want to use an automated job scheduler to run the load HDB JCL regularly. The JCL can be set up once and run daily without needing to change it.

DB2 Export Options

To export the data to DB2 directly after loading it into the HDB, select the Load DB2 Table option. For details of the JCL that this option generates, see Load JCL. (The remaining DB2 export options are only relevant if you select the Load DB2 Table option.)

The DB2 table to which you are exporting must already be defined.

To define a DB2 table, see Creating DDL to define a DB2 table.

If you select **2. Replace** for Table Load Options and the HDB load fails, then the result is an empty DB2 table.

When you have specified your Load options, you are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your load request.

If you selected **Edit JCL before submit** then the Load HDB JCL is displayed in an edit session. Specify this option if you want to save the JCL in an automated job scheduler JCL library.

```

EDIT          JCH.SPFTEMP1.CNTL                      Columns 00001 00072
Command ==>  change '<unresolved>' 'CICSP1.DAILY.CMF(0) '__ Scroll ==> CSR_
***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 //*  CICS PA V5R1 HDB LOAD JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
000005 //CPAHDBRG DD DSN=CICSPROD.CICSPA.HDB.REPOSTRY,DISP=SHR
000006 //SYSPRINT DD SYSOUT=*
000007 //* SMF Input Files
000008 //* SMF Files that follow have unresolved DSNs
000009 //* SMF File for System=CICSP1
000010 //SMFIN901 DD DSN=<unresolved>,DISP=SHR
000011 //* Command Input
000012 //SYSIN DD *
000013 * HDB=CICSP1H
000014 * Description=Summary HDB for CICSP1
000015         CICSPA SMFSTART(0,09:00:00.00),
000016         SMFSTOP(0,16:30:00.00)
000017 * HDB Load for System=CICSP1
000018         CICSPA IN(SMFIN901),
000019         APPLID(CICSP1),
000020         LINECNT(60),
000021         FORMAT(':','/'),
000022         HDB(OUTPUT(HDBL0001),LOAD(CICSP1H))
000023 /*

```

Figure 301. Edit JCL for Load Summary HDB

The SMF file data set name for system CICSP1 is unresolved. This indicates that the System Definition for CICSP1 does not have SMF files specified. Substitute the required SMF file data set name into the JCL.

The command deck specifies operands to load HDB CICSP1H:
HDB(OUTPUT(HDBL0001),LOAD(CICSP1H))

Enter **SUBmit** in the command line to submit the job to run the load.

Successful completion of the Load request will generate a Recap report like the following.

```

V5R1M0                      CICS Performance Analyzer
                              HDB Load Recap Report

HDBL0001 Printed at 9:28:48 12/07/2004 Data from 09:02:00 12/07/2004 to 16:29:00 12/07/2004 Page 1

LOAD requested for HDB: CICSP1H Repository DSN: CICSPROD.CICSPA.HDB.REPOSTRY

The following Container(s) were created and loaded:
  Container DSN: JCH.CICSP1H.D03219.T092846.HDB           No of Records: 54,567
  Start Time Stamp: 2004-12-07-09.00.00                End Time Stamp: 2004-12-07-16.00.00

LOAD process complete.

```

Figure 302. HDB Load Recap report

The Recap report provides a list of the Container data sets created by the Load process. In this example, CICS PA created Container data set JCH.CICSP1H.D03219.T092846.HDB. It contains 54,567 records for the period 9:00am to 4:00pm on December 7, 2004.

HDB Load Audit

HDB load requests create an audit record that includes:

- Date/time range of the data used to create the containers
- Status indicator, OK or Failed

The purpose of the HDB Load Audit is two-fold:

- Verify that all load requests have completed successfully
- Highlight gaps in the data due to Load requests not being run

The Load Audit records can be viewed and maintained from the dialog. For more information, see HDB Load Audit.

Performance HDB Reporting

After you have loaded data into an HDB it is then eligible for reporting.

Select option 4 **Report** from the HDB menu to submit a report request.

```
File Options Help
-----
Command ==> Report HDBs Row 1 to 1 of 1
Scroll ==> CSR_

Select to run report.

Name      Type      Description      Changed      ID
S CICSP1H  SUMMARY  Summary HDB for CICSP1  2004/12/07 09:28 JCH
***** End of list *****

F1=Help   F3=Exit   F7=Backward  F8=Forward  F10=Actions  F12=Cancel
```

Figure 303. Performance HDB Reporting

Select the required HDB from the list to display the Run Report panel, as shown in the following example.

```
File Options Help
-----
Command ==> Run SUMMARY HDB Report - CICSP1H

Specify run options then press Enter to continue submit.

Report Format:
Report Form . . _____ +
----- Report Interval -----
                YYYY/MM/DD  HH:MM:SS.TH
From 2004/12/07 09:00:00.00
To   2004/12/07 16:00:00.00

Reporting Options:
Time Interval . . 01:00:00 (hh:mm:ss)
Totals Level . . 8 (blank or 0-8)
Precision . . . 4 (4-6)

Enter "/" to select option
/ Edit JCL before submit

HDB contains data from 2004/12/07 09:00 to 2004/12/07 16:00.

F1=Help   F3=Exit   F4=Prompt  F6=Resize  F10=Actions  F12=Cancel
```

Figure 304. Run Summary HDB Report

The options are:

Report Form

Specify a Report Form to tailor the format of the report output. If you do not specify a Form, CICS PA will report all fields in the HDB, in default sequence, up to the maximum 8000 characters.

Report Interval

Specify the reporting time range. You can specify an explicit date, such as 2004/12/07, or a relative date to indicate today (0), yesterday (-1), two days ago (-2), and so on. At the bottom of the display is the time range of data contained in this HDB. If you specify a Report Interval, then it must be within this range otherwise the report request will fail.

Time Interval

Specify an optional Time Interval when reporting Summary HDBs. The default is the Time Interval used to create the data (as defined in the Template). The example template PRODSUM that was used to create the HDB data specified 15 minutes.

You can specify any interval greater than or equal to the Template Interval. For example, if you are reviewing many days worth of data then you might specify 24:00:00 (24 hours) so that you can view the daily trend. In Figure 304 on page 579, the Interval has been changed to 1 hour.

Totals Level

This option applies only to the Summary report. Leave blank if you do not want to include total lines in the report. This generates the NOTOTALS operand.

Specify a number between 1 and 8 to accumulate subtotals for up to 8 sort fields, print the subtotals when the sort field changes, and print a grand total at the end of the report. This generates the TOTALS(n) operand where n is a value between 1 and 8. Default: 8

Specify 0 for no subtotals, but print only the grand total. This generates the TOTALS(0) operand.

Precision

Specify the precision for numeric fields: 4, 5, or 6 decimal places to report up to microseconds. This generates the PRECISION(n) operand for n between 4 and 6. Default: 4

When you have specified your Report options, you are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your report request.

If you selected **Edit JCL before submit** then the Report HDB JCL is displayed in an edit session.

```

EDIT          JCH.SPFTEMP2.CNTL                      Columns 00001 00072
Command ==>> _____ Scroll ==> CSR_
***** ***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 /* CICS PA V5R1 HDB REPORT JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DISP=SHR,DSN=CPA.V5R1M0.SCPALINK
000005 //CPAHDBRG DD DISP=SHR,DSN=CICSPROD.CICSPA.HDB.REPOSTRY
000006 //SYSPRINT DD SYSOUT=*
000007 /* Command Input
000008 //SYSIN DD *
000009 * HDB=CICSP1H
000010 * Description=Summary HDB for CICSP1
000011 CICSPA SMFSTART(2004/12/07,09:00:00.00),
000012 SMFSTOP(2004/12/07,16:00:00.00)
000013 CICSPA NOAPPLID,
000014 LINECNT(60),PRECISION(4),
000015 FORMAT(':', '/'),
000016 HDB(OUTPUT(HDBR0001),REPORT(CICSP1H),
000017 INTERVAL(01:00:00),NOTOTALS)
000018 /*
000019 /* HDB Container Data Sets. HDB Report processing does not require
000020 /* these data sets to be included in the JCL as they are dynamically
000021 /* allocated when required. They are included:
000022 /* 1) for your reference
000023 /* 2) to ensure that all required data sets are cataloged
000024 /* 3) to allow DFHSM to recall required data sets up front
000025 //HDB00001 DD DISP=SHR,DSN=JCH.CICSP1H.D03219.T092846.HDB
***** ***** Bottom of Data *****

```

Figure 305. Edit JCL for Summary HDB report

The HDB container data sets are listed at the end of the JCL. They are not required here because the CICS PA batch reporting utility will dynamically allocate the data sets when they are required. CICS PA adds the data sets into the JCL primarily for the purpose of DFHSM recall, if required. It is more efficient to recall data sets in the JCL (where job initiation can recall migrated data sets en masse) rather than one at a time when dynamically allocated.

The command deck specifies operands to report against HDB CICSP1H:
HDB(OUTPUT(HDBR0001),REPORT(CICSP1H))

Enter **SUBmit** in the command line to submit the job to run the report.

Successful completion of the Report request will generate an HDB Summary report.

| V5R1M0 | | CICS Performance Analyzer Historical Database Summary | | | | | | | | | | |
|---|-------------|--|-------|-------------------|-------------------|-------------------|------------------|-------------------|------------------|------------------|-------------|-------------|
| HDBR0001 Printed at 12:03:45 04/17/2013 | | Data from 09:00:00 12/07/2004 to 16:00:00 12/07/2004 | | | | | | | | | | Page 1 |
| Start Interval | MVS APPLID | Tran | Tasks | Avg Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | Avg FC Wait Time | Avg IR Wait Time | Avg SC24UHM | Avg SC31UHM |
| 2004/12/07 09:00 | MVS1 CICSP1 | ABRA | 1 | .2729 | .0009 | .0006 | .2720 | .0000 | .0000 | .2719 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | ASIX | 2 | .2184 | .0009 | .0006 | .2175 | .0000 | .0000 | .2175 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | ATRA | 1 | 1.6067 | .0008 | .0005 | 1.6058 | .0000 | .0000 | 1.6057 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | BLIX | 1 | .0845 | .0008 | .0005 | .0836 | .0000 | .0000 | .0835 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | CRVI | 1 | .0004 | .0004 | .0000 | .0000 | .0000 | .0000 | .0000 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | CSMI | 2 | .0107 | .0006 | .0004 | .0101 | .0000 | .0000 | .0101 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | DEBT | 1 | .0038 | .0006 | .0004 | .0032 | .0000 | .0000 | .0031 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | OPIC | 1 | .0236 | .0008 | .0006 | .0227 | .0000 | .0000 | .0227 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | RESU | 1 | .0341 | .0009 | .0006 | .0332 | .0000 | .0000 | .0332 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | RGYM | 1 | .0056 | .0010 | .0007 | .0046 | .0000 | .0000 | .0045 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | T050 | 2 | .0296 | .0009 | .0006 | .0288 | .0000 | .0000 | .0286 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | T096 | 1 | .0398 | .0012 | .0005 | .0386 | .0001 | .0000 | .0385 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 CICSP1 | XYLO | 1 | .0010 | .0009 | .0001 | .0001 | .0000 | .0000 | .0000 | 11600 | 16368 |

Figure 306. HDB Summary report

Tailoring the HDB report format

To change the format of the report or to report additional information from the HDB then you need to use a Report Form. Report Forms are defined outside the HDB menu using option 3 **Report Forms** from the CICS PA Primary Option Menu.

In the following example we have created a Summary Report Form called HDBFORM1.

```

File Edit Confirm Upgrade Profiling Options Help
-----
EDIT SUMMARY Report Form - HDBFORM1                      More: >
Command ==> _____ Scroll ==> CSR_

Description . . . Summary Report Form_____ Version (VRM): 680

Selection Criteria:
_ Performance                                           Page width . . 132_

Field  Sort
/ Name + K O Type  Fn  Description
---
TRAN   K  A  _____  ___  Transaction identifier
TASKCNT_____  _____  Total Task count
RESPONSE_____  AVE  Transaction response time
RESPONSE_____  DEV  Transaction response time
DISPATCH_____  TIME  AVE  Dispatch time
DISPATCH_____  COUNT  AVE  Dispatch time
CPU_____  TIME  AVE  CPU time
SUSPEND_____  TIME  AVE  Suspend time
SUSPEND_____  COUNT  AVE  Suspend time
DISPWAIT_____  TIME  AVE  Redispach wait time
FCWAIT_____  TIME  AVE  File I/O wait time
FCWAIT_____  COUNT  AVE  File I/O wait time
IRWAIT_____  TIME  AVE  MRO link wait time
IRWAIT_____  COUNT  AVE  MRO link wait time
EOR_____  _____  ----- End of Report -----

```

Figure 307. Edit Summary Report Form

This Form will change the default HDB report in a number of ways:

1. The Form does not specify a time stamp key. This will cause the report to be summarized by Transaction ID only. The interval records of the HDB is accumulated for each Transaction ID.
2. The count components of the Clock fields have been included. By default the HDB Summary report only displays the average of the time components.
3. Response time is also to be reported as a Standard Deviation. This will provide an indication of how response time varies. The higher the standard deviation the more that response time varies.

When you next report against the HDB, you can use this Report Form. On the Run Report panel, press **Prompt** (F4) to select from a list of Report Forms.

```

File  Options  Help
-----
                        Run SUMMARY HDB Report - CICSP1H
Command ==> _____

Specify Report request options then press Enter to continue submit.

Reporting Options:                ----- Report Interval -----
Report Form  . . HDBFORM1  +      YYYY/MM/DD  HH:MM:SS.TH
                                   From 2004/12/07 09:00:00.00
                                   To   2004/12/07 16:00:00.00

Time Interval  . . 01:00:00 (hh:mm:ss)

Enter "/" to select option
/  Edit JCL before submit

HDB contains data from 2004/12/07 09:00 to 2004/12/07 16:00.

F1=Help   F3=Exit   F4=Prompt   F6=Resize   F10=Actions   F12=Cancel

```

Figure 308. Run Summary HDB report specifying a Report Form

When a Report Form is specified, the command input changes to include the **FIELDS** operand to indicate that customized reporting is required.

```

EDIT          JCH.SPFTEMP2.CNTL                      Columns 00001 00072
Command ==> _____ Scroll ==> CSR_
***** ***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 //*  CICS PA V5R1 HDB REPORT JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DISP=SHR,DSN=CPA.V5R1M0.SCPALINK
000005 //CPAHDBRG DD DISP=SHR,DSN=CICSPROD.CICSPA.HDB.REPOSTRY
000006 //SYSPRINT DD SYSOUT=*
000007 //* Command Input
000008 //SYSIN DD *
000009 * HDB=CICSP1H
000010 * Description=Summary HDB for CICSP1
000011     CICSPA SMFSTART(2004/12/07,09:00:00.00),
000012             SMFSTOP(2004/12/07,16:00:00.00)
000013     CICSPA NOAPPLID,
000014             LINECNT(60),PRECISION(4),
000015             FORMAT(':', '/'),
000016     HDB(OUTPUT(HDBR0001),REPORT(CICSP1H),
000017             INTERVAL(01:00:00),NOTOTALS)
000018     FIELDS(TRAN,
000019             TASKCNT,
000020             RESPONSE(AVE),
000021             RESPONSE(DEV),
000022             DISPATCH(TIME(AVE)),
000023             DISPATCH(COUNT(AVE)),
000024             CPU(TIME(AVE)),
000025             SUSPEND(TIME(AVE)),
000026             SUSPEND(COUNT(AVE)),
000027             DISPWAIT(TIME(AVE)),
000028             FCWAIT(TIME(AVE)),
000029             FCWAIT(COUNT(AVE)),
000030             IRWAIT(TIME(AVE)),
000031             IRWAIT(COUNT(AVE)))
000032 /*
000033 //HDB00001 DD DISP=SHR,DSN=JCH.CICSP1H.D03219.T092846.HDB
***** ***** Bottom of Data *****

```

Figure 309. Edit JCL for Summary HDB report specifying a Report Form (FIELDS operand)

Enter **SUBmit** in the command line to submit the job to run the report.

Successful completion of the Report request will generate an HDB Summary report.

V5R1M0

CICS Performance Analyzer
Historical Database Summary

HDBR0001 Printed at 12:03:45 04/17/2013 Data from 09:00:00 12/07/2004 to 16:00:00 12/07/2004 Page 1

| Tran | Tasks | Avg Response Time | S Dev Response Time | Avg Dispatch Time | Avg Dispatch Count | Avg User CPU Time | Avg Suspend Time | Avg Suspend Count | Avg DispWait Time | Avg FC Wait Time | Avg FC Wait Count | Avg IR Wait Time | Avg IR Wait Count |
|------|-------|-------------------|---------------------|-------------------|--------------------|-------------------|------------------|-------------------|-------------------|------------------|-------------------|------------------|-------------------|
| ABRA | 7854 | .2729 | .0147 | .0009 | 3 | .0006 | .2720 | 3 | .0000 | .0000 | 0 | .2719 | 2 |
| ASIX | 9327 | .2184 | .2949 | .0009 | 2 | .0006 | .2175 | 2 | .0000 | .0000 | 0 | .2175 | 1 |
| ATRA | 21024 | 1.6067 | .4389 | .0008 | 2 | .0005 | 1.6058 | 2 | .0000 | .0000 | 0 | 1.6057 | 1 |
| BLIX | 7328 | .0845 | .0043 | .0008 | 2 | .0005 | .0836 | 2 | .0000 | .0000 | 0 | .0835 | 1 |
| CRVI | 9203 | .0004 | .0001 | .0004 | 1 | .0000 | .0000 | 1 | .0000 | .0000 | 0 | .0000 | 0 |
| CSMI | 2372 | .0107 | .0092 | .0006 | 3 | .0004 | .0101 | 3 | .0000 | .0000 | 0 | .0101 | 2 |
| DEBT | 13293 | .0038 | .0011 | .0006 | 2 | .0004 | .0032 | 2 | .0000 | .0000 | 0 | .0031 | 1 |
| OPIC | 1275 | .0236 | .0076 | .0008 | 2 | .0006 | .0227 | 2 | .0000 | .0000 | 0 | .0227 | 1 |
| RESU | 5674 | .0341 | .0132 | .0009 | 2 | .0006 | .0332 | 2 | .0000 | .0000 | 0 | .0332 | 1 |
| RGYM | 7485 | .0056 | .0009 | .0010 | 2 | .0007 | .0046 | 2 | .0000 | .0000 | 0 | .0045 | 1 |
| T050 | 18290 | .0296 | .0121 | .0009 | 3 | .0006 | .0288 | 3 | .0000 | .0000 | 0 | .0286 | 2 |
| T096 | 123 | .0398 | .0098 | .0012 | 2 | .0005 | .0386 | 2 | .0001 | .0000 | 0 | .0385 | 1 |
| XYLO | 13921 | .0010 | .0002 | .0009 | 1 | .0001 | .0001 | 1 | .0000 | .0000 | 0 | .0000 | 0 |

Figure 310. HDB Summary report formatted using a Report Form

The Report Form (and resultant FIELDS operand) changes the report to show a summary by Transaction ID over the entire reporting interval. Compare this report output to Figure 306 on page 581.

Exporting Performance HDB data to DB2

After you have loaded data into an HDB it is then eligible for export to DB2.

Summary HDB data is the most commonly used for performance reporting. It is already summarized by time.

List HDB data is typically used to drill down to isolate performance problems or for ad-hoc reporting. Take care when exporting List HDBs into DB2. The volume of data can be high, resulting in a table that is too large to manage.

Statistics HDB data is used for both short-term problem analysis and long-term trend analysis. Like List HDBs, take care when exporting Statistics HDBs into DB2. The volume of data can be high, resulting in a table that is too large to manage.

Select option 5 **Export** from the HDB menu to export HDB data into DB2.

```

File Options Help
-----
Export HDBs Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR_
Select to export HDB to DB2.

Name      Type      Description      Changed      ID
S CICSP1H SUMMARY Summary HDB for CICSP1 2004/12/07 15:25 JCH
***** End of list *****

F1=Help  F3=Exit  F7=Backward  F8=Forward  F10=Actions  F12=Cancel

```

Figure 311. Exporting Performance HDBs

Select the required HDB to display its list of container data sets.

```

File Options Help
-----
Export SUMMARY HDB - CICSP1H          Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR_

Export HDB data set.

Name . . : CICSP1H

      Data Set Name                Start          Volume
S  JCH.CICSP1H.D03219.T092846.HDB  2004/12/07 09:00:00  USER01
***** End of list *****

F1=Help   F3=Exit   F7=Backward F8=Forward F10=Actions F12=Cancel

```

Figure 312. Export HDB

CICS PA can only export one container data set at a time. Select the data set that contains the data in the required time range to be exported into DB2.

```

File Options Help
-----
Export HDB Data Set

Command ==> _____

HDB Name . . . : CICSP1H
Data Set Name . : JCH.CICSP1H.D03219.T092846.HDB

Select option
1 1. Create DDL to define table      2. Load data into table

Create Options                                Load Options
_ Create Database                          1 1. Resume
_ Create Storage Group                     _ 2. Replace

DB2 Settings:
DB2 Subsystem ID . . . DB2P
DSNTIAD Plan Name . . DSNTIA91
DB2 Load Library . . . 'DB2.V910.SDSNLOAD'_____
DB2 Exit Library . . . 'DB2.V910.SDSNEXIT'_____
DB2 RUNLIB Library . . 'DB2.V910.RUNLIB.LOAD'_____
Database . . . . . CICSPA_ Storage Group . . SYSDEFLT
VCAT Catalog name . . USER_ Volume . . . . . DA0001
Allocation: Primary  20_____ Secondary . . . . 20_____

Include Clock Field Components                Summary Options
1 1. Time and Count                          / Include Sums of Squares
  2. Time only
  3. Count only

F1=Help   F3=Exit   F7=Backward F8=Forward F10=Actions F12=Cancel

```

Figure 313. Export HDB Data Set

Exporting HDB data into DB2 is a two-step process, controlled by the **Select Option**.

1. Create the DDL to define the DB2 table. See “Creating DDL to define a DB2 table.”
2. Load the data. “Loading data into the DB2 table” on page 588

You can then use your favorite DB2 query tool to analyze the data. Analyzing HDB DB2 Export data

Creating DDL to define a DB2 table

CICS PA uses DSNTIAD, the sample Dynamic SQL program to run the DDL that defines the DB2 table.

CICS PA builds the JCL that contains the CREATE TABLE statement required to define the DB2 table for this HDB data set. The HDB name is used as the table name, however you can change this by editing the JCL.

The options are:

Create Options

Select **Create Database** if you want the CREATE TABLE statement to be preceded by a CREATE DATABASE statement to define the DB2 database. You might need to ask your DB2 administrator to do this for you if you do not have sufficient authority.

Select **Create Storage Group** if you want the CREATE TABLE statement to be preceded by a CREATE STOGROUP statement to define the DB2 Storage Group.

DB2 Settings

Specify the required DB2 settings for your environment. CICS PA only provides a basic facility to load data into DB2. It does not provide any management or reporting capabilities when the data is in DB2.

If you omit any DB2 settings, CICS PA will insert parameter markers such as **<setting>** in the JCL stream.

Include Clock Field Components

CMF performance class Clock fields accumulate data for both their count and time components in the HDB. You have a choice as to which components to load into DB2. For example, selecting **Time only** will load the time component but not the count component. Time only is sufficient for most analysis requirements.

Summary Options

Specify **Include Sums of Squares** to load sum-of-square values into the DB2 Table. CICS PA always loads the Total. This allows you to calculate averages. Sums of Squares are required to calculate standard deviation and peak percentiles. Totals (and not Sums of Squares) is sufficient for most analysis requirements.

Note: The storage space for indexes is set to a default arbitrary value. For information on how to calculate the space required for an index, see the *DB2 UDB for z/OS Administration Guide*.

Review the JCL then submit to create the DB2 table:

```
EDIT          JCH.SPFTMP1.CNTL                      Columns 00001 00072
Command ==>> _____ Scroll ==>> CSR_
***** ***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 //* CICS PA V5R1 HDB - DDL TO DEFINE DB2 TABLE
000003 //RUNTIAD EXEC PGM=IKJEFT01,DYNAMNBR=20
000004 //STEPLIB DD DISP=SHR,DSN=DB2.V910.SDSNLOAD
000005 // DD DISP=SHR,DSN=DB2.V910.SDSNEXIT
000006 //SYSTSPRT DD SYSOUT=*
000007 //SYSTSIN DD *
000008 DSN SYSTEM(DB2P)
000009 RUN PROGRAM(DSNTIAD) -
000010 LIB('DB2.V910.RUNLIB.LOAD') PLAN(DSNTIA91)
000011 /*
000012 //SYSPRINT DD SYSOUT=*
000013 //SYSUDUMP DD SYSOUT=*
000014 //SYSIN DD *
000015 CREATE STOGROUP SYSDEFLT VOLUMES(DA0001) VCAT USER;
000016
```

```

000017 CREATE DATABASE CICSPA;
000018
000019 COMMIT;
000020
000021 CREATE TABLESPACE CICSP1H
000022     IN          CICSPA
000023     LOCKSIZE   ANY
000024     BUFFERPOOL BP0
000025     CLOSE      NO
000026     SEGSIZE    32
000027     USING      STOGROUP SYSDEFLT
000028     PRIQTY     20
000029     SECQTY     20
000030     ERASE      NO ;
000031
000032 CREATE TABLE CICSPA.CICSP1H (
000033     START_DATE          DATE,
000034     START_TIME          TIME,
000035     MVSID               CHAR(4),
000036     APPLID              CHAR(8),
000037     TRAN                CHAR(4),
000038     TASKCNT             FLOAT,
000039     RESPONSE_TIME       FLOAT,
000040     RESPONSE_TIME_SSQ   FLOAT,
000041     DISPATCH_COUNT      FLOAT,
000042     DISPATCH_COUNT_SSQ  FLOAT,
000043     DISPATCH_TIME       FLOAT,
000044     DISPATCH_TIME_SSQ   FLOAT,
000045     CPU_COUNT           FLOAT,
000046     CPU_COUNT_SSQ      FLOAT,
000047     CPU_TIME            FLOAT,
000048     CPU_TIME_SSQ       FLOAT,
000049     SUSPEND_COUNT       FLOAT,
000050     SUSPEND_COUNT_SSQ  FLOAT,
000051     SUSPEND_TIME        FLOAT,
000052     SUSPEND_TIME_SSQ   FLOAT,
000053     DISPWAIT_COUNT      FLOAT,
000054     DISPWAIT_COUNT_SSQ  FLOAT,
000055     DISPWAIT_TIME       FLOAT,
000056     DISPWAIT_TIME_SSQ  FLOAT,
000057     FCWAIT_COUNT        FLOAT,
000058     FCWAIT_COUNT_SSQ   FLOAT,
000059     FCWAIT_TIME         FLOAT,
000060     FCWAIT_TIME_SSQ    FLOAT,
000061     IRWAIT_COUNT        FLOAT,
000062     IRWAIT_COUNT_SSQ   FLOAT,
000063     IRWAIT_TIME         FLOAT,
000064     IRWAIT_TIME_SSQ    FLOAT,
000065     SC24UHMW_COUNT      FLOAT,
000066     SC24UHMW_COUNT_SSQ  FLOAT,
000067     SC31UHMW_COUNT      FLOAT,
000068     SC31UHMW_COUNT_SSQ  FLOAT,
000069     TSWAIT_COUNT        FLOAT,
000070     TSWAIT_COUNT_SSQ   FLOAT,
000071     TSWAIT_TIME         FLOAT,
000072     TSWAIT_TIME_SSQ    FLOAT
000073 ) IN CICSPA.CICSP1H;
000074
000075 CREATE TYPE 2 UNIQUE INDEX CICSPA.CICSP1H_IX
000076     ON CICSPA.CICSP1H
000077     (
000078     START_DATE,
000079     START_TIME,
000080     MVSID,
000081     APPLID,
000082     TRAN
000083     )

```

```

000084      USING STOGROUP  SYSDEFLT
000085          PRIQTY    10
000086          SECQTY    10
000087          ERASE      NO
000088          CLUSTER
000089          BUFFERPOOL BP0
000090          CLOSE       NO
000091 ;
***** ***** Bottom of Data *****

```

Figure 314. Edit JCL for HDB Export: Define DB2 table

Review the job output in SDSF to verify that the table was created successfully.

Loading data into the DB2 table

CICS PA uses the DB2 Load Utility to load data into the DB2 table.

CICS PA builds the JCL that contains the DB2 Load Utility statement required to load the HDB data set into the DB2 table that was defined in the previous step.

The options are:

Load Options

Select **Resume** if you want the DB2 Load Utility to resume loading data into the table. Typically, this is appropriate for Summary HDBs.

Select **Replace** if you want the DB2 Load Utility to replace data already loaded in the table. Typically, this is appropriate for List HDBs.

Review the JCL then submit to load the DB2 table:

```

EDIT          JCH.SPFTEMP1.CNTL                      Columns 00001 00072
Command ==>> _____ Scroll ==>> CSR_
***** ***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 //* CICS PA V5R1 HDB - LOAD DATA INTO DB2 TABLE
000003 //DSNUPROC EXEC PGM=DSNUTILB,REGION=0M,
000004 //          PARM='DB2P'
000005 //STEPLIB DD DISP=SHR,DSN=DB2.V910.SDSNLOAD
000006 //          DD DISP=SHR,DSN=DB2.V910.SDSNEXIT
000007 //SYSPRINT DD SYSOUT=*
000008 //UTPRINT DD SYSOUT=*
000009 //SYSUDUMP DD SYSOUT=*
000010 //SYSREC DD DSN=JCH.CICSP1H.D03219.T092846.HDB,
000011 //          DISP=SHR
000012 //SYSUT1 DD UNIT=SYSDA,SPACE=(4000,(20,20),,ROUND)
000013 //SORTOUT DD UNIT=SYSDA,SPACE=(4000,(20,20),,ROUND)
000014 //SYSIN DD *
000015 LOAD DATA RESUME YES
000016 INTO TABLE CICSPA.CICSP1H (
000017     START_DATE          POSITION(1)      DATE EXTERNAL(10),
000018     START_TIME          POSITION(12)     TIME EXTERNAL(8),
000019     MVSID                POSITION(20)    CHAR(4),
000020     APPLID               POSITION(24)    CHAR(8),
000021     TRAN                 POSITION(32)    CHAR(4),
000022     TASKCNT              POSITION(36)    FLOAT,
000023     RESPONSE_TIME        POSITION(44)    FLOAT,
000024     RESPONSE_TIME_SSQ    POSITION(52)    FLOAT,
000025     DISPATCH_COUNT       POSITION(60)    FLOAT,
000026     DISPATCH_COUNT_SSQ   POSITION(68)    FLOAT,
000027     DISPATCH_TIME        POSITION(76)    FLOAT,
000028     DISPATCH_TIME_SSQ    POSITION(84)    FLOAT,
000029     CPU_COUNT            POSITION(92)    FLOAT,
000030     CPU_COUNT_SSQ        POSITION(100)   FLOAT,
000031     CPU_TIME             POSITION(108)   FLOAT,
000032     CPU_TIME_SSQ         POSITION(116)   FLOAT,
000033     SUSPEND_COUNT        POSITION(124)   FLOAT,
000034     SUSPEND_COUNT_SSQ    POSITION(132)   FLOAT,
000035     SUSPEND_TIME         POSITION(140)   FLOAT,
000036     SUSPEND_TIME_SSQ    POSITION(148)   FLOAT,
000037     DISPWAIT_COUNT       POSITION(156)   FLOAT,
000038     DISPWAIT_COUNT_SSQ   POSITION(164)   FLOAT,
000039     DISPWAIT_TIME        POSITION(172)   FLOAT,
000040     DISPWAIT_TIME_SSQ    POSITION(180)   FLOAT,
000041     FCWAIT_COUNT         POSITION(188)   FLOAT,
000042     FCWAIT_COUNT_SSQ     POSITION(196)   FLOAT,
000043     FCWAIT_TIME          POSITION(204)   FLOAT,
000044     FCWAIT_TIME_SSQ      POSITION(212)   FLOAT,
000045     IRWAIT_COUNT         POSITION(220)   FLOAT,
000046     IRWAIT_COUNT_SSQ     POSITION(228)   FLOAT,
000047     IRWAIT_TIME          POSITION(236)   FLOAT,
000048     IRWAIT_TIME_SSQ      POSITION(244)   FLOAT,
000049     SC24UHMW_COUNT       POSITION(252)   FLOAT,
000050     SC24UHMW_COUNT_SSQ   POSITION(260)   FLOAT,
000051     SC31UHMW_COUNT       POSITION(268)   FLOAT,
000052     SC31UHMW_COUNT_SSQ   POSITION(276)   FLOAT,
000053     TSWAIT_COUNT         POSITION(284)   FLOAT,
000054     TSWAIT_COUNT_SSQ     POSITION(292)   FLOAT,
000055     TSWAIT_TIME          POSITION(300)   FLOAT,
000056     TSWAIT_TIME_SSQ      POSITION(308)   FLOAT
000057 )
***** ***** Bottom of Data *****

```

Figure 315. Edit JCL for HDB Export: Load DB2 table

Review the job output in SDSF to verify that the table was created successfully.

Extracting Performance HDB data to CSV

After you have loaded data into an HDB it is then eligible for extract to CSV data sets.

Select option 6 **Extract** from the HDB menu to request an HDB extract..

```

File Options Help
-----
                                Extract HDBs                                Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR_

Select to run report.

   Name      Type      Description      Changed      ID
  S CICSP1H  SUMMARY  Summary HDB for CICSP1      2004/12/07 09:28 JCH
***** End of list *****

F1=Help  F3=Exit  F7=Backward  F8=Forward  F10=Actions  F12=Cancel

```

Figure 316. HDB Extract

Select the required HDB from the list to display the Run Extract panel.

```

                                Run SUMMARY HDB Extract - CICSP1H
Command ==> _____

Specify Extract request options then press Enter to continue submit.

----- Report Interval ----- HDB contains data
      YYYY/MM/DD HH:MM:SS.TH in the range:
From 2004/12/15 _____ 2004/11/17 05:17 Extract Recap:
To 2004/12/16 _____ 2005/01/17 21:31 DDname . . . HXTS0001

Output Data Set:
Data Set Name . . HDB.EXTRACT _____
Disposition . . . 1 1. OLD 2. MOD (If cataloged)

Extract Format:
Form . . . . . _____ + / Include Field Labels
Delimiter . . . . ; _ Numeric Fields in Float format

Processing Options:
Time Interval . . 01:00:00 (hh:mm:ss) / Edit JCL before submit

F1=Help  F3=Exit  F4=Prompt  F6=Resize  F12=Cancel

```

Figure 317. Run Summary HDB Extract

The options are:

Report Interval

Specify the reporting time range. You can specify an explicit date, such as 2004/12/15, or a relative date to indicate today (0), yesterday (-1), two days ago (-2), and so on. Adjacent is the time range of data contained in this HDB. If you specify a Report Interval, then it must be within this range otherwise the extract request will fail.

Extract Recap DDname

The DDname for the Recap report which prints at the end of extract processing to provide processing statistics. The DDname is mandatory.

CICS PA assigns a default DDname **HXTS0001**.

This option generates the OUTPUT(ddname) operand.

Output Data Set

The name of the data set where the extract records are written. When specifying the data set name, standard TSO conventions apply.

If CICS PA is to create the data set at run time, the default allocation attributes specified on the Reporting Allocation Settings panel are used in generating the JCL. If the data set is already cataloged, then CICS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set.

CICS PA generates the DDNAME(ddname) operand and assigns a default DDname **HDBX0001**.

Disposition

This option applies if the extract data set you specified is already cataloged.

Select option **1 - OLD** to overwrite the data set contents with the new extract data.

Select option **2 - MOD** to append the new extract data.

Report Form

Specify a Report Form to tailor the format of the extract records. If you do not specify a Form, CICS PA will write all the fields in the HDB in order.

Delimiter

Specify the field delimiter to be used to separate each data field in the extract data set. The default is a semicolon and generates the DELIMIT(';') operand.

Include Field Labels

Select this option to indicate that the first record to be written to the extract data set is to be a field labels record. This is the default and generates the LABELS operand.

Leave blank if you do not want a field labels record written to the extract data set. This generates the NOLABELS operand.

Numeric Fields in Float format

Select this option if you want CICS PA to write numeric fields to the extract data set in S390 FLOAT format. This generates the FLOAT operand. Specify FLOAT format if you plan to import the extract into a DB2 table. When the DB2 Load Utility is used, it will interpret all numerical fields reliably and consistently in FLOAT format.

If you do not select this option, the numeric fields are written in a mixture of integer, real and exponential using character digits. This is the default and is suitable when importing the extract data into a PC spreadsheet tool. This generates the NOFLOAT operand.

Time Interval

Specify an optional Time Interval when extracting Summary HDBs. The default is the Time Interval used to create the data (as defined in the Template). The example template PRODSUM that was used to create the HDB data specified 15 minutes.

You can specify any interval greater than or equal to the Template Interval. For example, if you are reviewing many days worth of data then you might specify 24:00:00 (24 hours) so that you can view the daily trend. In Figure 317 on page 590, the Interval has been changed to 1 hour.

When you have specified your Extract options, you are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your request details.

If you selected **Edit JCL before submit** then the Extract HDB JCL is displayed in an edit session.

```

EDIT          userid.SPFTEMP2.CNTL                      Columns 00001 00072
Command ==> _____ Scroll ==> CSR_
***** ***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 /*  CICS PA V5R1 HDB EXTRACT JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DISP=SHR,DSN=CPA.V5R1M0.SCPALINK
000005 //CPAHDBRG DD DISP=SHR,DSN=CICSPROD.CICSPA.HDB.REPOSTRY
000006 //SYSPRINT DD SYSOUT=*
000007//HDBX0001 DD DSN=userid.HDB.EXTRACT,
000008//          DISP=(OLD)
000009 /* Command Input
000010 //SYSIN DD *
000011 * HDB=CICSP1H
000012 * Description=Summary HDB for CICSP1H
000013          CICSPA SMFSTART(2004/12/15,00:00:00.00),
000014          SMFSTOP(2004/12/16,00:00:00.00)
000015          CICSPA NOAPPLID,
000016          LINECNT(60),
000017          FORMAT(':','/'),
000018          PRECISION(4),
000019          HDB(DDNAME(HDBX0001),EXTRACT(CICSP1H),
000020          OUTPUT(HXTS0001),LABELS,DELIMIT(';'),NOFLOAT,
000021          INTERVAL(01:00:00))
000022 /*
000023 /* HDB Container Data Sets. HDB Report processing does not require
000024 /* these data sets to be included in the JCL as they are dynamically
000025 /* allocated when required. They are included:
000026 /* 1) for your reference
000027 /* 2) to ensure that all required data sets are cataloged
000028 /* 3) to allow DFHSM to recall required data sets up front
000029 //HDB00001 DD DISP=SHR,DSN=userid.CICSP1H.D03219.T092846.HDB
***** ***** Bottom of Data *****

```

Figure 318. Edit JCL for Summary HDB Extract

The HDB container data sets are listed at the end of the JCL. They are not required here because the CICS PA batch utility will dynamically allocate the data sets when they are required. CICS PA adds the data sets into the JCL primarily for the purpose of DFHSM recall, if required. It is more efficient to recall data sets in the JCL (where job initiation can recall migrated data sets en masse) rather than one at a time when dynamically allocated.

The command deck specifies operands to extract records from HDB CICSP1H, write them to the extract data set with DDname HDBX0001, and write the Recap report output to the DDname HXTS0001:

```
HDB(DDNAME(HDBX0001),EXTRACT(CICSP1H),OUTPUT(HXTS0001),...)
```

Enter **SUBmit** in the command line to submit the job to run the report.

Successful completion of the Extract request will generate an HDB Summary Extract Recap report.

Figure 319. HDB Summary Extract Recap report

The extract data set contains records like those in the following example.

```
Start Date;Start Time;MVS;APPLID;Tran;#Tasks;Response Time Avg;Dispatch Time Avg;User CPU Time Avg;Suspend Time
2004/12/15 15:00:00;MV2C ;IYK3ZAC1;CSHQ ; 1;55155.62; .2103; .0212;55155.41; .0331; .0001;
2004/12/15 15:00:00;MV2C ;IYK3ZAC1;CSNC ; 1;55159.06; .3379; .0041;55158.72; .0356; .0001;
2004/12/15 15:00:00;MV2C ;IYK3ZAC1;CSNE ; 1;55153.97; .0881; .0060;55153.88; .0042; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV1;CEX2 ; 1;50237.83; .5030; .2717;50237.33; .1800; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV1;CSHQ ; 1;50234.95; .3105; .0190;50234.64; .5761; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV1;CSNC ; 1;50393.54; .4259; .0058;50393.12; .0026; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV1;CSNE ; 1;50389.87; .1321; .0177;50389.74; .0074; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV2;CEX2 ; 1;50241.24; .2630; .1828;50240.98; .2255; .0001;
```

Figure 320. HDB Summary Extract record format

Tailoring the HDB extract format

The format of the extract records can be changed by specifying a Report Form. The process for HDB Extract is the same as applying a Report Form to an HDB Report. For more information, see “Tailoring the HDB report format” on page 582.

Analyzing the extract data

After HDB data has been loaded into an extract data set in CSV format, you can use your favorite PC spreadsheet tool, such as Lotus Symphony Spreadsheets or Microsoft Excel, to analyze the data. See Analyzing CSV extract data for examples of how to use such tools to analyze the data.

Maintaining Performance HDBs

Select option 7 **Maintenance** from the HDB menu to maintain your HDB environment.

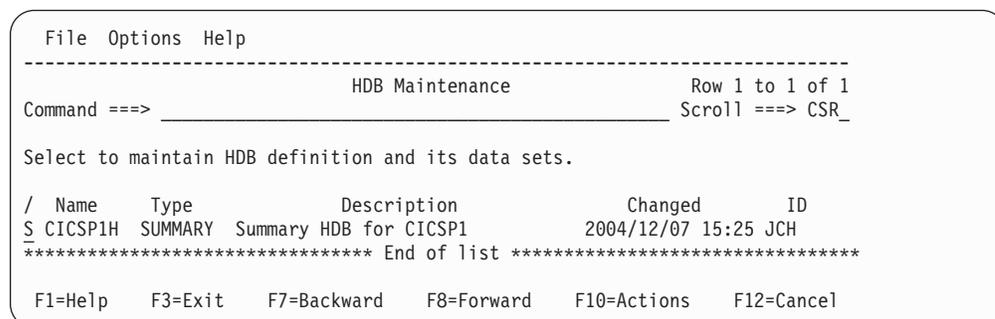


Figure 321. HDB Maintenance

Line Actions: The available line actions are:

- /** Display the selection list of line actions
- E** Edit (maintain) the HDB. See “Maintaining HDB definitions” on page 594.
- S** Select the HDB (same as Edit).
- D** Delete the HDB. The HDB Definition is deleted immediately. The HDB container data sets is deleted when Housekeeping is next run.
- A** Display the HDB Load audit trail. See HDB Load Audit.

Maintaining HDB definitions

Enter line action **S** to select an HDB from the list to edit.

```

File  Systems  Options  Help
-----
                                Maintain HDB                                More: >
Command ==>> _____

Review and update HDB definition options then press EXIT to save.

Name . . . . . : CICSP1H  Type SUMMARY  APPLID  CICSP1__ + Image _____
Description . . Summary HDB for CICSP1_____

Specify View . . 1 1. Options  2. Data Sets

HDB Format:                                Selection Criteria:
Template . . . PRODSUM_ +                    _ Performance

Data Retention Period:
HDB: Years ___ Months 10_ Weeks ___ Days ___ Hours ___
DB2: Years ___ Months ___ Weeks ___ Days ___ Hours ___

Data Set Allocation Settings:
DSN Prefix . . . . . USER_____
Management class . . . _____ (Blank for default management class)
Storage class . . . _____ (Blank for default storage class)
Volume serial . . . _____ (Blank for system default volume)
Device type . . . . . _____ (Generic unit or device address)
Data class . . . . . _____ (Blank for default data class)
Space Units . . . . . CYLS___ (TRKS, CYLS)
Primary quantity . . 20_____ (In above units)
Secondary quantity  20_____ (In above units)

F1=Help  F3=Exit  F4=Prompt  F7=Backward  F8=Forward  F10=Actions
F11=Right F12=Cancel
  
```

Figure 322. Maintain HDB definition

Maintaining HDB container data sets

Scroll **Right** (F11) to view the list of container data sets.

```

File  Systems  Options  Help
-----
                                Maintain HDB                                Row 1 of 1 More: >
Command ==>> _____                                Scroll ==>> CSR_

Maintain HDB data sets.

Name . . . . . : CICSP1H  Type SUMMARY  APPLID  CICSP1__ + Image _____
Description . . Summary HDB for CICSP1_____

Specify View . . 2 1. Options  2. Data Sets

/ Data Set Name                                Start                                Volume
S JCH.CICSP1H.D03219.T092846.HDB                2004/12/07 09:00:00  USER01
***** End of list *****

F1=Help  F3=Exit  F4=Prompt  F7=Backward  F8=Forward  F10=Actions
F11=Right F12=Cancel
  
```

Figure 323. Maintain HDB container data sets

Data set maintenance functions are:

- S** **Select** a data set to view its details as shown in Figure 325 on page 595.
- B** **Browse** the data set using ISPF Browse. See Figure 324 on page 595 for an example of the data set contents.

- D** Delete the data set. Note that only the data set status changes (to Delete Pending). The data set is not physically deleted until Housekeeping is run.
- U** Undo reverses the Delete action.

```

ISRBROBA CPPX.#STAT01.D05060.T231503.HDB          Line 00000000 Col 001 080
Command ==>                                         Scroll ==> PAGE
***** Top of Data *****
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..>LGJ
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..AITM
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..AP_T
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..AP_T
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..AP_T
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..APAI
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..APBM
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..APCO
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..APDW
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..APEC
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..APIC
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..APUR
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..ASYN
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..BAGE
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..BAOF
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..BAOF
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..BR_B
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..BR_B
2005-02-26-00.00.00CCVT22M FTS1    CCVT22M 620EOD      ...11:04:10005A2..BR_B

```

Figure 324. Browse contents of HDB container data set

Display data set details

```

                                HDB Data Set
Command ==> _____
Data Set Name . . . : JCH.CICSP1H.D03219.T092846.HDB
VOLSER . . . . . : USER01

Status . . . . . : Active
Creation Date . . . : 2004/12/07 21:28:48
Expiry Date . . . . : 2013/12/07 21:28:48

Data Start . . . . : 2004/12/07 09:00:00
Data End . . . . . : 2004/12/07 16:00:00
Record Count . . . : 54567

F1=Help   F3=Exit   F6=Resize F12=Cancel

```

Figure 325. View HDB container data set details

Browse data set contents

Chapter 20. Guided Tour: Statistics HDB

Every aspect of the CICS PA Historical Database is controlled using the ISPF dialog.

This section takes you through the process of defining and using a Statistics HDB.

Setup. Initially, your HDB environment requires a minimal one-time setup. HDB definitions are saved in the repository, a VSAM KSDS. CICS PA automatically defines the repository for you when you first try to use it.

Then the required steps are:

1. **Definition.**

Unlike Performance HDBs, Statistics HDBs do not require a Template, so you can immediately define the HDB and its options, such as the characteristics of the HDB data sets and the retention period of the data.

2. **Load.**

Loading data into the HDB is performed by the standard CICS PA batch reporting utility. The command that requests the utility to load an HDB is:
HDB(LOAD(...

CICS PA reads the CICS statistics and server statistics data and builds the HDB data sets. Because the HDB Load process is part of the normal batch reporting process, you can run CICS PA reports and load HDBs together with a single pass of the SMF data.

3. **Report.**

Unlike Performance HDBs that are reported in batch, Statistics HDBs are reported in the dialog.

You can also use Statistics HDBs to generate batch Statistics HDB Alert reports. These reports show any statistics that meet the conditions you have specified in a Statistics Alert definition. For details, see Statistics alert reporting.

4. **Export.**

Export allows you to load HDB data into a DB2 table. CICS PA automates this process with two simple steps:

- a. First define the DB2 table to house the data. CICS PA generates JCL to do this for you by creating the necessary DDL to define the table.
- b. Then load the data into the table. CICS PA generates JCL to do this for you by creating the necessary DB2 Load Utility statements to load the data.

5. **Extract.**

Extract allows you to extract HDB data into a CSV (comma separated variable) file, suitable for importing into a PC-based spreadsheet application.

6. **Maintain.**

HDB maintenance allows you to change your HDB definition and manage the HDB container data sets.

7. **Housekeeping.**

HDB housekeeping should be run periodically to clean up your HDB environment. Housekeeping performs these tasks:

- a. Deletes HDB container data sets that have expired or have delete pending.

- b. Deletes expired DB2 table rows.
- c. Removes definitions from the Repository that are no longer required.

Historical Database Menu

Option 5 **Historical Database** from the CICS PA Primary Option Menu takes you to the Historical Database Menu. The HDB menu is presented in the order that reflects the seven steps to using Statistics HDB.

```

File  Options  Help
-----
                                Historical Database Menu
Option ==> _____

1  Templates      Design HDB Templates
2  Define         Define a new HDB
3  Load          Load data into the HDBs
4  Report        Submit HDB report requests
5  Export        Export HDB data sets to DB2
6  Extract       Extract HDB data sets to CSV
7  Maintenance   Maintain HDB definitions and data sets
8  Housekeeping  Perform HDB housekeeping

Repository . . . . 'CICSPROD.CICSPA.HDB.REPOSTRY' _____ +

CICS versions (VRM):
Transaction Server . . . 680
Transaction Gateway . . . 900

F1=Help   F3=Exit   F4=Prompt   F10=Actions   F12=Cancel

```

Figure 326. Historical Database (HDB) Menu

Specify the repository data set name. Remember that you might want to share this repository with other users. This will ensure that HDB data can be generated once and made available to everyone.

Repository

Your HDB environment is controlled by the Repository. The Repository is a VSAM KSDS that acts as a repository for all definitions associated with your HDB environment:

- Templates (Performance HDBs only)
- HDB Definitions
- Selection Criteria (Performance HDBs only)
- Container data set information
- Audit information about Load requests

The Repository is also a repository for the following definitions that are not associated with HDBs:

- Shared System Definitions
- Application Groups
- Statistics Alert Definitions
- Resource Lists
- Performance Alert Definitions

It is recommended that you share the repository with other CICS PA users so that you only need to generate history data once, allowing multiple users to report against it. There is no limit to the number of repositories you can define.

If your repository is not cataloged, the dialog will first prompt you to define it when you select an option from the menu.

Defining a Statistics HDB

Defining a Statistics HDB allows you to collect (load) and report historical CICS statistics and server statistics data and CICS Transaction Gateway statistics data. The definition alone does not cause any action by CICS PA.

Select option 2 **Define** from the HDB menu to define a new HDB. Then when prompted, select option 2 to create a Statistics HDB.



Figure 327. New HDB Definition Menu

In the following example, we have given the HDB a name of CICSP1S and a description of Statistics HDB for CICSP1.

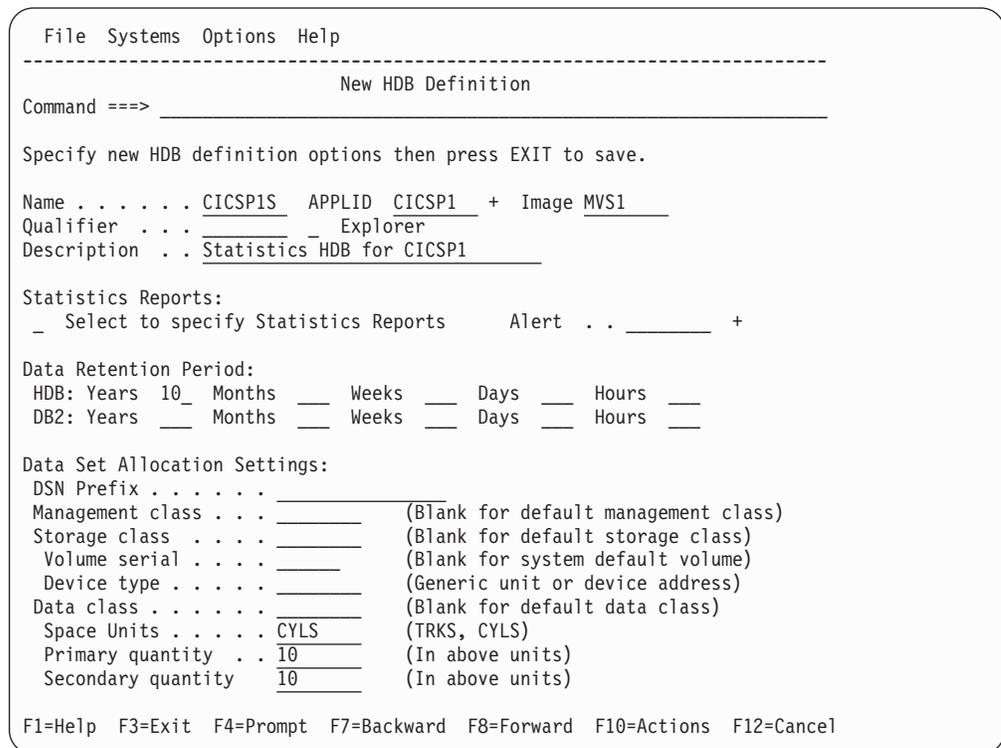


Figure 328. New HDB Definition

The other options are:

APPLID

APPLID is optional and specifies the CICS system that the HDB applies to. You can use **Prompt** (F4) to select from a list of CICS systems defined in your System Definitions.

Specify APPLID to ensure that only data for this CICS system is loaded into the HDB. At Load time, CICS PA will generate JCL that includes this APPLID in the command deck and DD statements for this system's SMF Files.

Qualifier

If Qualifier is specified, the value is used as the DB2 schema in place of the Database as specified in DB2 Settings. It is also incorporated into the DB2 table name:

qualifier.CPA_statid

Qualifier is mandatory if Explorer is selected, and optional otherwise. If Qualifier and Explorer are both entered then details of this HDB will be included in the manifest for the CICS PA plug-in the next time it is rebuilt for this qualifier.

Explorer

Select the Explorer option to make this HDB eligible for inclusion in the manifest for the CICS PA plug-in.

Data Retention Period

These fields separately specify the length of time that HDB data sets and associated DB2 table rows are kept before they expire. Typically:

- Summary HDBs need to keep their container data sets for many years for long-term trend analysis.
- List HDBs used for ad hoc reporting might only need to keep their container data sets for a couple of hours or days.

Specify each retention period as a whole number of years, months, weeks, days, or hours. Only one choice is allowed.

If the HDB container data sets are no longer required after their data has been exported to DB2, you can specify a retention period of 0 in any of the HDB periods to make the HDB data sets expire immediately.

Container data sets and DB2 data are deleted by **HDB Housekeeping** after they have passed their expiry date. If you do not specify a retention period, the corresponding HDB data sets or DB2 data will never expire.

Use **HDB Maintenance** to check container data set status or to alter the HDB or DB2 retention period.

Data Set Allocation Settings

Data Set Allocation Settings specify the allocation attributes of the data sets that contain data for this HDB. CICS PA dynamically allocates container data sets at load time.

The format of the data set name is

DSN-prefix.HDB-name.Dyyddd.Thmmss.HDB

where the DSN prefix is the data set name high level qualifier.

Specify allocation settings that satisfy your installation requirements. The size of container data sets is not critical. Typically you would specify a size that accommodates a single load request. For example, if you load data into the HDB daily, then 10 cylinders might be sufficient. However if CICS PA encounters an out-of-space condition (ABENDx37) during load, then it simply closes the data set and recommences loading in a new data set. You can decide to specify a larger size initially and adjust it later using **HDB Maintenance**.

Statistics Reports

Statistics HDBs, by default, do not collect any statistics. You must select **Select to specify Statistics Reports** to activate the types of statistics (reports) that you want to collect.

In the following example, we have activated collection for three CICS Dispatcher reports and all four CICS Storage reports.

```
File Edit Options View Help
-----
Command ==> Statistics Reports Line 1 of 25
Scroll ==> CSR_

** Reports **
Collect Load
DB2
-----
- Regions
  Yes No
  ___ Transaction Manager
  No No
- CICS Dispatcher
  Yes No
  A___ Dispatcher Overview
  Yes No
  A___ Dispatcher TCB Modes
  Yes No
  A___ Dispatcher TCB Pools
  Yes No
  ___ MVS TCB Overview
  No No
  ___ MVS TCBs
  No No
- A___ CICS Storage
  Yes No
  ___ Storage Overview
  Yes No
  ___ DSAs
  Yes No
  ___ Domain Subpools
  Yes No
  ___ Task Subpools
  Yes No
+ ___ CICS Dumps
  No No
  ___ Enqueue Pools
  No No
  ___ BUNDLE Resources
  No No
+ ___ Connectivity
  No No
+ ___ Files and Databases
  No No
+ ___ Logging
  No No
+ ___ Queues
  No No
+ ___ Transactions
  No No
+ ___ Programs
  No No
+ ___ CICS Web Support
  No No
+ ___ Java and Enterprise Java
  No No
+ ___ Miscellaneous
  No No
+ ___ CICS Server
  No No
+ ___ CICS Transaction Gateway
  No No
** End of Reports **
```

Figure 329. Activate statistics reports for HDB data collection

When you load a statistics HDB, you can also choose to export the data to DB2. The DB2 Load column identifies the statistics reports that are exported.

Exit (F3) to save the collection and DB2 load settings.

Exit (F3) again to save the HDB. You are now ready to use this HDB.

Loading data into a Statistics HDB

After defining the HDB, you can start to collect (load) the historical statistics data.

Select option 3 **Load** from the HDB menu to generate JCL to load an HDB.

```

File  Options  Help
-----
                                Load HDBs                                Row 1 to 1 of 1
Command ==>> _____ Scroll ==>> CSR_

Select to load an HDB.

   Name      Type      Description      Changed      ID
S CICSP1S  STATS  Statistics HDB for CICSP1  2004/12/06 16:02 JCH
***** End of list *****

F1=Help  F3=Exit  F7=Backward  F8=Forward  F10=Actions  F12=Cancel

```

Figure 330. Load HDBs

Select the required HDB from the list to display the Load panel.

```

File  Systems  Options  Help
-----
                                Load STATS HDB - CICSP1S
Command ==>> _____

Specify HDB load options then press Enter to continue submit.

System Selection:                                Report Interval
APPLID . . CICSP1S_ +                            YYYY/MM/DD  HH:MM:SS.TH
Image . . _____ +                            From 0 _____ 09:00:00.00
Group . . _____ +                            To  0 _____ 16:30:00.00

DB2 Export Options:                             Table Load Options
_ Load DB2 Table                                1 1. Resume  2. Replace

Include Clock Field Components                   Summary Options
1 1. Time and Count                              _ Include Sums of Squares
 2. Time only
 3. Count only

Enter "/" to select option
/ Edit JCL before submit

F1=Help  F3=Exit  F4=Prompt  F6=Resize  F10=Actions  F12=Cancel

```

Figure 331. Load Statistics HDB

The options are:

System Selection

System Selection specifies the CICS system(s) whose data is to be loaded into the HDB. It is initialized to the CICS system APPLID that you specified during HDB definition.

In this example, CICS PA generates an APPLID(CICSP1) operand in the command deck and includes DD statements for the SMF Files defined in System Definitions for CICSP1.

Report Interval

Specify the time range of data to be included in the HDB. You can specify an explicit date, such as 2004-12-05, or a relative date to indicate today (0), yesterday (-1), two days ago (-2), and so on. We have used a relative date of zero (0) to indicate that we are processing today's SMF data, from 9:00am to 4:30pm.

Note that EOD statistics are often cut at midnight, so would not be included in this HDB.

It is recommended that you specify relative dates if you want to use an automated job scheduler to run the load HDB JCL regularly. The JCL can be set up once and run daily without needing to change it.

DB2 Export Options

To export the data to DB2 directly after loading it into the HDB, select the Load DB2 Table option. For details of the JCL that this option generates, see Load JCL. (The remaining DB2 export options are only relevant if you select the Load DB2 Table option.)

The DB2 table to which you are exporting must already be defined.

To define a DB2 table, see Creating DDL to define a DB2 table.

If you select **2. Replace** for Table Load Options and the HDB load fails, then the result is an empty DB2 table.

When you have specified your Load options, you are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your load request.

If you selected **Edit JCL before submit** then the Load HDB JCL is displayed in an edit session. Specify this option if you want to save the JCL in an automated job scheduler JCL library.

```
EDIT          JCH.SPFTEMP1.CNTL                      Columns 00001 00072
Command ==>> change '<unresolved>' 'CICSP1.DAILY.CMF(0)'__ Scroll ==>> CSR_
***** ***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 //* CICS PA V5R1 HDB LOAD JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
000005 //CPAHDBRG DD DSN=CICSPROD.CICSPA.HDB.REPOSTRY,DISP=SHR
000006 //SYSPRINT DD SYSOUT=*
000007 //* SMF Input Files
000008 //* SMF Files that follow have unresolved DSNs
000009 //* SMF File for System=CICSP1
000010 //SMFIN901 DD DSN=<unresolved>,DISP=SHR
000011 //* Command Input
000012 //SYSIN DD *
000013 * HDB=CICSP1S
000014 * Description=Summary HDB for CICSP1
000015         CICSPA SMFSTART(0,09:00:00.00),
000016         SMFSTOP(0,16:30:00.00)
000017 * HDB Load for System=CICSP1
000018         CICSPA IN(SMFIN901),
000019         APPLID(CICSP1),
000020         LINECNT(60),
000021         FORMAT(':', '/'),
000022         HDB(OUTPUT(HDBL0001),LOAD(CICSP1S))
000023 /*
```

Figure 332. Edit JCL for Load Summary HDB

The SMF file data set name for system CICSP1 might be unresolved. This indicates that the System Definition for CICSP1 does not have SMF files specified. Substitute the required SMF file data set name into the JCL.

The command deck specifies operands to load HDB CICSP1S:

```
HDB(OUTPUT(HDBL0001),LOAD(CICSP1S))
```

Enter **SUBmit** in the command line to submit the job to run the load.

Successful completion of the Load request will generate a Recap report like the following example.

LOAD requested for HDB: CICSP1S Repository DSN: CICSPROD.CICSPA.XYZ.REPOSTRY

The following Container(s) were created and loaded:

| | |
|--|-------------------------------------|
| Container DSN: CICSPA.CICSP1S.D03219.T092846.HDB | No of Records: 54,567 |
| Start Time Stamp: 2005-03-15-09.00.00 | End Time Stamp: 2005-03-15-16.00.00 |

LOAD process complete.

Figure 333. HDB Load Recap report

The Recap report provides a list of the Container data sets created by the Load process. In this example, CICS PA created Container data set CICSPA.CICSP1S.D03219.T092846.HDB. It contains 54,567 records for the period 9:00 am to 4:00 pm on March 15, 2005.

HDB Load Audit

HDB load requests create an audit record that includes:

- Date/time range of the data used to create the containers
- Status indicator, OK or Failed

The purpose of the HDB Load Audit is two-fold:

- Verify that all load requests have completed successfully
- Highlight gaps in the data due to Load requests not being run

The audit records can be viewed and maintained from the dialog. For more information, see HDB Load Audit.

Statistics HDB Reporting

After you have loaded data into an HDB it is then eligible for reporting.

Select option 4 **Report** from the HDB menu to display the list of Statistics HDBs.

```

File Options Help
-----
Report HDBs                               Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR_

Select to run report.

  Name      Type      Description                      Changed      ID
  S  CICSP1S  STATS    Statistics HDB for CICSP1        2005/03/16 12:23 JCH
***** End of list *****

```

Figure 334. Select a Statistics HDB for reporting

Enter line action **S** (or any non-blank character) to select a Statistics HDB for reporting. A pop-up menu prompts you to select either online reporting or batch Alert reporting. For information on batch Alert reporting, see Run Statistics HDB Alerts report. If you select online reporting, the Run Report panel is displayed, as shown in the following example:

```

File  Options  Help
-----
Run STATS HDB Report - CICSP1S                               Row 1 to 3 of 3
Command ==> _____ Scroll ==> PAGE

Specify run options then press Enter.

Select data sets by:          Report Interval          HDB contains data
 2 1. Report Interval          YYYY/MM/DD HH:MM:SS.TH in the range:
  2. Data Set Name           From -1_____ 10:00:00.00 2005/03/15 07:00:00
                               To  0_____ 10:00:00.00 2005/03/16 11:00:00

Filter Criteria NO          Type  . . / EOD / INT / USS / REQ / RRT
APPLID . . . . _____
Image . . . . _____

Data Set Name          ----- Start ----- Volume
S CICSPA.CICSP1.D05074.T102306.HDB 2005/03/15 07:00:00 USER05
S CICSPA.CICSP1.D05074.T152311.HDB 2005/03/15 14:00:00 USER05
S CICSPA.CICSP1.D05075.T042316.HDB 2005/03/16 02:00:00 USER05
***** Bottom of data *****

```

Figure 335. Run Statistics HDB Report

The list of container data sets is displayed. You can select report data by either:

1. Specifying a Report Interval, in which case, CICS PA will automatically select the required container data sets.
2. Explicitly selecting the required container data sets as shown in Figure 335.

The list of statistics intervals is then displayed.

```

File Edit Filter Options Help
-----
REPORT                               Statistics Intervals                               Row 1 from 12
Command ==> _____ Scroll ==> CSR_

Select the required CICS Statistics interval.

/ System Image VRM Type --- Collection Time --- Reset Duration
- CICSP1 MVS1 640 TS USS 2005/03/15 07:00:00 Tue 06:00:00
- CICSP1 MVS1 640 TS USS 2005/03/15 08:00:00 Tue 07:00:00
S CICSP1 MVS1 640 TS EOD 2005/03/15 09:00:00 Tue 08:00:00
P CICSP1 MVS1 640 TS EOD 2005/03/15 10:00:00 Tue 09:00:00
- CICSP1 MVS1 640 TS INT 2005/03/15 11:00:00 Tue 10:00:00 01:00:00
- CICSP1 MVS1 640 TS USS 2005/03/15 12:00:00 Tue 11:00:00
- CICSP1 MVS1 640 TS USS 2005/03/15 13:00:00 Tue 12:00:00
- CICSP1 MVS1 640 TS USS 2005/03/15 14:00:00 Tue 13:00:00
- CICSP1 MVS1 640 TS INT 2005/03/15 15:00:00 Tue 14:00:00 01:00:00
- CICSP1 MVS1 640 TS INT 2005/03/16 07:00:00 Wed 06:00:00 01:00:00
- CICSP1 MVS1 640 TS USS 2005/03/16 08:00:00 Wed 07:00:00
- CICSP1 MVS1 640 TS INT 2005/03/16 09:00:00 Wed 08:00:00 01:00:00
***** Bottom of data *****

```

Figure 336. Select a statistics interval

Select one or more intervals to view the reports.

For Statistics HDBs, only reports for which data is collected (at Load time) can be viewed. That is, if Size is greater than 0.

```

File Edit Options View Help
-----
REPORT                               Statistics Reports                               Line 1 of 25
Command ==>> _____ Scroll ==>> CSR_

System: CICSP1/MVS1      Type: EOD  Interval: 2005/03/15 09:00:00 Tuesday
-----
** Reports **
-   -   Regions                               Size
      -   Transaction Manager                 0
      -   CICS Dispatcher                     23
            Dispatcher Overview               1
            Dispatcher TCB Modes             18
            Dispatcher TCB Pools             4
            MVS TCB Overview                  0
            MVS TCBs                          0
      -   CICS Storage                         358
            Storage Overview                  1
            S   DSAs                          8
            Domain Subpools                   345
            Task Subpools                     4
      +   CICS Dumps                           0
            Enqueue Pools                     0
            BUNDLE Resources                  0
+   +   Connectivity                           0
+   +   Files and Databases                    0
+   +   Logging                               0
+   +   Queues                                0
+   +   Transactions                          0
+   +   Programs                             0
+   +   CICS Web Support                       0
+   +   Java and Enterprise Java              0
+   +   Miscellaneous                         0
+   +   CICS Server                           0
-----
** End of Reports **

```

Figure 337. Select a statistics report: DSAs

In this example, we selected to view the DSAs report.

Initially, all the information contained in the DSAs statistics record is reported.

You can change this using a Form which is discussed in the following sections. See Forms.

```

File Edit Form Options Help
-----
REPORT   DSAs                               Line 00000001 Col 002 008  >
Command ==>> _____ Scroll ==>> CSR_

System: IYCWLS2/MV2C      Type: EOD  Interval: 2004/12/16 11:23:58 Thursday

DSA      DSA      DSA      Current   Peak   Current
Name     Location Access   Index     Size   DSA     Cushion
-----  -
CDSA     BELOW    CICS     1         512K   512K   64K
UDSA     BELOW    USER     2         1024K  1024K  64K
SDSA     BELOW    USER     3         256K   256K   64K
RDSA     BELOW    READONLY 4         512K   512K   64K
ECDSA    ABOVE    CICS     5         16384K 16384K 128K
EUDSA    ABOVE    USER     6         46080K 46080K 0K
ESDSA    ABOVE    USER     7         1024K  1024K  128K
ERDSA    ABOVE    READONLY 8         20480K 20480K 256K

```

Figure 338. Statistics report: DSAs

Scroll **Right** (F11) and **Left** (F10) to view all the columns in the report.

Statistics reporting has several features that help you tailor the display to meet your needs. The following sections introduce these features.

Sorting

Use the Tab key to position the cursor on the point-and-shoot separator line that underlines the name of the column you want to sort. Press Enter to sort the report by that column in ascending sequence. Press Enter again to sort in descending sequence.

The following example is sorted in descending Peak DSA Size sequence.

```

File Edit Form Options Help
-----
REPORT   DSAs                               Line 00000001 Col 002 008  >
Command ==>> _____ Scroll ==>> CSR_

System: IYCWMS2/MV2C      Type: EOD  Interval: 2004/12/16 11:23:58 Thursday

DSA      DSA      DSA      Current      Peak      Current
Name     Location Access     Index      DSA      DSA      Cushion
-----  -
EUDSA   ABOVE   USER      6      46080K   46080K   0K
ERDSA   ABOVE   READONLY   8      20480K   20480K   256K
ECDSA   ABOVE   CICS      5      16384K   16384K   128K
UDSA    BELOW   USER      2      1024K    1024K    64K
ESDSA   ABOVE   USER      7      1024K    1024K    128K
CDSA    BELOW   CICS      1      512K     512K     64K
RDSA    BELOW   READONLY   4      512K     512K     64K
SDSA    BELOW   USER      3      256K     256K     64K

```

Figure 339. Statistics report: sort on Peak DSA Size (descending)

Forms

Statistics Report Forms allow you to tailor the report so that only information you want to see is displayed.

Use the **FORM** primary command, **Form** in the action bar, or press **F6** to display the Form for the current report.

```

File Edit Options Help
-----
FORM      DSAs                                     Line 1 of 28
Command ==>> _____ Scroll ==>> CSR_

/  Heading                                     Usage Column  Max Report
-  DSA Name                                     FIX_          8      8
-  Peak DSA Size                               FIX_          10     20
-  DSA Location                               OMIT_         0
-  Access                                       OMIT_         0
-  DSA Index                                   OMIT_         0
-  Current DSA Size                           OMIT_         0
-  Current Cushion Size                       OMIT_         0
-  GETMAIN Requests                           _____   10     32
-  FREEMAIN Requests                          _____   10     44
-  Current Extents                            OMIT_         0
-  Extents Added                              _____   10     56
-  Extents Released                           _____   10     68
-  ADD SUBPOOL Requests                       _____   10     80
-  DELETE SUBPOOL Requests                    _____   10     92
-  GETMAINS No Storage Returned                _____   10    104
-  GETMAINS Suspended                         _____   10    116
-  Current Suspended                          _____   10    128
-  Peak Requests Suspended                    _____   10    140
-  Requests Purged Waiting Storage             _____   10    152
-  Cushion Releases                           _____   10    164
-  Short-on-Storage Count                     _____   16    182
-  Short-on-Storage Total Time                 _____   19    203
-  Current Subpools                           _____   10    215
-  Free Storage                               _____   10    227
-  Peak Free Storage                          _____   10    239
-  Lowest Free Storage                        _____   10    251
-  Largest Free Area                          _____   10    263
-  Storage Violations                         _____   10    275
***** End of Form *****

```

Figure 340. Statistics Report Form

In this example, one additional field is fixed (Peak DSA Size), several fields have been omitted, and two (Extents) fields moved to the top.

Press Exit (F3) to save and activate the Form.

The report is modified to display only the columns requested in the Form.

```

File Edit Form Options Help
-----
REPORT    DSAs                                     Line 00000001 Col 003 007 >
Command ==>> _____ Scroll ==>> CSR_

System: IYCWMS2/MV2C      Type: EOD  Interval: 2004/12/16 11:23:58 Thursday

      Peak
      DSA   GETMAIN  FREEMAIN  Extents  Extents
      Name  Size   Requests  Requests  Added    Released
-----
CDSA      512K    1062     1002     2         0
UDSA      1024K    207      207     1         0
SDSA      256K     1         0       1         0
RDSA      512K     19        2       2         0
ECDSA     16384K   33880    19766   16         0
EUDSA     46080K   752      748     45         0
ESDSA     1024K    6         6       1         0
ERDSA     20480K   412      7       13         0

```

Figure 341. Statistics report: FORM ON

You can enter the **FORM OFF** command to view the default report format, then enter **FORM ON** to reapply the Form.

Hyperlink

Hyperlinks allow you to link to other statistics reports related to the current report. Certain fields in some statistics reports are hyperlink fields. Hyperlink fields are point-and-shoot fields.

Note: Ensure that your ISPF Settings distinguish point-and-shoot fields (see CUA(!) attribute settings) and that you can Tab to them (see Point-and-Shoot fields).

In our DSAs report in Figure 341 on page 608, the DSA Name field is a hyperlink field. Tab to ESDSA and press Enter to hyperlink to the report of Domain Subpools belonging to ESDSA.

```

File Edit Form Options Help
-----
REPORT   Domain Subpools                               Line 00000001 Col 002 008  >
Command ==>> _____ Scroll ==>> CSR_

System: IYCWLM2/MV2C      Type: EOD  Interval: 2004/12/16 11:23:58 Thursday

Subpool  DSA      Element   Fixed  Element   Element
Name     Name     Type      Length Chaining  Boundary  Location  Acces
-----
IE_BUFF  ESDSA    VARIABLE  0      NO        16      ABOVE    USER
IIBUFFER ESDSA    VARIABLE  0      NO        16      ABOVE    USER
LDEPGM   ESDSA    VARIABLE  0      NO        16      ABOVE    USER
LDERES   ESDSA    VARIABLE  0      NO        16      ABOVE    USER
SJSJPTE  ESDSA    FIXED     408    NO        8       ABOVE    USER
SJSJSTK  ESDSA    FIXED     8      NO        8       ABOVE    USER
SJSJTCTB ESDSA    FIXED    1336   NO        8       ABOVE    USER
SJSJVMS  ESDSA    FIXED    2200   NO        8       ABOVE    USER
SJUSERKY ESDSA    VARIABLE  0      NO        16      ABOVE    USER
SMHRU31  ESDSA    VARIABLE  0      YES       16      ABOVE    USER
WEBINB   ESDSA    FIXED    32768  YES       8       ABOVE    USER

```

Figure 342. Statistics report: Hyperlink

The hyperlink report is a subset of the complete report, filtered by the hyperlink field value, which in this example is ESDSA.

Exit (F3) to return to the previous report.

Statistics Field Help

Extensive help is available for each column in the report. Press **Help** (F1) when the cursor is positioned in the body of the report to display help for the report fields.

```

Field Descriptions for Statistics Report
Category : Regions                      Macro . . : DFHMSDS
Report . : DSAs                         DSECT . . : SMSBODY
-----
DSA Name                                More:      +
CICS field name: SMSDSANAME             DB2 column name: DSA_NAME
The name of the DSA that this record represents.
Values can be: CDSA, UDSA, SDSA, RDSA, ECDSA, EUDSA, ESDSA, or ERDSA.
Reset characteristic: Not reset
-----
DSA Location
CICS field name: SMSLOCN                 DB2 column name: LOCATION
The location of the DSA, either ABOVE or BELOW the 16MB line.
-----
Access
CICS field name: SMSACCESS               DB2 column name: ACCESS
The type of access of the DSA, either:
CICS      Access is CICS key
USER      Access is USER key
READONLY  Read-only protection
If storage protection is not active, all storage areas will revert to CICS
except those in the ERDSA.
Reset characteristic: Not reset
-----

```

Figure 343. Statistics report: Field Help

Field Help is also available from the Extended Help (F1 from the command line). Tab to **Field Descriptions** and press F1.

Note that the DB2 column names are also shown. These are used by CICS PA when exporting data to DB2.

Print

All statistics reports can be printed to a DASD data set or SYSOUT file. The **P** line action is available from both the list of Statistics Intervals panel (where the entire interval can be printed) or the list of Statistics Reports panel (where individual categories and reports can be printed). In this example, the report is printed to a data set, and then browsed.

```

Print Statistics Report
Command ==> _____
Specify Statistics Report print options.

Report Destination:
_ 1. Data Set  2. SYSOUT

Output Data Set:
Data Set Name . . 'JCH.CICSP1.STATS.REPORT' _____
Disposition . . . 1. OLD  2. MOD  (If cataloged)

Enter "/" to select option
/  Browse output data set

Report Output:
SYSOUT Class . . A    Print Lines per Page . . 60_ (0-255)

```

Figure 344. Statistics report: Print

Browsing the data set provides an alternative way of viewing the same report, as shown in the following example.

```

BROWSE  JCH.CICSP1.STATS.REPORT          Line 00000000 Col 001 080
Command ==>                               Scroll ==> PAGE
***** Top of Data *****
                                           V5R1M0
                                           CICS Performance Analyzer
                                           CICS TS Statistics - DSAs

System: IYCWMS2/MV2C    Type: EOD  Interval: 2004/12/16 11:23:58 Thursday

DSA      DSA      DSA      Current   Peak   Current
Name     Location Access   Index    Size   Size   Cushion  G
-----
CDSA     BELOW    CICS      1         512K   512K   64K
UDSA     BELOW    CICS      2         256K   256K   64K
SDSA     BELOW    CICS      3         256K   256K   64K
RDSA     BELOW    READONLY  4         512K   512K   64K
ECDSA    ABOVE    CICS      5         5120K  5120K  128K
EUDSA    ABOVE    CICS      6         1024K  1024K   0K
ESDSA    ABOVE    CICS      7           0K     0K     0K
ERDSA    ABOVE    READONLY  8        18432K 18432K  256K
***** Bottom of Data *****

```

Figure 345. Statistics report: Browse print data set

When a report is printed, it can be viewed as an output file attached to your current TSO session, using SDSF for example. Note that when you print a report, the active Form is honored.

Exporting Statistics HDB data to DB2

Select option 5 **Export** from the HDB menu to export HDB data into DB2.

Unlike Performance HDBs, Statistics HDBs do not have a common record format. The records for each statistics report (or type, as identified by its CICS domain and statistics ID) have a different record format. Therefore one DB2 table must be defined for each type of statistics record to be exported.

```

File  Options  Help
-----
Export HDBs                                     Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR_

Select to export HDB to DB2.

  Name      Type      Description      Changed      ID
S CICSP1S  STATS      Statistics HDB for CICSP1      2005/03/16 12:23 JCH
***** End of list *****

F1=Help      F3=Exit      F5=Rfind      F7=Backward  F8=Forward  F10=Actions
F12=Cancel

```

Figure 346. Exporting Statistics HDBs

In this example, we have selected our statistics HDB for exporting to DB2.

Select the required HDB to display its list of container data sets.

```

File  Options  Help
-----
Export STATS HDB - CICSP1S                       Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE

Select to export HDB data sets to DB2.

HDB Name . . : CICSP1S  Type . . : STATS

  Data Set Name      ----- Start ----- Volume
S CICSPA.CICSP1.D05074.T102306.HDB      2005/03/15 07:00:00  USER05
S CICSPA.CICSP1.D05074.T152311.HDB      2005/03/15 14:00:00  USER05
S CICSPA.CICSP1.D05075.T042316.HDB      2005/03/16 02:00:00  USER05
***** Bottom of data *****

```

Figure 347. Export Statistics HDB

The list of statistics reports is displayed.

```

File Edit Options View Help
-----
EXPORT                               Statistics Reports                               Line 1 of 25
Command ==>> _____ Scroll ==>> CSR_

Select reports to export to DB2.

___  ** Reports **
- ___ Regions                               Collect DB2
                                         Yes   Load
- ___ Transaction Manager                   Yes   No
- ___ CICS Dispatcher                       Yes   No
  ___ Dispatcher Overview                   Yes   No
  ___ Dispatcher TCB Modes                  Yes   No
  ___ Dispatcher TCB Pools                  Yes   No
  ___ MVS TCB Overview                       Yes   No
  ___ MVS TCBs                               Yes   No
- ___ CICS Storage                           Yes   No
  ___ Storage Overview                       Yes   No
  S ___ DSAs                                Yes   No
  ___ Domain Subpools                       Yes   No
  ___ Task Subpools                          Yes   No
+ ___ CICS Dumps                             Yes   No
  ___ Enqueue Pools                         Yes   No
  ___ BUNDLE Resources                       No    No
+ ___ Connectivity                          No    No
+ ___ Files and Databases                    No    No
+ ___ Logging                               No    No
+ ___ Queues                                No    No
+ ___ Transactions                          No    No
+ ___ Programs                              No    No
+ ___ CICS Web Support                       No    No
+ ___ Java and Enterprise Java               No    No
+ ___ Miscellaneous                         No    No
+ ___ CICS Server                           No    No
+ ___ CICS Transaction Gateway               No    No
  ___ ** End of Reports **

```

Figure 348. Select Statistics reports for export to DB2

Enter line action **S** to select the reports that you want to export to DB2.

Only the reports that you select are exported to DB2. The DB2 Load column is ignored: this column is only used when loading the HDB with the Load DB2 Table option selected.

In the following example, we have selected the DSAs report.

Step 1. Create the DB2 table

Exporting HDB data into DB2 is a two-step process. The first step creates the DB2 table.

```

File  Options  Help
-----
                                Export HDB Data Set
Command ==>> _____

Select option
 1 1. Create DDL to define table      2. Load data into table

Create Options                                Load Options
_ Create Database                          1 1. Resume
_ Create Storage Group                     - 2. Replace

DB2 Settings:
DB2 Subsystem ID . . . DB2P
DSNTIAD Plan Name . . . DSNTIAD91
DB2 Load Library . . . 'DB2.V910.SDSNLOAD' _____
DB2 Exit Library . . . 'DB2.V910.SDSNEXIT' _____
DB2 RUNLIB Library . . . 'DB2.V910.RUNLIB.LOAD' _____
Database . . . . . CICSQA__ Storage Group . . PROD__
VCAT Catalog name . . . USER__
Allocation: Primary 20_____ Secondary . . . . 20____

```

Figure 349. Export Step 1. Create DB2 table

Select option 1 **Create DDL to define table.**

The create table JCL is generated and displayed in an edit session for review and submission.

```

EDIT          JCH.SPFTEMP3.CNTL                      Columns 00001 00072
Command ==>>  SUB                                     Scroll ==>> PAGE
***** ***** Top of Data *****
000001 //JCH#CPA JOB ,NOTIFY=&SYSUID
000002 /* CICSQA V5R1 HDB - DDL TO DEFINE DB2 TABLE
000003 //RUNTIAD EXEC PGM=IKJEFT01,DYNAMNBR=20
000004 //SYSTSPRT DD SYSOUT=*
000005 //SYSTSIN DD *
000006 DSN SYSTEM(DB2P)
000007 RUN PROGRAM(DSNTIAD) LIB('DB2.V910.RUNLIB.LOAD') PLAN(DSNTIAD91)
000008 /*
000009 //SYSPPRINT DD SYSOUT=*
000010 //SYSUDUMP DD SYSOUT=*
000011 //SYSIN DD *
000012 CREATE TABLESPACE #180203
000013         IN          CICSQA
000014         LOCKSIZE ANY
000015         BUFFERPOOL BP0
000016         CLOSE      NO
000017         SEGSIZE    32
000018         USING      STOGROUP PROD
000019         PRIQTY     20
000020         SECQTY     20
000021         ERASE      NO;
000022
000023 CREATE TABLE CICSQA.HST014B (
000024     START_DATE          DATE,
000025     START_TIME          TIME,
000026     APPLID              CHAR(8),
000027     MVSID               CHAR(4),
000028     DSA_NAME            CHAR(8),
000029     DSA_LOCATION        CHAR(8),
000030     ACCESS              CHAR(8),
000031     DSA_INDEX          CHAR,

```

Figure 350. Edit JCL to create DB2 table

Note the DB2 table name "CICSPA.HST014B". This name reflects the statistics ID of the selected report, in this case 014 for DSAs. The B suffix is appended to distinguish this report from the Storage Overview report that shares the same 014 ID.

CICS PA exports CICS Transaction Gateway statistics to DB2 table names ending with the SQL identifier "HSTGnnnn" (note the letter G). This distinguishes them from the "HSTnnnn" DB2 table names for CICS Transaction Server statistics.

You can change this name to something more meaningful to you, for example CICSPA.CICSP1_DSAS.

Submit the JCL to create the table.

Step 2. Load the DB2 table

The second step loads the DB2 table.

```

File  Options  Help
-----
Export HDB Data Set
Command ==> _____

Select option
2 1. Create DDL to define table      2. Load data into table

Create Options                                Load Options
_ Create Database                          1 1. Resume
_ Create Storage Group                     - 2. Replace

DB2 Settings:
DB2 Subsystem ID . . . DB2P
DSNTIAD Plan Name . . DSNTIA91
DB2 Load Library . . . 'DB2.V910.SDSNLOAD' _____
DB2 Exit Library . . . 'DB2.V910.SDSNEXIT' _____
DB2 RUNLIB Library . . 'DB2.V910.RUNLIB.LOAD' _____
Database . . . . . CICSPA__ Storage Group . . PROD ____
VCAT Catalog name . . USER____
Allocation: Primary  20____ Secondary . . . . 20____

```

Figure 351. Export Step 2. Load DB2 table

Select option 2 **Load data into table.**

The load table JCL is generated and displayed in an edit session for review and submission.

```

EDIT          JCH.SPFTEMP3.CNTL                      Columns 00001 00072
Command ==> SUB                                     Scroll ==> PAGE
***** ***** Top of Data *****
000001 //JCH#CPA JOB ,NOTIFY=&SYSUID
000002 //* CICS PA V5R1 HDB - LOAD DATA INTO DB2 TABLE
000003 //DSNUPROC EXEC PGM=DSNUTILB,REGION=0M,
000004 //          PARM='DB2P'
000005 //STEPLIB DD DISP=SHR,DSN=DB2.V910.SDSNLOAD
000006 //          DD DISP=SHR,DSN=DB2.V910.SDSNEXIT
000007 //SYSPRINT DD SYSOUT=*
000008 //UTPRINT DD SYSOUT=*
000009 //SYSUDUMP DD SYSOUT=*
000010 //SYSREC DD DSN=SKU.#180203.D05049.T182306.HDB,
000011 //          DISP=SHR
000012 //          DD DSN=SKU.#180203.D05049.T182311.HDB,
000013 //          DISP=SHR
000014 //          DD DSN=SKU.#180203.D05049.T182316.HDB,
000015 //          DISP=SHR
000016 //SYSUT1 DD UNIT=SYSDA,SPACE=(4000,(20,20),,ROUND)
000017 //SORTOUT DD UNIT=SYSDA,SPACE=(4000,(20,20),,ROUND)
000018 //SYSIN DD *
000019 LOAD DATA RESUME YES
000020 INTO TABLE CICS PA.HST014B WHEN (70) = '014B' (
000021     START_DATE          POSITION(1)      DATE EXTERNAL(10),
000022     START_TIME          POSITION(12)     TIME EXTERNAL(8),
000023     APPLID              POSITION(20)     CHAR(8),
000024     MVSID               POSITION(28)     CHAR(4),
000025     DSA_NAME            POSITION(77)     CHAR(8),
000026     DSA_LOCATION        POSITION(85)     CHAR(8),
000027     ACCESS              POSITION(93)     CHAR(8),
000028     DSA_INDEX           POSITION(101)    CHAR,
000029     DSA_SIZE_CUR        POSITION(102)    INTEGER,
000030     DSA_SIZE_PEAK       POSITION(106)    INTEGER,
000031     CUSHION_SIZE        POSITION(110)    INTEGER,
000032     GETMAIN_REQUESTS    POSITION(114)    INTEGER,
. . .

```

Figure 352. Edit JCL to load DB2 table

Extracting Statistics HDB data to CSV

Select option 6 **Extract** from the HDB menu to request an HDB extract.

The HDB Extract facility allows you to export data from your HDB data sets to an Extract data set in CSV format, suitable as input into PC-based spreadsheet applications.

In this example, we have selected our statistics HDB for extracting to CSV.

File Options Help

Extract HDBs Row 1 to 1 of 1

Command ==> _____ Scroll ==> CSR_

Select to extract HDB.

| Name | Type | Description | Changed | ID |
|------------|-------|----------------------------|------------------|-----|
| S CICS P1S | STATS | Statistics HDB for CICS P1 | 2005/03/16 12:23 | JCH |

***** Bottom of data *****

Figure 353. HDB Extract

The list of statistics reports is displayed. Select the reports that you want to extract to CSV.

```

File Edit Options View Help
-----
Command ==> _____ Statistics Reports _____ Line 1 of 26
Scroll ==> CSR_

Select reports to extract.

___ ** Reports **
- ___ Regions Collect Load
   ___ Transaction Manager Yes No
- ___ CICS Dispatcher Yes No
   ___ Dispatcher Overview Yes No
   ___ Dispatcher TCB Modes Yes No
   ___ Dispatcher TCB Pools Yes No
   ___ MVS TCB Overview Yes No
   ___ MVS TCBs Yes No
- ___ CICS Storage Yes No
   ___ Storage Overview Yes No
   S ___ DSAs Yes No
   ___ Domain Subpools Yes No
   ___ Task Subpools Yes No
+ ___ CICS Dumps Yes No
   ___ Enqueue Pools Yes No
+ ___ Connectivity No No
+ ___ Files and Databases No No
+ ___ Logging No No
+ ___ Queues No No
+ ___ Transactions No No
+ ___ Programs No No
+ ___ CICS Web Support No No
+ ___ Enterprise Java No No
+ ___ Miscellaneous No No
+ ___ CICS Server No No
+ ___ CICS Transaction Gateway No No
   ** End of Reports **

```

Figure 354. Select Statistics reports for CSV extract

We have selected the DSAs report.

The run extract panel is displayed.

```

Run STATS HDB Extract - CICSP1
Command ==> _____

Specify run options then press Enter to continue submit.

----- Report Interval ----- HDB contains data
      YYYY/MM/DD HH:MM:SS.TH in the range:
From 2005/03/16 08:00:00.00 2005/03/15 07:00 Extract Recap:
To 2005/03/16 09:00:00.00 2005/03/16 11:00 DDname . . . HXTS0001

Output Data Set:
Data Set Name Prefix . . 'JCH.CICSPA.EXTRACT' _____
Disposition . . . . . 1 1. OLD 2. MOD (If cataloged)

Extract Format: Enter "/" to select option
Delimiter . . . . . ; / Include Field Labels

Enter "/" to select option
/ Edit JCL before submit

```

Figure 355. Run Statistics HDB Extract

Specify the required reporting interval, data set name and other formatting options, then press Enter to proceed.

If you selected **Edit JCL before submit** then the extract JCL is generated and displayed in an edit session for review and submission.

```

EDIT          JCH.SPFTEMP3.CNTL                      Columns 00001 00072
Command ==> _____ Scroll ==> PAGE
***** ***** Top of Data *****
000001 //JCH#CPA JOB ,NNOTIFY=&SYSUID
000002 //* CICS PA V5R1 HDB Extract JCL
000003 //CICS PA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DSN=CPA.SCPALINK,
000005 //          DISP=SHR
000006 //CPAHDBRG DD DSN=CPA.HDB.REPOSTRY,
000007 //          DISP=SHR
000008 //SYSPRINT DD SYSOUT=*
000009 //* DSAs
000010 //STAT014B DD DSN=JCH.SDS.STAT014B,
000011 //          DISP=(NEW,CATLG),
000012 //          UNIT=SYSDA,SPACE=(CYL,(10,10))
000013 //SYSIN DD *
000014 * STATS HDB=CICSP1
000015 CICS PA SMFSTART(2005/03/16,08:00:00.00),
000016          SMFSTOP(2005/03/16,09:00:00.00)
000017 CICS PA LINECNT(60),
000018          FORMAT(':','/'),
000019          HDB(EXTRACT(CICSP1),OUTPUT(HXTS0001),
000020          LABELS,DELIMIT(';'),
000021          STAT014B(STAT014B)) DSAs
000022 /*
000023 /* HDB Container Data Sets. HDB Extract processing does not require
000024 /* these data sets to be included in the JCL as they are dynamically
000025 /* allocated when required. They are included:
000026 /* 1) for your reference
000027 /* 2) to ensure that all required data sets are cataloged
000028 /* 3) to allow DFHSM to recall required data sets up front
000029 //HDB00001 DD DISP=SHR,DSN=CICSPA.CICSP1.D05074.T102306.HDB
000030 //HDB00002 DD DISP=SHR,DSN=CICSPA.CICSP1.D05074.T152311.HDB
000031 //HDB00003 DD DISP=SHR,DSN=CICSPA.CICSP1.D05075.T042316.HDB
***** ***** Bottom of Data *****

```

Figure 356. Edit JCL for Statistics HDB Extract

Multiple statistics reports can be extracted in a single request.

Note that, like DB2 tables, CICS PA appends the statistics ID suffix to the extract data set name. Data set JCH.SDS.STAT014B can now be file transferred to your workstation for importing into a spreadsheet application.

CICS PA extracts CICS TG statistics to data set names with the low-level qualifier "HSTGnnnn". This distinguishes them from CICS TS statistics, which CICS PA extracts to data set names with the low-level qualifier "STATnnnn".

Maintaining Statistics HDBs

Statistics and Performance HDBs are maintained in the same way. You can alter any of the HDB characteristics, such as container data set name and allocation size.

Select option 7 **Maintenance** from the HDB menu to maintain your HDB environment.

```

File Systems Options Help
-----
                                Maintain HDB                                More: >
Command ==>> _____

Review and update HDB definition options then press EXIT to save.

Name . . . . . CICSP1_ Type STATS  APPLID  CICSP1__ + Image MVS1___
Description . . Statistics HDB for CICSP1_____

Specify View . . 1_ 1. Options  2. Data Sets

Statistics Reports:
 S_ Select to specify Statistics Reports

Data Retention Period:
HDB: Years  ___ Months 10_ Weeks  ___ Days  ___ Hours  ___
DB2: Years  ___ Months  ___ Weeks  ___ Days  ___ Hours  ___

Data Set Allocation Settings:
DSN Prefix . . . . . CICSPA_____
Management class . . . _____ (Blank for default management class)
Storage class . . . . . _____ (Blank for default storage class)
Volume serial . . . . . _____ (Blank for system default volume)
Device type . . . . . _____ (Generic unit or device address)
Data class . . . . . _____ (Blank for default data class)
Space Units . . . . . CYLS___ (TRKS, CYLS)
Primary quantity . . 10___ (In above units)
Secondary quantity  10___ (In above units)

F1=Help  F3=Exit  F4=Prompt  F7=Backward  F8=Forward  F10=Actions  F12=Cancel

```

Figure 357. Maintain HDB definition

For Statistics HDBs, you can also change the types of statistics data collected. Select **Select to specify Statistics Reports** to review or alter the type of statistics collected.

In the following example, we have activated collection for Transaction Manager statistics.

```

File Edit Options View Help
-----
Command ==> Statistics Reports Line 1 of 26
Scroll ==> CSR_

** Reports **
- Regions Collect DB2 Load
- A Transaction Manager Yes No
- CICS Dispatcher Yes No
  Dispatcher Overview Yes No
  Dispatcher TCB Modes Yes No
  Dispatcher TCB Pools Yes No
  MVS TCB Overview Yes No
  MVS TCBs Yes No
- CICS Storage Yes No
  Storage Overview Yes No
  DSAs Yes No
  Domain Subpools Yes No
  Task Subpools Yes No
+ CICS Dumps Yes No
  Enqueue Pools Yes No
+ Connectivity No No
+ Files and Databases No No
+ Logging No No
+ Queues No No
...

```

Figure 358. Activate Statistics report for data collection

Note that either activating new reports, or deactivating reports already collecting data does not change the data already collected. All the existing data can still be reported, regardless of whether collection is still active or not.

Chapter 21. Using the HDB dialog

CICS PA provides a menu-driven facility for managing your Historical Databases. A CICS PA Historical Database (HDB) is a repository of performance related data for your CICS systems. The type of information and level of detail contained in an HDB is determined by user-defined templates.

This chapter describes the CICS PA dialog for defining templates, defining and maintaining your HDBs, producing reports from the HDB data, and exporting the HDB data to DB2 tables.

Historical Database Menu

Select option 5 **Historical Database** from the CICS PA Primary Option Menu to invoke the Historical Database Menu.

Every aspect of the CICS PA Historical Database is controlled via the ISPF dialog. The Historical Database Menu contains the functions to manage the Historical Database environment.

```
File Options Help
-----
                                Historical Database Menu
Option ==> _____

1 Templates      Design HDB Templates
2 Define         Define a new HDB
3 Load          Load data into the HDBs
4 Report         Submit HDB report requests
5 Export         Export HDB data sets to DB2
6 Extract        Extract HDB data sets to CSV
7 Maintenance    Maintain HDB definitions and data sets
8 Housekeeping   Perform HDB housekeeping

Repository . . . . 'CICSPROD.CICSPA.XYX.REPOSTRY' _____ +

CICS versions (VRM):
Transaction Server . . . 680
Transaction Gateway . . . 900

F1=Help      F3=Exit      F4=Prompt      F10=Actions      F12=Cancel
```

Figure 359. Historical Database (HDB) Menu

The menu provides a pathway to the eight steps for defining and using HDBs:

1. **Template.** (Performance HDBs only, not Statistics HDBs)

Defining an HDB is a two step process: first define a Template and then define an HDB based on that Template. The Template identifies which CMF performance fields are to be kept in the HDB. For more information, see “HDB Templates” on page 625.

2. **Definition.**

After the Template is defined, then define the HDB and its options, such as the characteristics of the HDB data sets and the retention period of the data. For more information, see “Define a Performance HDB” on page 644.

3. **Load.**

Loading data into the HDB is performed by the standard CICS PA batch reporting utility. The command that requests the utility to load an HDB is:
HDB(LOAD(...

CICS PA reads the CMF performance class data (and also, for Statistics HDBs, CICS Transaction Gateway statistics) and builds the HDB data sets. Because the HDB Load process is part of the normal batch reporting process, you can run CICS PA reports and load HDBs together with a single pass of the SMF data. For more information, see "Load HDBs" on page 649.

4. **Report.**

Performance HDB reporting is performed by the standard CICS PA batch reporting utility. The command that requests the utility to report against a Performance HDB is:

```
HDB(REPORT(...
```

You can tailor Performance HDB reporting by using a Report Form. This allows you to select which fields in the HDB are reported and how they are presented. Statistics HDB reporting is done interactively using the CICS PA dialog.

Statistics Alert reporting, which alerts you when statistics field values meet specified conditions, is performed by the batch reporting utility. The command that requests the utility to generate a Statistics Alert report against a Statistics HDB is:

```
HDB(STATSALERT(...
```

Before requesting a Statistics Alert report, you must create a Statistics Alert Definition. For details, see Chapter 14, "Statistics alert reporting," on page 353.

5. **Export.**

Export allows you to load HDB data into a DB2 table. CICS PA automates this process with two simple steps:

- a. First define the DB2 table to house the data. CICS PA generates JCL to do this for you by creating the necessary DDL to define the table.
- b. Then load the data into the table. CICS PA generates JCL to do this for you by creating the necessary DB2 Load Utility statements to load the data.

For more information, see "HDB Export to DB2 tables" on page 662

6. **Extract.**

The HDB Extract facility allows you to export data from your HDB data sets to an extract data set in CSV (comma separated values) format, suitable as input into PC-based spreadsheet applications.

7. **Maintain.**

HDB maintenance allows you to change your HDB definition and manage the HDB container data sets. For more information, see "HDB Maintenance" on page 669.

8. **Housekeeping.**

HDB housekeeping should be run periodically to clean up your HDB environment. Housekeeping performs these tasks:

- a. Deletes HDB container data sets that have expired or have delete pending.
- b. Deletes expired DB2 table rows.
- c. Removes definitions from the Repository that are no longer required.

For more information, see "Housekeeping" on page 676.

Initially, your HDB environment requires a minimal one-time setup. On the Historical Database Menu, specify the name of the **Repository**. This is a VSAM KSDS where HDB definitions are saved.

You can define as many repositories as required; however only one repository can be used at a time and each repository acts independently. Information cannot be shared between repositories. It is recommended that one global repository is defined and made available to all users. In this way, all Historical Databases are available to users.

The default name is 'CICSPA.HDB.REPOSTRY'. You can change this by overtyping or pressing **Prompt** (F4) to select from a list of previously used repositories. Normal ISPF data set conventions apply when specifying the name of the data set.

If the Repository data set is not cataloged, CICS PA will prompt you to define it when you attempt to use it.

Repository

Your HDB environment is controlled by the Repository. The Repository is a VSAM KSDS that acts as a repository for all definitions associated with your HDB environment:

- Templates (Performance HDBs only)
- HDB Definitions
- Selection Criteria (Performance HDBs only)
- Container data set information
- Audit information about Load requests

The Repository is also a repository for the following definitions that are not associated with HDBs:

- Shared System Definitions
- Application Groups
- Statistics Alert Definitions
- Resource Lists
- Performance Alert Definitions

On the Historical Database Menu, specify the Repository data set name. If the Repository data set is not cataloged, the dialog will prompt you to define it when you select an option from the menu.

```

Define Repository
Command ==> _____

Enter "/" to select option
- Edit IDCAMS command
- Browse errors only

Repository Name . . . 'CICSPROD.CICSPA.XYX.REPOSTRY' _____

Cluster Level Information:

Space Units . . . . . 1 1. Cylinders Primary Quantity . . . 1 _____
                    2. Tracks Secondary Quantity . . 1 _____
                    3. Records
                    4. Kilobytes
                    5. Megabytes

Volume . . . . . _____
Data Class . . . . . _____
Management Class . . . _____
Storage Class . . . . . _____

F1=Help F3=Exit F6=Resize F12=Cancel

```

Figure 360. Define Repository

Specify the required allocation settings and then press **Enter** to define the Repository data set.

The allocation settings are:

Edit IDCAMS command

Select this option to edit the IDCAMS command that CICS PA generates to define the Repository. If this option is not selected, the IDCAMS command is issued immediately.

Browse errors only

Select this option to browse the output from IDCAMS only when a non-zero return code is returned by IDCAMS. If this option is not selected, the output from IDCAMS will always be presented.

Repository Name

Specify the name of the Repository data set to be defined.

Normal ISPF data set conventions apply. Enclose a fully qualified data set name in quotes, otherwise the TSO prefix is used as a high level qualifier.

Cluster Level Information

Space Units

Select one of the following in which to express the data set size:

1. cylinders
2. tracks
3. records
4. kilobytes
5. megabytes

Space Quantities

Specify the Primary and Secondary allocation quantities in cylinders, tracks, records, kilobytes or megabytes as indicated in the Space Units field. Express all quantities in decimal, not hexadecimal.

Typically a space allocation of 1 primary and 1 secondary cylinder is sufficient.

Volume

The volume serial name of the DASD volume to contain the data set.

Data Class

Specify the name of the data class for the data set. The data class provides the allocation attributes for the data set. The storage administrator at your installation defines the data class. However, you can override the parameters defined for a data class by explicitly specifying other attributes.

Management Class

For an SMS-managed data set, specify the name of the management class for a new data set. The storage administrator at your installation defines the names of the management classes you can specify.

If management class is not specified, but storage class is specified or defaulted, management class is derived from automatic class selection (ACS).

If management class is specified and storage class is not specified or derived, the DEFINE will fail. Note that if SMS is inactive and management class is specified, the DEFINE will fail.

Storage Class

For an SMS-managed data set, specify the name of the storage class. The storage class replaces the storage attributes that are specified on the UNIT and VOLUME operand for non-SMS-managed data set. Use the storage class to specify the storage service level to be used by SMS for storage of the data set. The storage administrator at your installation defines the names of the storage classes you can specify. A storage class is assigned when either you specify a storage class, or an ACS routine selects a storage class for the new data set. Note that if SMS is inactive and storage class is specified, the DEFINE will fail.

When the repository is defined, you are ready to start using HDB.

HDB Templates

Templates define the type and format of data in the Historical Databases. Templates are similar to Report Forms. Where Report Forms define the fields to be included in a report or extract, Templates define the fields to be included in an HDB. Templates provide HDBs with:

- Flexibility. You decide exactly what information is recorded in the HDB.
- Ease of use. The editor provides a simple way of tailoring the template.
- Transparency. You can see at a glance exactly what information is recorded in the HDB.

The Template contains the following definition information about the HDB:

- Type of HDB: List or Summary.
- Fields names and associated field attributes.

List of Templates

Select option 1 **Templates** from the Historical Database Menu to display the list of defined Templates, allowing you to define new Templates or update existing ones.

```

File Options Help
-----
                                HDB Templates
Command ==> NEW _____ Scroll ==> CSR_

Select to edit Template. Enter NEW command to define a new Template.

/ Name      Type      Description      Changed      ID
- APPLNM51 SUMMARY Explorer HDB for Appl Context 2012/07/01 12:00 CICSPA
- EXPLOR31 SUMMARY Explorer HDB for CICS TS V3.1 2012/07/01 12:00 CICSPA
- EXPLOR32 SUMMARY Explorer HDB for CICS TS V3.2 2012/07/01 12:00 CICSPA
- EXPLOR41 SUMMARY Explorer HDB for CICS TS V4.1 2012/07/01 12:00 CICSPA
- EXPLOR42 SUMMARY Explorer HDB for CICS TS V4.2 2012/07/01 12:00 CICSPA
- EXPLOR51 SUMMARY Explorer HDB for CICS TS V5.1 2012/07/01 12:00 CICSPA
- CPULST LIST Transaction CPU Analysis 2004/12/29 00:00 CICSPA
- CPUSUM SUMMARY Transaction CPU Analysis 2004/12/29 00:00 CICSPA
- ENQLST LIST CICS ENQueue/Lock Delay Analysis 2004/12/29 00:00 CICSPA
- ENQSUM SUMMARY CICS ENQueue/Lock Delay Analysis 2004/12/29 00:00 CICSPA
***** End of list *****

F1=Help      F3=Exit      F7=Backward  F8=Forward  F10=Actions  F12=Cancel

```

Figure 361. HDB Templates

You can manage your Templates using the following line actions and primary commands.

Line Actions

- / Display the selection list of line actions
- E Edit the Template. Care should be taken when updating a template if an HDB is already using it. Data loaded before the update will remain unchanged and will therefore be different to any new data loaded in the future.
- S Select the Template (same as Edit).
- V View the Template. This looks like the Edit panel but has no hold on the data and has no Save capability.
- C Copy the Template to the same or another Repository.
- D Delete the Template.

Note: You cannot delete a Template if it used by an HDB. You might need to run Housekeeping before the Delete is allowed.

Primary Commands

NEW name

This command creates a new Template. The New Template window is displayed to allow you to specify the name, type and other attributes of the new Template. See “Creating new Templates” on page 627 for information on how to proceed.

Also available from **File** in the action bar.

SELECT name

This command (or **S**) selects the specified Template for editing. If the Template does not exist, it is created as if the **NEW** command was used.

Sort Name | Type | Description | Changed | Id

This command sorts the list of Templates on the specified column. The default sort field is **Name**. The sort sequence is ascending for all except the Changed column which is descending. The sort order is retained only until Exit or another SORT command is issued.

LOCATE string

This command (or L or LOC) is used to locate an entry in the list based on the primary sort field. By default, LOCATE operates on the **Name** field. The string should be no longer than the primary sort field and not enclosed in quotes. The display will scroll to the entry which matches the string, or the entry preceding it if an exact match is not found.

FIND string

This command (or F) looks for the specified character string within all columns in the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use F5 or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is displayed. Use F5 or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Creating new Templates

The **NEW** command is used to define a new Template. New Templates are created by specifying their initial attributes and then tailoring the data fields using the Template editor.

```
File Systems Options Help
-----
                          New HDB Template
Command ===> _____

Specify new Template options.

Name . . . . . PRODSUM_  Version (VRM) . . . ____ +

System Selection:          Field Categories:
APPLID . . . . . _____ +  _ Select to specify Field Categories
MVS Image . . _____

Template Type:
2 1. List
_ 2. Summary
```

Figure 362. New HDB Template

You need to specify the Template name and type. In this example, a Summary Template called PRODSUM is created. Other options affect which CMF Fields the Template will initially be defined with. They can be used to reduce the amount of fields contained in the Template.

The options are:

Name The name of the new Template. A 1-8 character name in ISPF member name format. The name must be unique within the Repository.

APPLID, MVS Image, Version (VRM)

Optionally specify the CICS System (APPLID/Image) or CICS Version (VRM). This ensures that the Template is populated only with Performance Class fields that are applicable.

- Specify CICS System (APPLID, or APPLID and MVS Image) to populate the Template with fields applicable to that CICS system. When available, CICS PA uses the CICS version and Dictionary record for that system to determine which fields to include in the Template. The CICS system must be defined in System Definitions. Press **Prompt** (F4) from APPLID to select one from a list (see “Select a system (CICS APPLID)”). To link directly to System Definitions, use **Systems** in the action bar.
- Alternatively, specify VRM to populate the Template with fields for that CICS version only. Press **Prompt** (F4) to select from a list of supported versions (see “Select a version (VRM)” on page 629).

If a CICS system (APPLID/Image) is specified and a VRM can be derived from the MCT load library or SDFHLOAD library, then that VRM is used. If a VRM cannot be derived from the system definition then the VRM value specified in this panel is used.

If you do not specify either a CICS System or a VRM, then CICS PA populates the Template with fields applicable to the latest supported release of CICS.

Field Categories

Enter line action **S** or **/** to select the field categories to use to initially populate your new Template. For example, you can initialize your Template with Task and Terminal Control fields by selecting DFHTASK and DFHTERM from the list. The default is all categories, except CROSSYS, DBCTL, and OMCICS. See Figure 364 on page 629 for an example of the Field Categories selection list.

Within the selected categories, the fields added to your Template depend on the specified CICS APPLID or VRM. If APPLID is specified, CICS PA obtains the fields from the CMF Dictionary for that APPLID. Otherwise the VRM is used (the default is **680**).

Type of Template

The type of HDB is determined by the type of Template:

1. List

A List HDB contains data records for individual transactions. Typically, List HDBs are used for the detailed analysis of recent transaction events and have a short life span (retention).

2. Summary

A Summary HDB contains data records that summarize transaction activity over a specified time interval. Typically, Summary HDBs are used for long term trend analysis and capacity planning.

When specification is complete, press **Enter** to proceed with defining the Template.

Select a system (CICS APPLID)

To build an HDB Template for a particular CICS system, you can select one from a list of available CICS APPLIDs (APPLID/IMAGE) by pressing **Prompt** (F4) from the New Template APPLID field.

```

Command ==> _____ Systems Row 1 to 3 of 3
                               Scroll ==> PAGE

Select a System then press Enter.

System  Image  Files  Description
.  CICSPO01  MVS1   Yes   CICS system CICSPO01/MVS1
.  CICSDO01                Yes   CICS system CICSDO01
.  CICST001                No    CICS testing
***** End of list *****

```

Figure 363. Select a system (CICS APPLID)

This is a list of the CICS Systems defined in System Definitions. To select a system from the list, enter line action **S** (or point-and-shoot).

Select a version (VRM)

To display the list of supported CICS versions, press **Prompt** (F4) from the New Template Version (VRM) field.

This is a list of CICS Version Release Modification (VRM) levels supported by CICS PA:

- 640 CICS Transaction Server for z/OS Version 3 Release 1
- 650 CICS Transaction Server for z/OS Version 3 Release 2
- 660 CICS Transaction Server for z/OS Version 4 Release 1
- 670 CICS Transaction Server for z/OS Version 4 Release 2
- 680 CICS Transaction Server for z/OS Version 5 Release 1

To select a CICS version from the list, enter line action **S** (or point-and-shoot).

Select field categories

To display the list of available CICS field categories, enter **S** or **/** to select Field Categories from the New Template panel.

```

Command ==> _____ Select Field Categories

CMF Groups:
- DFHAPPL - Application naming      - DFHJOUR - Journal
- DFHBTS  - BTS                    - DFHMAPP - BMS Maps
- DFHCHNL - CHANNEL option         / DFHPRG  - Program Control
/ DFHCICS - CICS task information   - DFHRMI  - Resource Manager (RMI)
- DFHDATA - Data processing        - DFH SOCK - Secure Sockets
- DFHDEST - Transient Data        / DFHSTOR - Storage Control
- DFHDOCH - Document Handler      - DFHSYNC - Syncpoint processing
- DFHEJBS - EJB Server            / DFHTASK - Task Control
- DFHFPEI - Front End (FEPI)      - DFHTEMP - Temporary Storage
- DFHFILE - File Control          / DFHTERM - Terminal Control
-                                     - DFHWEBB - Web Interface

Region Type:
- AOR    - Application-owning
- FOR    - File-owning
- TOR    - Terminal-owning
- DB2    - AOR with DB2

User Fields:
- DBCTL  - IMS DBCTL
- CROSSYS - Cross-System
- OMCICS - OMEGAMON

```

Figure 364. Select field categories

This panel displays the field categories that you can select to populate a new Template. The categories reflect the various ways of using and configuring your

CICS systems. You can choose just the ones that you require for your HDB. Only categories applicable to the specified CICS version are available for selection. If not specified, 680 is assumed.

Enter / to select one or more field categories, then press **Next** (F11) or **Exit** (F3). The fields in the selected categories, and relevant to the specified CICS version, will appear in the new Template.

Selecting no categories has the same effect as selecting all categories except DBCTL, CROSSYS, and OMCICS.

To limit the Template to fields that are relevant to particular types of CICS region (such as application-owning regions), select one or more region type. Selecting a region type excludes from the Template any fields that are not relevant to that region type, as defined in the sample monitoring control tables provided by CICS (in sample library SDFHSAMP members DFHMCTx\$).

Primary Commands

SELECT

This command selects all field categories.

RESET

This command (or **RES**) resets all field categories by clearing the selection line actions.

List Template

A List Template defines the fields to be included in a List HDB. A List HDB contains data records for individual transactions. Typically, List HDBs are used for the detailed analysis of recent transaction events and have a short life span (retention).

The Template editor is very similar to the Report Forms editor. You can manipulate the Template to suit your needs.

```

File Edit Confirm Upgrade Options Help
-----
                        EDIT List Template - CPULST                Row 1 of 18 More: >
Command ==>> _____ Scroll ==>> PAGE

Description . . Transaction CPU Analysis_____ Version (VRM): 680

Selection Criteria:
_ Performance *

Field
/ Name + K Description
__ START__ A Transaction identifier
__ TRAN__  A Transaction identifier
S_ USERID__ A User ID
__ TASKNO__ _ Transaction identification number
__ STOP__  A Task stop time
__ RESPONSE_ _ Transaction response time
M_ DISPATCH_ _ Dispatch time
A_ CPU_____ _ CPU time
__ QRCPU__ _ CICS QR TCB CPU time
__ MSCPU__ _ CICS TCBS CPU time
__ ROCPU__ _ CICS RO TCB CPU time
__ KY8CPU__ _ CICS Key 8 TCB CPU time
__ J8CPU__  _ CICS J8 TCB CPU time
__ L8CPU__  _ CICS L8 TCB CPU time
__ S8CPU__  _ CICS S8 TCB CPU time
__ EOD_____ _ ----- End of HDB -----
__ TERM_____ Terminal ID
F1=Help F3=Exit F4=Prompt F5=Rfind F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

Figure 365. Edit List Template (View 1 of 2)

Scroll **Right** (F11) to see more information.

```

File Edit Confirm Upgrade Options Help
-----
                        EDIT List Template - CPULST                Row 1 of 18 More: >
Command ==>> _____ Scroll ==>> PAGE

Description . . Transaction CPU Analysis_____ Version (VRM): 680

Selection Criteria:
_ Performance *

Field
/ Name + K Length Dictionary Definition Offset Length - User Field -
__ START__ A 26 START DFHCICS T005 ___ ___
__ TRAN__  A 4 TRAN DFHTASK C001 ___ ___
__ USERID__ A 8 USERID DFHCICS C089 ___ ___
__ TASKNO__ _ 4 TRANNUM DFHTASK P031 ___ ___
__ STOP__  A 26 STOP DFHCICS T006 ___ ___
__ RESPONSE_ _ 8 RESP CICSIPA D901 ___ ___
__ DISPATCH_ _ 12 USRDISPT DFHTASK S007 ___ ___
__ CPU_____ _ 12 USRCPUT DFHTASK S008 ___ ___
__ QRCPU__ _ 12 QRCPUT DFHTASK S256 ___ ___
__ MSCPU__ _ 12 MSCPUT DFHTASK S258 ___ ___
__ ROCPU__ _ 12 ROCPUT DFHTASK S270 ___ ___
__ KY8CPU__ _ 12 KY8CPUT DFHTASK S263 ___ ___
__ J8CPU__  _ 12 J8CPUT DFHTASK S260 ___ ___
__ L8CPU__  _ 12 L8CPUT DFHTASK S259 ___ ___
__ S8CPU__  _ 12 S8CPUT DFHTASK S261 ___ ___
__ EOD_____ _ ___ ___
__ TERM_____ 4 TERM DFHTERM C002 ___ ___
F1=Help F3=Exit F4=Prompt F5=Rfind F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

Figure 366. Edit List Template (View 2 of 2)

When editing is complete, press **Exit** (F3) to save your Template.

The List Template consists of the following:

Description

Up to 32 characters of text to describe the purpose of the Template. This description is shown on the Templates panel to help you identify the Templates in the list. It is initially set to **List HDB Template**.

Version (VRM)

This identifies the CICS release that this Template was created for. It determines which CMF fields are available for selection in this Template.

Selection Criteria

Optionally, you can specify Selection Criteria to filter the data on time periods and field values. Thereby you can restrict the HDB to only the data that is of interest to you.

The available line actions are:

- / Display the selection list of line actions.
- S** Select (edit) the Selection Criteria. See "Performance Selection Criteria" on page 640 for information on specifying Selection Criteria.
- A** Activate the Selection Criteria so they is included for HDB processing. Selection Criteria can only be activated if you have specified at least one Select Statement and it is not excluded. An asterisk * indicates they are active.
- D** Deactivate the Selection Criteria. Any you might have specified here will not be used in HDB processing.

Field rows

One row for each field. The order of the fields in the Template dictates the order of the fields in the HDB records. This order is important because it determines the default sequence of fields when reporting. **START** or **STOP** must be the first field positioned at the top of the Template. The fields have the following attributes: Field Name, Key, Description, Length, Dictionary Definition, User Field Offset and Length (character user fields only).

Field Name

The CICS PA field name. To select from a list of fields applicable to this type of HDB Template and CICS version, enter line action **S** (see "Field selection" on page 635) or from the field name, press **Prompt** (F4) (see "Select a performance field" on page 635). The names for user fields are derived from the MCT of the specified CICS system.

EOD is a special entry managed by CICS PA. It signals the end of the HDB record. The fields listed above EOD are included in the record in the same order as they appear in the list. The fields below EOD are ignored.

CICS PA automatically sets EOD when the Template is created and resets it if necessary when the Template is changed to ensure it is maintained in a valid position.

- K** Key field indicator for DB2 Export (see "HDB Export to DB2 tables" on page 662). A value of **A** (ascending) identifies this as a key field if it is above EOD, or a key field candidate if it is below EOD. The allowed key fields are character or time stamp fields. Any number of key fields can be specified, but at least one must be specified. Either **START** or **STOP** must be specified as the first field at the top of the Template.

The Key field indicator is used only when exporting to DB2. CICS PA generates DDL to create an index for all key fields. Blank the K field if you do not need a DB2 index for this field.

HDB Load and Report requests treat all time stamp and character fields as key fields, regardless of their Key field indicator setting.

Description

This is a short description of the field. Enter line action **H** (Help) to see a more detailed description. See “Performance field help” on page 637 for an example of the help details displayed in a pop-up window.

Length

The length of the field in the HDB record.

Dictionary Definition

The description of the CMF data field in the format *informalname owner xnnn* where:

- *informalname* is the CMF field name
- *owner* is the CICS component that 'owns' the field
- *x* indicates the data type:
 - A - 32- or 64-bit count
 - C - character string
 - D - CICS PA derived time
 - P - packed decimal number
 - S - clock (time-count)
 - T - STCK time stamp
 - X - CICS PA calculated count
- *nnn* is the field identifier

Some special fields, such as APPLID and RESPONSE, are not defined in the CMF Dictionary and are given an owner of 'CICSPA'. They are either derived from the fixed section of the CMF record (for example, APPLID), or calculated from two or more other CMF fields (for example, RESPONSE).

User Field Offset and Length

This is used for character user fields when only part of the field is to be included in the HDB record. **Offset** is the position of the first character and **Length** is the number of characters from this position to be included. For example, if the user field contains the value ABCDEFG, then specifying offset 1 and length 4 gives the output ABCD. Both values are required for character user fields and default to the entire field (offset 1 and maximum length).

CICS PA JCL generation translates these values to `FIELDS(Character(SUBSTR(offset,length),...`

Line Actions

- /** Display the selection list of line actions.
- S** Select a field name from a list of available CMF fields. See “Field selection” on page 635 for an example of the field selection panel.
- I** Insert a blank row after this row for entry or selection of another field.
- R** Repeat this row.
- RR** Repeat a block of rows bounded by two RRs.

- C** Copy this row.
- CC** Copy a block of rows bounded by two CCs.
- M** Move this row.
- MM** Move a block of rows bounded by two MMs.
- A** Move/Copy after this row.
- B** Move/Copy before this row.
- D** Delete this row.
- DD** Delete a block of rows bounded by two DDs.
- H** Field Help. Display a detailed explanation of the field. See "Performance field help" on page 637 for an example of the field help panel.

Note:

1. Line operations can span the EOD row. CICS PA will reset EOD after the operation has completed to ensure it is validly positioned. Only one EOD is retained, that closest to the top of the list. EOD cannot be deleted.
2. Deleted user fields cannot be recovered.
3. In a Summary Template:
 - Key fields must be together at the top of the Template.
 - **TASKCNT** is a required field and must be after the key fields.

Primary Commands

FIND string

This command (or **F**) looks for the specified character string in all columns or a subset of columns in the displayed data. The string need only be enclosed in quotes if there are embedded spaces. The search is not case sensitive. The display scrolls to the row where the string is found and positions the cursor on the matching data. To find more occurrences, use **F5** or the **RFIND** command repeatedly.

If there is no match but the search did not begin at the start of the list, the screen does not change and the message *Bottom of data reached* is displayed. Use **F5** or **RFIND** to search from the top. If there is no match in the entire list, the screen does not change and the message No CHARS xxx found is displayed.

Also available from **Edit** in the action bar.

SAVE This command is only available from Edit mode and saves any changes you have made. You cannot save changes made in View mode.

Also available from **File** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

CONFIRM ON|OFF

CONFIRM ON (or **CONFIRM**) instructs CICS PA to prompt for confirmation when you request to Cancel from the Template panel when there have been updates.

With **CONFIRM OFF**, Cancel requests are actioned immediately, discarding any changes.

This command changes the setting only for the current Edit session. On exit, it reverts to the value set by **Cancel Confirmation** in CICS PA Settings.

Also available from **Confirm** in the action bar.

UPGRADE vrm

This command is used to upgrade the Template to the specified CICS version (VRM) provided it is a later release. CMF Fields for all CICS releases after the current release and up to the specified release are added to the bottom of the Template.

Also available from **Upgrade** in the action bar.

Field selection

Field Selection allows you to view expanded field descriptions and select a field name for insertion into your Template. The panel cycles through all CMF performance fields applicable to the type of Template and CICS version. To display the Field Selection panel, enter line action **S** against a field or blank line on the Template panel where you want to insert the selected field name.

```

File Help
-----
                                Field Selection                Row 1 of 7 More: >
Command ===> _____ Scroll ===> CSR_

Name . . . . . START___ +
CMF ID . . . : START   DFHCICS T005
Description . : Task start time

-----

Start time of measurement interval. This is one of the following:
1. The time at which the user task was attached
2. The time at which data recording was most recently reset in
   support of the MCT user event monitoring point DELIVER option or
   the monitoring options MNCONV, MNSYNC, or FREQUENCY.

Note: Response Time = STOP - START.
***** End of list *****

F1=Help      F3=Exit      F4=Prompt    F6=Resize    F7=Backward
F8=Forward   F10=Prev     F11=Next     F12=Cancel

```

Figure 367. Field selection

This panel cycles through all the CMF data fields available for selection. Each field is displayed in turn with its expanded description like that provided by Template line action **H** (see “Performance field help” on page 637). Details are only available for CICS-defined fields, not user fields.

To cycle through the list of fields, press **F11** and **F10** to move Forward or Backward through the list. You can restart anywhere in the cycle by entering a valid field name then moving Forward or Backward from that point.

You can press **Prompt** (F4) from the Name field to display a selection list of fields (see “Select a performance field”).

When the required field is displayed in the Name field, press **Exit** (F3) to select it.

Select a performance field

Select a Performance Field allows you to select a field name from a list of available CMF performance fields. To display the selection list, press **Prompt** (F4) from the

Field Name field on the Template panel or the Field Selection panel.

```

File Help
-----
                                Select a Performance Field                Row 1 of 274 More: >
Command ==>> _____ Scroll ==>> PAGE

  Field
 / Name  Description
- START  Task start time
- MVSID  MVS SMF ID
- APPLID CICS Generic APPLID
- TRAN   Transaction identifier
- USERID User ID
- PROGRAM Program name
- TASKNO Transaction identification number
- RESPONSE Transaction response time
- DISPATCH Dispatch time
- CPU    CPU time
- SUSPEND Suspend time
- DISPWAIT Redispatch wait time
- FCWAIT File I/O wait time
F1=Help  F3=Exit  F5=Rfind  F6=Resize  F7=Backward
F8=Forward F10=Actions F11=Right F12=Cancel

```

```

File Help
-----
                                Select a Performance Field                Row 1 of 274 More: >
Command ==>> _____ Scroll ==>> PAGE

  Field
 / Name  Dictionary Definition
- START  START  DFHCICS T005
- MVSID  MVSID  CICSPA C904
- APPLID APPLID CICSPA C903
- TRAN   TRAN   DFHTASK C001
- USERID USERID DFHCICS C089
- PROGRAM PGMNAME DFHPROG C071
- TASKNO TRANNUM DFHTASK P031
- RESPONSE RESP  CICSPA D901
- DISPATCH USRDISPT DFHTASK S007
- CPU    USRCPUT  DFHTASK S008
- SUSPEND SUSPTIME DFHTASK S014
- DISPWAIT DISPWTT DFHTASK S102
- FCWAIT FCIOWTT  DFHFILE S063
F1=Help  F3=Exit  F5=Rfind  F6=Resize  F7=Backward
F8=Forward F10=Actions F11=Right F12=Cancel

```

Figure 368. Select a field

This panel lists all the CMF data fields available for selection. Enter line action **S** to select a field name from the list.

To help locate a particular field, you can use the **FIND** (or **RFIND**) command which will search in all the displayed fields for a specified string. For further information on any field, use the **H** line action.

To leave without selecting, use Exit or Cancel.

Field Name

The CICS PA name for the CMF data field.

Line action **/** or **S** will insert the field name into the previous panel in the row where the cursor was positioned.

Description

This is a short description of the field. Enter line action **H** (Help) for a

more detailed description. See Figure 369 for an example of the help details displayed in a pop-up window.

Dictionary Definition

The description of the CMF data field in terms of the CMF informal name, CICS owner, data type, and field identifier. See “List Template” on page 630 for further information.

Line Actions: The available line actions are:

- /** Display the menu of line actions.
- S** Select a field name.
- H** Field Help. Display a detailed explanation of the field.

Primary Commands: To help locate a particular field, you can use the **FIND** (or **RFIND**) command which will search in all columns of data for a specified string.

Performance field help

On the Template panel, if you enter the line action **H** against a field, a pop-up window will display a more detailed explanation of the field.

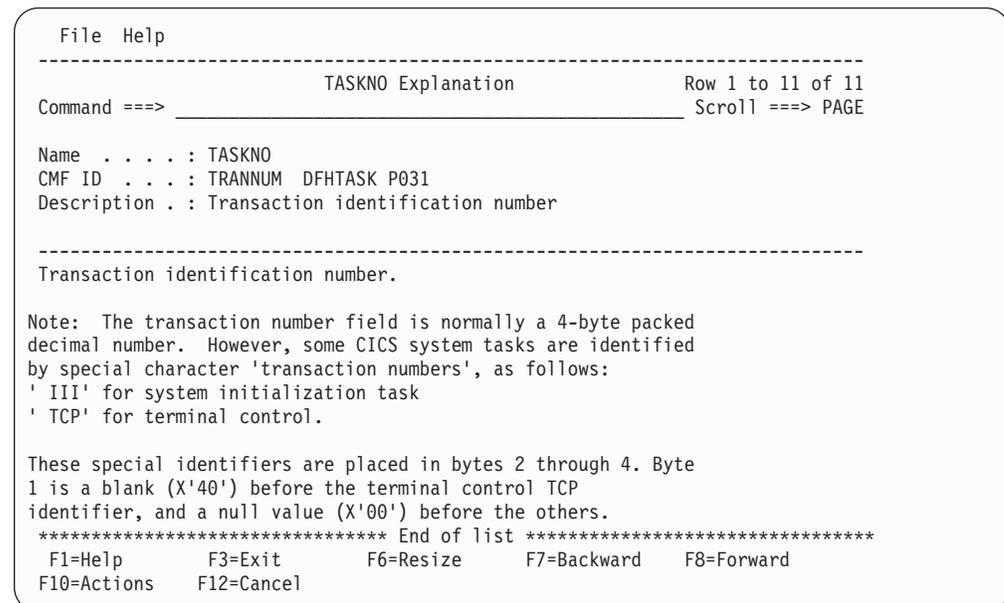


Figure 369. Performance field help

This panel provides a more detailed description of the field. It is only available for CICS-defined fields, not user fields.

The details are:

Name The name of the field as it is known to CICS PA.

CMF ID

The Dictionary description of the CMF data field (see “List Template” on page 630).

Description

A short description of the field followed by the expanded description.

Template upgrade

Templates are release-dependent. When you define a new Template you specify the CICS System or CICS Version (VRM) so that CICS PA can initialize the Template

with fields appropriate to that release. However, you can later upgrade the Template to a later release by using **Upgrade** in the action bar of the Template panel. This facility is available for all Template types.

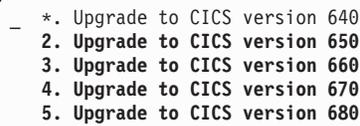
- 
- *. Upgrade to CICS version 640
 - 2. Upgrade to CICS version 650
 - 3. Upgrade to CICS version 660
 - 4. Upgrade to CICS version 670
 - 5. Upgrade to CICS version 680

Figure 370. Upgrading your Template

The Upgrade action bar choice (or **UPGRADE vrm** command) introduces the new CMF fields of a later release of CICS into your Template. The new fields are inserted at the bottom of the Template as candidate fields. Upgrading does not affect the fields currently in the Template, nor does it affect the format of HDB container data sets that have already been loaded based on this Template. To then incorporate a new field into your HDB from hereon, move the new field above the EOD marker.

You can upgrade your Template to a CICS Version (VRM) that is not marked by an asterisk *. To do this, select the VRM and press **Enter**. Otherwise, press **Cancel** to retain the Template at the current level.

Summary Template

A Summary Template defines the fields to be included in one or more Summary HDBs. A Summary HDB contains data records that summarize transaction activity over a specified time interval. Typically, Summary HDBs are used for long term trend analysis and capacity planning.

Edit the Template to meet your reporting requirements. In this example, FCAMCT is deleted and TSWAIT is inserted.

```

File Edit Confirm Upgrade Options Help
-----
                        EDIT Summary Template - PRODSUM          Row 1 of 244 More: >
Command ==>> _____ Scroll ==>> CSR_

Description . . . Summary HDB Template_____ Version (VRM): 680

Selection Criteria:
_ Performance                               Time Interval . . 00:15:00 (hh:mm:ss)

Field
/ Name + K Description
--- START__ A Task start time
--- MVSID__ A MVS SMF ID
--- APPLID__ A CICS Generic APPLID
--- TRAN__ A Transaction identifier
--- TASKCNT_ Total Task count
--- RESPONSE_ Transaction response time
--- DISPATCH_ Dispatch time
--- CPU_____ CPU time
--- SUSPEND__ Suspend time
--- DISPWAIT_ Redispach wait time
--- FCWAIT__ File I/O wait time
D_ FCAMCT__ File access-method requests
--- IRWAIT__ MRO link wait time
--- SC24UHWM_ UDSA HWM below 16MB
I_ SC31UHWM_ EUDSA HWM above 16MB
--- TSWAIT__ VSAM TS I/O wait time
--- EOD_____ ----- End of HDB -----
--- TERM__ A Terminal ID
--- APPLTRAN A Application naming Tran ID
--- APPLPROG A Application naming Program
--- STOP__ A Task stop time
F1=Help F3=Exit F4=Prompt F5=Rfind F7=Backward F8=Forward
F10=Actions F11=Right F12=Cancel

```

Figure 371. Edit Summary Template

A Summary Template operates in a similar manner to a List Template. Like the List Template (see “List Template” on page 630), the following features apply to the Summary Template:

- Scroll **Right** (F11) for more information.
- Specify the following details. Where these differ with the List Template, the differences are noted.
 - **Description.** The default description is **Summary HDB Template**.
 - **Version (VRM).**
 - **Selection Criteria.** For example, the HDB only includes data for transactions that use File Control services (FCTOTAL>0).
 - **Time Interval.** Summary Templates specify a recording time interval in the range 00:00:01 (1 second) to 24:00:00 (24 hours). The default is **00:01:00** (1 minute) which indicates that summary data is accumulated and recorded in 1 minute intervals. Select the interval carefully because it will impact on HDB processing as follows:
 1. **Loading.** Shorter recording intervals write more records, increasing the size of your HDB data sets.
 2. **Reporting.** Longer recording intervals restrict reporting. For example, if you specify a recording interval of 1 hour then you can only report on 1 hour (or higher) intervals, and 15 minute interval reporting is not possible.

Therefore selecting the correct interval is a balance between not loading too much data and not restricting reporting. Specify an interval that is both small

enough so that data set size is kept to a minimum yet large enough to meet your reporting requirements. In Figure 371 on page 639, the interval has been changed to 15 minutes.

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

1 becomes 00:01:00

1.1 becomes 00:01:00 (rounded down from 00:01:01)

1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL(hh:mm:ss) operand.

- **Field rows.** A Summary Template has the following additional features:
 1. Key fields must be together at the top of the Template.
 2. The allowed key fields are: START, STOP, MVSID, APPLID, TRAN, TERM, APPLTRAN, APPLPROG, JOBNAME, PRCSTYPE, RPTCLASS, SRVCLASS, TCLASSNM, TCPSRVCE, USERID. Up to six key fields can be specified, but at least one must be specified. Either **START** or **STOP** must be specified as the first field at the top of the Template.
 3. **TASKCNT** is a required field immediately after the key fields.
- “Field selection” on page 635
- “Select a performance field” on page 635
- “Performance field help” on page 637
- “Template upgrade” on page 637

When editing is complete, press **Exit** (F3) to save your Template.

Attention: After a Template has been initially saved, you are permitted to edit the Template to change its field list. However if the Template is already being used to load data into a HDB, then changing the Template can potentially cause reporting problems in the future. CICS PA supports the alteration of Template fields, but a few simple rules will ensure that HDB processing is not compromised:

1. Do not change the key fields of a Summary Template.
2. Do not change the focus of a Template. For example, if the Template includes Temporary Storage fields only, do not delete those fields and insert File Control fields in their place. You should create another Template with a focus on File Control.

Performance Selection Criteria

Optionally, you can specify Selection Criteria in an HDB Template. When the associated HDB is loaded, the Selection Criteria filter the CMF performance class records based on time and field values.

To specify Selection Criteria, enter line action **S** against Performance Selection Criteria on the Template panel.

The operation of Selection Criteria for HDBs is the same as that for Report Sets, only the available fields might differ. For more information, see:

- “Specifying Selection Criteria” on page 158
- “Specifying Select Statements” on page 159

Resource Lists can be used in Performance Select Statements as a convenient way to specify a list of values. This is similar to the concept of Object Lists in Report Sets. However, Object Lists and Resource Lists are stored in different data sets. For details, see “Object Lists versus Resource Lists” on page 325.

Resource Lists

Resource Lists are stored in the Repository.

A Resource List defines a list of field values that can be used when specifying:

- Selection Criteria for filtering the data for your HDB Load.
- Application Groups. For details, see Chapter 11, “Application Grouping,” on page 333.
- Statistics Alert definitions. For details, see Chapter 14, “Statistics alert reporting,” on page 353.

A typical use might be to define all the transaction IDs that belong to a particular application system. Resource Lists enable you to define a group of related values once, then use it in many HDBs by simply specifying the name of the Resource List in your Selection Criteria. This avoids duplicating the same list of values in different HDBs.

For example, instead of specifying Select Statements that include transactions B001,B002,B003,..., you predefine a Resource List called BTRANS that has values B001,B002,B003,... Now when you specify the Select Statement, you simply specify BTRANS to include those transactions. To select a valid name from a list of predefined Resource Lists, press **Prompt** (F4) from the List field in the Select Statement.

```

File Edit Lists Options Help
-----
SAMPLE - Performance Select Statement      Row 1 of 3 More: >
Command ==> _____ Scroll ==> PAGE

Active ----- Report Interval -----
Inc Start ----- From ----- To -----
Exc Stop DD/MM/YYYY HH:MM:SS.TH DD/MM/YYYY HH:MM:SS.TH
_ INC ACTIVE 15/12/2004 _____ 20/12/2004 _____

-----

Inc Field ----- Value or Range -----
/ Exc Name + Type Value/From To List +
_ INC RESPONSE _____ 3 _____ _____ Milliseconds
_ INC CPU _____ TIME 50 _____ 1000 _____ Milliseconds
_ INC TRAN _____ _____ _____ BTRAN _____
***** End of list *****

F1=Help F3=Exit F4=Prompt F7=Backward F8=Forward F10=Actions
F11=Right F12=Cancel

```

Figure 372. Performance Select Statement

List of Resource Lists

Resource Lists are a convenient way to specify values in Selection Criteria in your HDB Templates. To define a Resource List, select **Lists -> Resource Lists** from the action bar of the Performance Select Statement (see Figure 372 on page 641). This will link to the list of Resource Lists.

```
File Options Help
-----
Resource Lists                               Row 1 to 4 of 4
Command ==> NEW                               Scroll ==> ____

Select to edit Resource List. Enter NEW command to define a new Resource List.

/ Name      Description                               Changed      ID
- FINANCE   Finance Transactions                               2005/01/03 12:27 JCH02
- HQTERMS   Terminals at headquarters                          2005/01/02 08:57 DAM13
- HQUSERS   Users at headquarters                              2005/01/05 10:49 SEC22
- STOCK     Stock Transactions                                  2005/01/05 16:57 DOC17
***** End of list *****
```

Figure 373. Resource Lists

This panel lists all the Resource Lists in the Repository and allows you to select one at a time to view or modify.

Line Actions: The following line actions can be entered against a Resource List:

- /** Display the selection list of line actions.
- E** Edit the Resource List.
- S** Select the Resource List (same as Edit).
- V** View the Resource List. This looks like the Edit panel but has no 'hold' on the data and has no Save capability.
- D** Delete the Resource List.

Primary Commands: The following primary commands are valid for this panel:

NEW name

This command displays the New Resource List window, where you have the option to initialize the resource list by selecting one of the sample resource lists included with CICS PA. See "Creating new Resource Lists" on page 643 for information on how to proceed.

Also available from **File** in the action bar.

SELECT name

This command (or **S**) selects the specified Resource List for editing. If the Resource List does not exist, it is created as if the **NEW** command was used.

Sort Name | Description | Changed | Id

This command sorts the list of Resource Lists on the specified column. The default sort field is **Name**. The sort disregards upper and lower case, and is ascending for all but the Changed column. The sort order is retained only until Exit or another SORT command is issued.

LOCATE string

This command (or **L** or **LOC**) is used to locate an entry in the list based on the primary sort field. By default, LOCATE operates on the **Name** field. The string should be no longer than the primary sort field and not enclosed in quotes. The display will scroll to the entry which matches the string, or the entry preceding it if an exact match is not found.

Creating new Resource Lists

The **NEW** command is used to define a new Resource List.

```

New Resource List
Command ==> _____
Specify the name of the new Resource List.
Name . . . ASSETS_
/_ Initialize with a sample resource list
```

Figure 374. Specifying a new Resource List

Specify the name of the new Resource List then press **Enter** to edit. A Resource List name is 1-8 characters in ISPF member name format. The name must be unique within the Repository.

The new Resource List can be initialized by selecting one of the sample resource lists included with CICS PA. If you do not specify a sample name the resource list will be initialized empty.

Specifying values in Resource Lists

The Resource List edit panel is displayed when, from the Resource Lists panel, you either:

- Create a new Resource List.
Use the **NEW** command or action bar choice **File - New**.
- Select an existing Resource List.
Enter line action **E** or **S** against a Resource List or use the **SELECT name** command.

Alternatively, you can enter line action **V** to display the Resource List view panel. Viewing a Resource List works in every way like Edit except there is no exclusive hold on the data and changes cannot be saved.

```

File Edit Confirm Options Help
-----
EDIT Resource List - BILLING                               Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE
Description . . . Billing Transactions_____
Specify the Resource List values:
/_
_ B001_____ B002_____ B003_____
-----
***** End of list *****
```

Figure 375. Specifying Resource List values

Use this panel to specify values in a Resource List. The Resource List can then be reused many times in **Selection Criteria** in HDB Templates and Definitions.

Specify a description for your Resource List, up to 32 characters of text to describe its purpose. The description is initially set to **Resource List**.

Specify any number of values to be used in Include/Exclude statements in Selection Criteria. The values are free-format, typically names such as Transaction Codes, User IDs, and IMS Subsystem IDs. Masking characters are supported: % for one and only one character and * for many or none. The order of entries in the list is of no consequence to HDB processing.

Each input field is a separate value. Blank values are ignored.

It is usual to define Resource Lists that are homogenous. That is, a Resource List should specify values for testing the contents of one particular field. Define one Resource List for Transaction Codes, another for User IDs, and so on.

Line Actions: The following line actions are valid on this panel:

| | |
|---|----------------------------------|
| / | Display the menu of line actions |
| I | Insert a new row |
| R | Repeat this row |
| C | Copy this row |
| M | Move this row |
| A | Move/Copy after this row |
| B | Move/Copy before this row |
| D | Delete this row |

Primary Commands: The following primary commands are valid for this panel:

SAVE This command is only available from Edit mode and saves any changes you have made.

Also available from **File** in the action bar.

RESET

This command (or **RES**) removes all outstanding line actions and deletes any blank rows.

Also available from **Edit** in the action bar.

CONFIRM ON|OFF

CONFIRM ON (or **CONFIRM**) instructs CICS PA to prompt for confirmation when you request to Cancel from the Resource List panel when there have been updates.

With **CONFIRM OFF**, Cancel requests are actioned immediately, discarding any changes.

This command changes the setting only for the current Edit/View session. On exit, it reverts to the default set by **Cancel Confirmation** in CICS PA Settings.

Also available from **Confirm** in the action bar.

Define a Performance HDB

Defining an HDB allows you to collect (load) and report historical performance data. The definition alone does not cause any action by CICS PA.

Select option 2 **Define** from the HDB menu to define a new HDB.

```

File Systems Options Help
-----
New HDB Definition
Command ==> _____

Specify new HDB definition options then press EXIT to save.

Name . . . . . CICSWEEK APPLID CICSPROD + Image _____
Qualifier . . . . . Explorer
Description . . . Production CICS Weekly History__

HDB Format:                               Selection Criteria:
Template . . . WEEKSUM_ +                 _ Performance

Data Retention Period:
HDB: Years ___ Months ___ Weeks ___ Days ___ Hours ___
DB2: Years ___ Months ___ Weeks ___ Days ___ Hours ___

Data Set Allocation Settings:
DSN Prefix . . . . . CICSSPA.HISTORY___
Management class . . . _____ (Blank for default management class)
Storage class . . . _____ (Blank for default storage class)
Volume serial . . . _____ (Blank for system default volume)
Device type . . . _____ (Generic unit or device address)
Data class . . . _____ (Blank for default data class)
Space Units . . . _____ (TRKS, CYLS)
Primary quantity . . _____ (In above units)
Secondary quantity _____ (In above units)

F1=Help F3=Exit F4=Prompt F7=Backward F8=Forward F10=Actions F12=Cancel

```

Figure 376. New HDB Definition

Specify the details of your new HDB:

Name The name of the HDB. A 1-8 character name in ISPF member name format. The name is unique within the Repository.

APPLID, Image

The optional CICS System (APPLID/Image) that owns the HDB.

HDB LOAD requests use this APPLID and associated SMF files (defined in System Definitions) to build the JCL deck. If not specified, you are prompted at submit time to specify the system.

The CICS System must be defined in System Definitions. To select one from a list, use **Prompt** (F4). See “Select a system (CICS APPLID)” on page 628 for an example of the list of systems. To link directly to System Definitions, use **Systems** in the action bar.

Qualifier

If Qualifier is specified, the value is used as the DB2 schema in place of the Database as specified in DB2 Settings. It is also incorporated into the DB2 table names:

- qualifier.CPA_hdbname* for Performance HDBs
- qualifier.CPA_statid* for Statistics HDBs

Qualifier is mandatory if Explorer is selected, and optional otherwise. If Qualifier and Explorer are both entered then details of this HDB will be included in the manifest the next time it is rebuilt for this qualifier.

You should rebuild the manifest when you add an eligible HDB, and also whenever the HDB is changed in a way that affects its eligibility for inclusion in the manifest. See “Maintain manifest” on page 674.

Explorer

Select the Explorer option to make this HDB eligible for inclusion in the

manifest. If you do this you must also specify a qualifier and, for a Performance HDB, a template that is valid for the CICS PA plug-in for CICS Explorer. Details of the DB2 associated with this HDB will be included in the manifest the next time it is rebuilt.

A manifest is a proprietary DB2 table that contains all the information required by the CICS PA plug-in to access and use historical data. It is a catalog of all the HDB DB2 tables that have the same qualifier and for which the Explorer indicator is set.

You should rebuild the manifest when you add an eligible HDB, and also whenever the HDB is changed in a way that affects its eligibility for inclusion in the manifest. See “Maintain manifest” on page 674.

Description

The HDB description is free-format text that you can specify to help identify the purpose of the HDB.

Template

The Template defines the type and format of the HDB. Before defining an HDB, you must first design a Template that defines the required information to be kept in the HDB data sets. In Figure 376 on page 645 we have specified a Summary Template WEEKSUM and HDB CICSWEEK inherits its attributes.

If you have selected the Explorer option, you must choose an internal template that has been predefined for use with the CICS PA-plug-in.

To select a Template from a list of defined Templates, use **Prompt** (F4). See “Select a Template” on page 648 for an example of the prompt list.

Selection Criteria

HDBs have optional Selection Criteria that allows you to filter the CMF performance class records used to build the HDB. For example, the HDB only includes data for a particular application's transaction ids, such as TRAN=MY*. Select to specify Selection Criteria.

Templates can also specify Selection Criteria. If the Template and HDB both have active Selection Criteria then both are checked and *both* must match for the record to be processed.

- **Template Selection Criteria** typically focuses on the type of data being recorded. For example, if your Template is monitoring File Control activity then its Selection Criteria can specify FCTOTAL>0 to include only transactions that used File Control services.
- **HDB Selection Criteria** typically focuses on the application targeted by the HDB. For example, if the HDB is for MY application then its Selection Criteria can specify TRAN = MY* to include only transactions in MY application.

The resultant HDB will include data for transactions matching MY* that uses File Control services.

Line Actions:

- /** Display the selection list of line actions.
- S** Select (edit) the Selection Criteria. See “Performance Selection Criteria” on page 640 for information on specifying Selection Criteria.
- A** Activate the Selection Criteria so they are included for HDB

processing. Selection Criteria can only be activated if you have specified at least one Select Statement and it is not excluded. An asterisk * indicates they are active.

- D Deactivate the Selection Criteria. Any you might have specified here will not be used in HDB processing.

Data Retention Period

These fields separately specify the length of time that HDB data sets and associated DB2 table rows are kept before they expire. Typically:

- Summary HDBs need to keep their container data sets for many years for long-term trend analysis.
- List HDBs used for ad hoc reporting might only need to keep their container data sets for a couple of hours or days.

Specify each retention period as a whole number of years, months, weeks, days, or hours. Only one choice is allowed.

If the HDB container data sets are no longer required after their data has been exported to DB2, you can specify a retention period of 0 in any of the HDB periods to make the HDB data sets expire immediately.

Container data sets and DB2 data are deleted by **HDB Housekeeping** after they have passed their expiry date. If you do not specify a retention period, the corresponding HDB data sets or DB2 data will never expire.

Use **HDB Maintenance** to check container data set status or to alter the HDB or DB2 retention period.

Data Set Allocation Settings

Data Set Allocation Settings specify the allocation attributes of the data sets that contain data for this HDB. CICS PA dynamically allocates container data sets at load time.

The settings are:

DSN Prefix

Specify the high level qualifier of the data sets that are dynamically allocated by the HDB LOAD process to contain the data. The format of the data set name is:

DSN-prefix.HDB-name.Dyyddd.Thmmss.HDB

where the DSN-prefix is the data set name high level qualifier. For example, CICS.PA.HISTORY.CICSWEEK.D03123.T103821.HDB

Management class

For an SMS-managed data set, specify the name of the management class for a new data set. The storage administrator at your installation defines the names of the management classes you can specify.

If management class is not specified, but storage class is specified or defaulted, management class is derived from automatic class selection (ACS).

If management class is specified and storage class is not specified or derived, the DEFINE will fail. Note that if SMS is inactive and management class is specified, the DEFINE will fail.

Storage class

For an SMS-managed data set, specify the name of the storage

class. The storage class replaces the storage attributes that are specified on the UNIT and VOLUME operand for non-SMS-managed data set. Use the storage class to specify the storage service level to be used by SMS for storage of the data set. The storage administrator at your installation defines the names of the storage classes you can specify. A storage class is assigned when either you specify a storage class, or an ACS routine selects a storage class for the new data set. Note that if SMS is inactive and storage class is specified, the DEFINE will fail.

Volume serial

The volume serial name of the DASD volume to contain the data set.

Device type

The generic or esoteric DASD device type of the data set, such as 3390 or SYSDA. This must represent a device type that is defined in the Eligible Device Table of the current processor as DASD.

Data class

Specify the name of the data class for the data set. The data class provides the allocation attributes for the data set. The storage administrator at your installation defines the data class. However, you can override the parameters defined for a data class by explicitly specifying other attributes.

Space Units

Select one of the following:

TRKS Express data set size in tracks

CYLS Express data set size in cylinders

Space quantities

Specify the **Primary** and **Secondary** allocation quantities in tracks or cylinders as indicated in the Space Units field. Express all quantities in decimal, not hexadecimal.

Specify allocation settings that satisfy your installation requirements. The size of container data sets is not critical. Typically you would specify a size that accommodates a single load request. For example, if you load data into the HDB daily, then 10 cylinders might be sufficient. However if CICS PA encounters an out-of-space condition (ABENDx37) during load, then it simply closes the data set and recommences loading in a new data set. You can decide to specify a larger size initially and adjust it later using **HDB Maintenance**.

Select a Template

To specify the Template on which to define the HDB, press **Prompt** (F4) from the Template field to select from a list of predefined Templates.

```

                                HDB Templates                Row 1 to 4 of 4
Command ==> _____ Scroll ==> PAGE

Select a Template then press Enter.

   Name      Type      Description
. CPULST    LIST      Transaction CPU Analysis
. APPLNM51  SUMMARY   Explorer HDB for Appl Context
. EXPLOR31  SUMMARY   Explorer HDB for CICS TS V3.1
. EXPLOR32  SUMMARY   Explorer HDB for CICS TS V3.2
. EXPLOR41  SUMMARY   Explorer HDB for CICS TS V4.1
. EXPLOR42  SUMMARY   Explorer HDB for CICS TS V4.2
. EXPLOR51  SUMMARY   Explorer HDB for CICS TS V5.1
. PRODSUM   SUMMARY   Summary HDB Template
. WEEKSUM   SUMMARY   Production CICS Weekly History
***** End of list *****

```

Figure 377. Select a Template

This is a list of HDB Templates in the current Repository.

To select a Template, enter line action **S** (or point-and-shoot).

Load HDBs

After defining an HDB you can collect (load) the historical data.

Select option 3 **Load** from the HDB menu to generate JCL to load data into your HDB. The list of defined HDBs is presented.

```

File Options Help
-----
                                Load HDBs                Row 1 to 5 of 5
Command ==> _____ Scroll ==> CSR_

Select to load an HDB.

   Name      Type      Description              Changed      ID
- CICSDAY    LIST      Today's CICS Transactions  2004/12/11 00:00 CICSPA
S CICSWEEK   SUMMARY   Weekly CICS Transactions  2004/12/11 00:00 CICSPA
- CPUTREND   SUMMARY   Transaction CPU Usage Trend 2004/12/11 00:00 CICSPA
- PRODRESP   SUMMARY   Production Transaction Response 2004/12/11 00:00 CICSPA
- FCHIST     SUMMARY   File Request History        2004/12/11 00:00 CICSPA
***** End of list *****

F1=Help  F3=Exit  F7=Backward  F8=Forward  F10=Actions  F12=Cancel

```

Figure 378. Load HDBs

Enter line action **S** to select an HDB for Load processing. You are prompted to specify run-time options, then CICS PA will build the JCL to load data into your HDB.

You can select multiple HDBs to load in succession.

SORT and **LOCATE** commands are available to help you work with the list of HDBs.

Load creates the JCL that builds the HDBs. The Load process is handled via normal CICS PA command input. This allows multiple reports, extracts and HDBs to be created via a single pass of the SMF data.

The Read SMF File to EOF setting in the profile options is added as a READ2EOF operand to JCL built when the input is an SMF file and Report Interval is specified in the RUN panel.

Select the required HDB from the list to display the Load panel which is the same for a Load or a Summary HDB.

```

File  Systems  Options  Help
-----
                                Load SUMMARY HDB CICSWEEK
Command ==>> _____

Specify HDB load options then press Enter to continue submit.

System Selection:                _____ Report Interval _____
APPLID . . CICSPROD +           YYYY/MM/DD  HH:MM:SS.TH
Image  . . _____ +         From 0 _____ 09:00:00.00
Group  . . _____ +         To  0 _____ 16:30:00.00

DB2 Export Options:             Table Load Options
_ Load DB2 Table                _ 1. Resume  2. Replace

Include Clock Field Components  Summary Options
_ 1. Time and Count             _ Include Sums of Squares
  2. Time only
  3. Count only                Enter "/" to select option
                               / Edit JCL before submit

F1=Help   F3=Exit   F4=Prompt  F6=Resize  F10=Actions  F12=Cancel

```

Figure 379. Load Summary HDB

Specify the run-time options:

System Selection

System Selection specifies the CICS system(s) whose data is to be loaded into the HDB. It is initialized to the CICS system APPLID that you specified during HDB definition.

You can specify any combination of APPLID, Image, or Group, but these must be defined in your System Definitions. If you do not specify System Selection here or in the Global Options, then you are prompted at run time to specify the System Selection. This will apply globally to all reports and extracts without their own System Selection. This is recommended as it allows you to run your Report Sets against any of your defined Systems. Press the **Prompt** key (F4) to select from a list of defined Systems, Images, or Groups. To modify your System Definitions, select **Systems** in the action bar.

Specify one of the following:

- A CICS APPLID. An APPLID that matches a defined System's name pattern is also allowed. For example, CICS1 can be specified if CICS* is a defined system.
- An APPLID and an MVS Image. This identifies the MVS Image where your CICS system runs.
- An MVS Image. All CICS systems executing on this MVS Image is selected.
- An APPLID and Image combination plus a Group. This is useful for uniquely identifying a CICS system when there are multiple CICS systems with the same name defined.

- A Group alone. CICS PA will select all CICS APPLIDs defined to the Group. For example, for transaction grouping, or for systems that connect via IRC/MRO, ISC/APPC, or IPIC.

CICS PA uses the System Selection in JCL generation to build the APPLID(applid1,applid2,applid3,...) and INput(SMFIN001,SMFIN002,SMFIN003,...) operands, and corresponding //SMFINnnn DD statements.

System Selection can also be specified either:

- In Global Options. The report-level specification takes precedence over the global.
- At run time. The run-time System Selection overrides the Global Options and optionally the report-level specification.

In the example above, CICS PA generates an APPLID(CICSPROD) operand in the command deck and includes DD statements for the SMF Files defined in System Definitions for CICSPROD.

Report Interval

Specify the time range of data to be included in the HDB. You can specify an explicit date, such as 2004-12-05, or a relative date to indicate today (0), yesterday (-1), two days ago (-2), and so on. In Figure 379 on page 650 we have used a relative date of zero (0) to indicate that we are processing today's SMF data, from 9:00am to 4:30pm.

It is recommended that you specify relative dates if you want to use an automated job scheduler to run the load HDB JCL regularly. The JCL can be set up once and run daily without needing to change it.

DB2 Export Options

To export the data to DB2 directly after loading it into the HDB, select the Load DB2 Table option. For details of the JCL that this option generates, see Load JCL. (The remaining DB2 export options are only relevant if you select the Load DB2 Table option.)

The DB2 table to which you are exporting must already be defined.

To define a DB2 table, see Creating DDL to define a DB2 table.

If you select **2. Replace** for Table Load Options and the HDB load fails, then the result is an empty DB2 table.

Edit JCL before submit

Select with a / to edit the JCL before submit. CICS PA will generate the JCL and display it in an ISPF Edit session. You can review or modify the JCL using the usual ISPF Edit commands and actions, or you can use the CREATE command to save the JCL in an external data set.

Then to submit the job, enter **SUBmit** in the Edit command line.

If this option is not selected, the generated JCL is not displayed and the job is submitted immediately.

After you have specified your Load options, press **Enter**. You are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your load request.

Load JCL

If you selected **Edit JCL before submit** then the Load HDB JCL is displayed in an edit session. Specify this option if you want to save the JCL in an automated job

scheduler JCL library.

```
EDIT          JOHN.SPFTEMP1.CNTL          Columns 00001 00072
Command ==> change '<unresolved>' 'CICSPROD.DAILY.CMF(0)' Scroll ==> CSR_
*****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 //* CICS PA V5R1 HDB LOAD JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DSN=CPA.V5R1M0.SCPALINK,DISP=SHR
000005 //CPAHDBRG DD DSN=CICSPROD.CICSPA.XYX.REPOSTRY,DISP=SHR
000006 //SYSPRINT DD SYSOUT=*
000007 //* SMF Input Files
000008 //* SMF Files that follow have unresolved DSNs
000009 //* SMF File for System=CICSPROD
000010 //SMFIN901 DD DSN=<unresolved>,DISP=SHR
000011 //* Command Input
000012 //SYSIN DD *
000013 * HDB=CICSWEEK
000014 * Description=Weekly CICS Transactions
000015         CICSPA SMFSTART(0,09:00:00.00),
000016         SMFSTOP(0,16:30:00.00)
000017 * HDB Load for System=CICSPROD
000018         CICSPA IN(SMFIN901),
000019         APPLID(CICSPROD),
000020         LINECNT(60),
000021         FORMAT(':','/'),
000022         HDB(OUTPUT(HDBL0001),LOAD(CICSWEEK))
000023 /*
```

Figure 380. Edit JCL for Load Summary HDB

The SMF file data set name for system CICSPROD is unresolved. This indicates that the System Definition for CICSPROD does not have SMF files specified. Substitute the required SMF file data set name into the JCL.

The command deck specifies operands to load HDB CICSWEEK:
HDB(OUTPUT(HDBL0001),LOAD(CICSWEEK))

Enter **SUBmit** in the command line to submit the job to run the load.

If you selected the **Load DB2 Table** option, then the JCL contains additional statements to export the data to DB2 after loading the HDB. If successful, the HDB load step writes the list of created HDB containers to a PDS member. After the HDB load step, an IEBGENER step copies the contents of the PDS member in-stream to the DB2 load utility DSNUTILB skeleton JCL. The following figure shows an example of this JCL.

```

//CICSPAHD JOB (ACCOUNT),'CICS PA HDB LOAD'
/* Delete HDB Container Data Set
//DELETE EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DELETE CICSPA.HDB.CONTDSN
SET MAXCC=0
/*
/* CICSPA V5R1 Report JCL
//CICSPA EXEC PGM=CPAMAIN
//STEPLIB DD DISP=SHR,DSN=CPA.SCPALINK
//CPAHDBRG DD DISP=SHR,DSN=CPA.XYX.REPOSTRY
//CPAHDBCD DD DSN=CICSPA.HDB.CONTDSN,
// DISP=(NEW,CATLG),SPACE=(CYL,(1,1,10))
//SYSPRINT DD SYSOUT=*
/* SMF Input Files
//SMFIN001 DD DISP=SHR,DSN=PRODA.SMF.G4817V00
/* Command Input
//SYSIN DD *
* REPORT SET =HDBXDEMO
* Description=CICS PA Report Set
CICSPA SMFSTART(2012/12/12,00:00:00.00),
SMFSTOP(2012/12/12,22:00:00.00)
* REPORTS FOR SYSTEM=CICSPROD
* DESCRIPTION=HDB EXPORT DEMO
CICSPA IN(SMFIN001),
APPLID(CICSPROD),
LINECNT(60),
FORMAT(':','/'),
PRECISION(4),
HDB(OUTPUT(HDBL0001),LOAD(DAILYPER))
/*
/*
//CPADDCPY EXEC PGM=IEBGENER,COND=(8,LT,CICSPA)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//SYSUT2 DD SYSOUT=(*,INTRDR)
//SYSUT1 DD DATA,DLM=$$
//CICSPAHD JOB (ACCOUNT),'CICSPA HDB LOAD'
//DSNUPROC EXEC PGM=DSNUTILB,REGION=0M,
// PARM='DB2P'
//STEPLIB DD DISP=SHR,DSN=DB2.PROD.SDSNLOAD
// DD DISP=SHR,DSN=DB2.PROD.SDSNEXIT
//SYSPRINT DD SYSOUT=*
//UTPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSUT1 DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
//SORTOUT DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
//SYSIN DD *
LOAD DATA RESUME YES
INTO TABLE CPADB.CPA_DAILYPER (
START_DATE POSITION(1) DATE EXTERNAL(10),
.
.
.
)
/*
$$
// DD DISP=SHR,DSN=CICSPA.HDB.CONTDSN(DAILYPER)

```

Figure 381. JCL for HDB load followed by export to DB2

- 1** To ensure integrity of the data loaded into DB2, the data set to which the HDB Load writes HDB container data set names is deleted at the start of every HDB Load job that includes the DB2 table load.

- 2 The HDB Load step writes the list of created HDB container data set names (formatted as DD cards) to a member in the partitioned data set '&SYSUID.CICSPA.HDB.CONTDSN', where &SYSUID is the user ID of the user generating the JCL and the member name is the name of the HDB being loaded.

If the HDB Load fails to create containers (due to an error, or because no records were selected), then this PDS member will contain the single DD card:

```
//SYSREC DD DUMMY
```

This card is used as input to the DB2 Load Utility. If the DB2 table load option REPLACE is selected, then the result is an empty DB2 table. This DUMMY card is required to avoid the IEBGENER job step error failing the whole job. This is particularly important in cases where the job loads multiple DB2 tables.

- 3 The IEBGENER job step inserts the contents of the PDS member (generated by the earlier HDB Load step) in-stream, for use by the DB2 Load Utility (DSNUTILB).

The IEBGENER job step will not be submitted if the HDB Load step (ddname CICSPA) terminates with a return code greater than 8. This ensures that DB2 table loads are submitted in cases where one or more HDB Loads were successful while others were not. A return code greater than 8 indicates a serious error that is likely to affect the whole job.

Load Recap report

Successful completion of the Load request will generate a Recap report.

The Recap report provides details about the HDB Load including a list of the

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CICS Performance Analyzer
HDB Load Recap Report

HDBL0001 Printed at 9:28:48 12/13/2012 Data from 09:02:00 12/12/2004 to 16:29:00 12/12/2004 Page 1

LOAD requested for HDB: CICSWEEK Repository DSN: CICSPROD.CICSPA.XYX.REPOSTRY

The following Container(s) were created and loaded:

| | |
|---|-------------------------------------|
| Container DSN: CICSPA.HISTORY.CICSWEEK.D12347.T092846.HDB | No of Records: 54,567 |
| Start Time Stamp: 2012-12-12-09.00.00 | End Time Stamp: 2012-12-12-16.00.00 |

LOAD process complete.

Figure 382. HDB Load Recap report

container data sets created by the Load process. In this example, CICS PA created container data set CICSPA.HISTORY.CICSWEEK.D12347.T092846.HDB. It contains 54,567 records for the period 00:00am to 10:00pm on December 12, 2012.

HDB Reporting

After you have loaded data into an HDB it is then eligible for reporting.

Select option 4 **Report** from the HDB menu to display a list of HDBs for reporting.

```

File Options Help
-----
                                HDB Reporting                                Row 1 to 5 of 5
Command ===> _____ Scroll ===> CSR_

Select to run report.

Name      Type      Description      Changed      ID
S  CICSDAY LIST    Today's CICS Transactions  2004/12/11 00:00 CICSPA
S  CICSWEEK SUMMARY Weekly CICS Transactions  2004/12/11 00:00 CICSPA
-  CPUTREND SUMMARY Transaction CPU Usage Trend  2004/12/11 00:00 CICSPA
-  PRODRESP SUMMARY Production Transaction Response  2004/12/11 00:00 CICSPA
-  FCHIST  SUMMARY File Request History  2004/12/11 00:00 CICSPA
***** End of list *****

F1=Help  F3=Exit  F7=Backward  F8=Forward  F10=Actions  F12=Cancel

```

Figure 383. HDB reporting

Enter line action **S** to select an HDB for reporting.

You can select multiple HDBs to report in succession.

SORT and **LOCATE** commands are available to help you work with the list of HDBs.

If you select a Performance (List or Summary) HDB, CICS PA prompts you to specify run-time options, then builds the JCL to run the report against your HDB.

If you select a Statistics HDB, CICS PA prompts you to choose between online reporting or Statistics Alert batch reporting.

Run List HDB report

Select the HDB for reporting. The run-time prompt panel is displayed. This is an example of a request for a List HDB report.

```

File Options Help
-----
                                Run LIST HDB Report - CICSDAY
Command ===> _____

Specify Report request options then press Enter to continue submit.

Report Format:      ----- Report Interval -----
Report Form  . . _____ +          YYYY/MM/DD  HH:MM:SS.TH
                                     From 2004/11/30 _____
                                     To   2004/12/01 _____

Enter "/" to select option
/ Edit JCL before submit

HDB contains data from 2004/12/01 08:03 to 2004/12/13 08:13

F1=Help  F3=Exit  F4=Prompt  F6=Resize  F10=Actions  F12=Cancel

```

Figure 384. Run List HDB report

This panel is displayed before CICS PA generates the JCL to run the report and shows the time period spanned by the data in the HDB.

Optionally, specify the following run-time options:

Report Form

The name of a Report Form to be used to tailor the format and content of

the HDB report. The Report Form must be a compatible type to the HDB. For a List HDB, either a LIST or LISTX Report Form. To select the name from a list of compatible Report Forms, press **Prompt** (F4).

CICS PA JCL generation translates the Report Form specification into the `FIELDS` operand.

If a Report Form is not specified, a report showing all fields in the HDB is produced.

Precision

The precision of numeric fields. Numeric fields can be formatted to either 4, 5, or 6 decimal places. The default is 4.

- 4 decimal places is 0.0001 precision
- 5 decimal places is 0.00001 precision
- 6 decimal places is 0.000001 microsecond precision

This option generates the `PRECISION(n)` global operand.

Report Interval

Specify a date/time range or a *time slot* (times only) to filter the HDB input data based on the SMF record time stamp. HDB records with a time stamp within the specified From–To interval are processed by CICS PA, otherwise they are ignored.

Note: Do not confuse this with the Selection Criteria From–To report intervals which apply to transaction start and stop times.

The From–To date and time fields are all optional. They are blank initially (for no filtering), but thereafter display the reporting period that was previously saved.

Date is either a calendar date in your preferred format or a relative date. **Time** is a time-of-day. (The same edit rules apply as for the Selection Criteria Report Interval.)

Relative dates are specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both Start and Stop dates are specified, they must be in the same format.

For a date/time range:

- Either From or To can be omitted to indicate that the range is open-ended.
 - If From is omitted, it defaults to the first input record
 - If To is omitted, it defaults to the end of file.
- If From date is specified with no time, the start of day is assumed.
 - If To date is specified with no time, the end of day is assumed.

For a time slot, both times must be present with no dates to signify the same time slot every day. The times can span midnight.

The specified date/time range is included in the generated JCL under the `//SYSIN DD` statement:

```
CICSPA SMFSTART(-nn|yyyy/mm/dd, hh:mm:ss.th),  
        SMFSTOP(-nn|yyyy/mm/dd, hh:mm:ss.th)
```

Edit JCL before submit

Select with a / to edit the JCL before submit. CICS PA will generate the JCL and display it in an ISPF Edit session. You can review or modify the JCL using the usual ISPF Edit commands and actions, or you can use the `CREATE` command to save the JCL in an external data set.

Then to submit the job, enter **SUBmit** in the Edit command line.

If this option is not selected, the generated JCL is not displayed and the job is submitted immediately.

When you have specified your report options, press **Enter** to continue submit. You are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your report request.

Select a Report Form

To tailor the format of the HDB report, select a Report Form. Press **Prompt** (F4) from the Form field on the Run Report panel. Only Forms of compatible type are listed. The following example shows a list of available List Report Forms for a List HDB report.

```
File Help
-----
Report Forms          Row 1 to 3 of 3
Command ==> _____ Scroll ==> PAGE

Select a Report Form then press Enter.

Name      Type      Description
. LISTFRM1 LIST    List Report Form
. RESPLIST LIST    List Report Form
S  TRANLIST LIST    List Report Form
***** End of list *****
```

Figure 385. Select a Report Form (LIST Example)

This panel displays the Report Forms defined in the current Report Forms data set. Only Report Forms of a compatible type to the type of HDB are presented:

- List HDB - LIST Form
- Summary HDB - SUMMARY Form

To select a Report Form, enter line action **S** (or point-and-shoot).

Run Performance Summary HDB report

Select the required HDB for reporting and the run-time prompt panel is displayed. This is an example of a request for a Summary HDB report.

```

File  Options  Help
-----
                        Run SUMMARY HDB Report - CICSWEEK
Command ==>> _____

Specify Report request options then press Enter to continue submit.

Report Format:
Report Form . . _____ +
                                ----- Report Interval -----
                                YYYY/MM/DD  HH:MM:SS.TH
                                From 2004/12/07 09:00:00.00
                                To   2004/12/07 16:00:00.00

Processing Options:
Time Interval . . . 00:01:00
Totals Level . . . 8 (blank or 0-8)
Precision . . . . . 6

Enter "/" to select option
/ Edit JCL before submit

HDB contains data from 2004/12/07 09:00 to 2004/12/07 16:00.

F1=Help   F3=Exit   F4=Prompt  F6=Resize  F10=Actions  F12=Cancel

```

Figure 386. Run Summary HDB report

This panel is displayed before CICS PA generates the JCL to run the report and shows the time period spanned by the data in the HDB.

The run-time options are the same as those that apply to the List HDB report (see “Run List HDB report” on page 655), with the following additional options:

Time Interval

Specify an optional Time Interval when reporting Summary HDBs. If you leave it blank, the default is the Time Interval used to create the data (as defined in the Template). You can specify any interval greater than or equal to the Template Interval. For example, if you are reviewing many days worth of data then you might specify 24:00:00 (24 hours) so that you can view the daily trend. In this example the Interval has been changed to 1 hour.

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

- 1 becomes 00:01:00
- 1.1 becomes 00:01:00 (rounded down from 00:01:01)
- 1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

This option generates the INTERVAL(hh:mm:ss) operand.

Totals Level

This option applies only to the Summary report. Leave blank if you do not want to include total lines in the report. This generates the NOTOTALS operand.

Specify a number between 1 and 8 to accumulate subtotals for up to 8 sort fields, print the subtotals when the sort field changes, and print a grand

total at the end of the report. This generates the TOTALS(n) operand where n is a value between 1 and 8. Default: 8

Specify 0 for no subtotals, but print only the grand total. This generates the TOTALS(0) operand.

Precision

The precision of numeric fields. Numeric fields can be formatted to either 4, 5, or 6 decimal places. The default is 4.

- 4 decimal places is 0.0001 precision
- 5 decimal places is 0.00001 precision
- 6 decimal places is 0.000001 microsecond precision

This option generates the PRECISION(n) global operand.

When you have specified your Report options, press **Enter** to continue submit. You are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your report request.

Performance HDB report JCL

If you selected **Edit JCL before submit** then the Report HDB JCL is displayed in an edit session.

```
EDIT          JCH.SPFTEMP2.CNTL                      Columns 00001 00072
Command ==> SUB                                     Scroll ==> CSR_
***** ***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 /*  CICS PA V5R1 HDB Report JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DISP=SHR,DSN=CPA.V5R1M0.SCPALINK
000005 //CPAHDBRG DD DISP=SHR,DSN=CICSPROD.CICSPA.XYX.REPOSTRY
000006 //SYSPRINT DD SYSOUT=*
000007 /* Command Input
000008 //SYSIN DD *
000009 * HDB=CICSWEEK
000010 * Description=Weekly CICS Transactions
000011     CICSPA SMFSTART(2004/12/07,09:00:00.00),
000012           SMFSTOP(2004/12/07,16:00:00.00)
000013     CICSPA NOAPPLID,
000014           LINECNT(60),PRECISION(4),
000015           FORMAT(':','/'),
000016     HDB(OUTPUT(HDBR0001),REPORT(CICSWEEK),
000017           NOTOTALS,
000018           INTERVAL(01:00:00))
000019 /*
000020 /* HDB Container Data Sets. HDB Report processing does not require
000021 /* these data sets to be included in the JCL as they are dynamically
000022 /* allocated when required. They are included:
000023 /* 1) for your reference
000024 /* 2) to ensure that all required data sets are cataloged
000025 /* 3) to allow DFHSM to recall required data sets up front
000026 //HDB00001 DD DISP=SHR,DSN=CICSPA.HISTORY.CICSWEEK.D03219.T092846.HDB
***** ***** Bottom of Data *****
```

Figure 387. Edit JCL for Summary HDB report

The HDB container data sets are listed at the end of the JCL. They are not required here because the CICS PA batch reporting utility will dynamically allocate the data sets when they are required. CICS PA adds the data sets into the JCL primarily for the purpose of DFHSM recall, if required. It is more efficient to recall data sets in the JCL (where job initiation can recall migrated data sets en masse) rather than one at a time when dynamically allocated.

The command deck specifies operands to report against HDB CICSWEEK:

HDB(OUTPUT(HDBR0001),REPORT(CICSWEEK))

Enter **SUBmit** in the command line to submit the job to run the report.

Performance HDB report output

Successful completion of the Report request will generate an HDB Summary report.

```
V5R1M0
```

CICS Performance Analyzer
Historical Database Summary

HDBR0001 Printed at 12:03:45 04/17/2013 Data from 09:00:00 12/07/2004 to 16:00:00 12/07/2004 Page 1

| Start Interval | MVS | APPLID | Tran | #Tasks | Avg Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | Avg FC Wait Time | Avg IR Wait Time | Avg SC24UHHM | Avg SC31UHHM |
|------------------|------|----------|------|--------|-------------------|-------------------|-------------------|------------------|-------------------|------------------|------------------|--------------|--------------|
| 2004/12/07 09:00 | MVS1 | CICSPROD | ABRA | 1 | .2729 | .0009 | .0006 | .2720 | .0000 | .0000 | .2719 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | ASIX | 2 | .2184 | .0009 | .0006 | .2175 | .0000 | .0000 | .2175 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | ATRA | 1 | 1.6067 | .0008 | .0005 | 1.6058 | .0000 | .0000 | 1.6057 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | BLIX | 1 | .0845 | .0008 | .0005 | .0836 | .0000 | .0000 | .0835 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | CRVI | 1 | .0004 | .0004 | .0000 | .0000 | .0000 | .0000 | .0000 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | CSMI | 2 | .0107 | .0006 | .0004 | .0101 | .0000 | .0000 | .0101 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | DEBT | 1 | .0038 | .0006 | .0004 | .0032 | .0000 | .0000 | .0031 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | OPIC | 1 | .0236 | .0008 | .0006 | .0227 | .0000 | .0000 | .0227 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | RESU | 1 | .0341 | .0009 | .0006 | .0332 | .0000 | .0000 | .0332 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | RGYM | 1 | .0056 | .0010 | .0007 | .0046 | .0000 | .0000 | .0045 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | T050 | 2 | .0296 | .0009 | .0006 | .0288 | .0000 | .0000 | .0286 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | T096 | 1 | .0398 | .0012 | .0005 | .0386 | .0001 | .0000 | .0385 | 0 | 0 |
| 2004/12/07 09:00 | MVS1 | CICSPROD | XYLO | 1 | .0010 | .0009 | .0001 | .0001 | .0000 | .0000 | .0000 | 11600 | 16368 |

Figure 388. HDB Summary report (no totals)

Run Statistics HDB Alerts report

Select the required statistics HDB, and then select Alert batch reporting from the pop-up menu. The run-time prompt panel is displayed. This is an example of a request for a Statistics HDB Alerts report.

```
File Options Help
-----
Run Statistics HDB Alerts Report - TGDEVT
Command ==>> _____

Specify run options then press Enter.

Alert . . . . . _____ +          ----- Report Interval -----
                                     YYYY/MM/DD  HH:MM:SS.TH
From 2004/12/07 09:00:00.00
To   2004/12/07 16:00:00.00

Report Sorted By:                    Filter Criteria:
- APPLID                               Type . . _ EOD _ USS _ RRT
- List _ Summary                       _ INT _ REQ
- Alert
- List _ Summary                       Enter "/" to select option
- Collection Time                       / Edit JCL before submit
- Statistics Interval
- Resource

HDB contains data from 2004/12/07 09:00 to 2004/12/07 16:00.
```

Figure 389. Run Statistics HDB Alerts report

This panel is displayed before CICS PA generates the JCL to run the report and shows the time period spanned by the data in the HDB.

The Statistics HDB and Statistics Alert definition that you use for this report must be stored in the same Repository (an HDB reporting job can specify only one Repository).

Most of the options are similar to the equivalent panel for requesting a Statistics Alert report in a Report Set, against SMF files. For details, see “Statistics Alert reports” on page 220.

The **Report Sorted By** option offers the same choices as the corresponding option in a Report Set, except that here you can select more than one choice: each selection generates a separate report. In a Report Set, you can request multiple Statistics Alert reports, but each request can specify only a single sort order.

The other options are:

Report Interval

Specify a date/time range or a *time slot* (times only) to filter the HDB input data based on the SMF record time stamp. HDB records with a time stamp within the specified From–To interval are processed by CICS PA, otherwise they are ignored.

The From–To date and time fields are all optional. They are blank initially (for no filtering), but thereafter display the reporting period that was previously saved.

Date is either a calendar date in your preferred format or a relative date. **Time** is a time-of-day.

Relative dates are specified as 0, -1, -2,... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both Start and Stop dates are specified, they must be in the same format.

For a date/time range:

- Either From or To can be omitted to indicate that the range is open-ended.
 - If From is omitted, it defaults to the first input record
 - If To is omitted, it defaults to the end of file.
- If From date is specified with no time, the start of day is assumed. If To date is specified with no time, the end of day is assumed.

For a time slot, both times must be present with no dates to signify the same time slot every day. The times can span midnight.

The specified date/time range is included in the generated JCL under the //SYSIN DD statement:

```
CICSPA SMFSTART(-nn|yyyy/mm/dd, hh:mm:ss.th),  
        SMFSTOP(-nn|yyyy/mm/dd, hh:mm:ss.th)
```

Edit JCL before submit

Select with a / to edit the JCL before submit. CICS PA will generate the JCL and display it in an ISPF Edit session. You can review or modify the JCL using the usual ISPF Edit commands and actions, or you can use the CREATE command to save the JCL in an external data set.

Then to submit the job, enter **SUBmit** in the Edit command line.

If this option is not selected, the generated JCL is not displayed and the job is submitted immediately.

When you have specified your Report options, press **Enter** to continue submit. You are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your report request.

HDB Export to DB2 tables

After you have loaded data into an HDB it is then eligible for export to DB2.

Summary HDB data is the most commonly used for performance reporting. It is already summarized by time.

List HDB data is typically used to drill down to isolate performance problems or for ad-hoc reporting. Take care when exporting List HDBs into DB2. The volume of data can be high, resulting in a table that is too large to manage.

Select option 5 **Export** from the HDB menu to export HDB data into a DB2 table.

```
File Explorer Options Help
-----
                                HDB Exporting                Row 1 to 5 of 5
Command ==> _____ Scroll ==> CSR_

Select to export HDB to DB2.

  Name      Type      Description                Changed      ID
- - - - -
S CICSDAY  LIST      Today's CICS Transactions   2004/12/11 00:00 CICSPA
- CICSWEEK SUMMARY  Weekly CICS Transactions   2004/12/11 00:00 CICSPA
- CPUTREND SUMMARY  Transaction CPU Usage Trend 2004/12/11 00:00 CICSPA
- PRODRESP SUMMARY  Production Transaction Response 2004/12/11 00:00 CICSPA
- FCHIST   SUMMARY  File Request History       2004/12/11 00:00 CICSPA
***** End of list *****

F1=Help  F3=Exit  F7=Backward  F8=Forward  F10=Actions  F12=Cancel
```

Figure 390. HDB exporting

Export HDB

Select the required HDB to display its list of container data sets.

```
File Options Help
-----
                                Export SUMMARY HDB - CICSWEEK        Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR_

Select to export HDB data sets to DB2.

Name . . : CICSP1

  Data Set Name                ----- Start ----- Volume
S CICSPA.HISTORY.CICSWEEK.D03219.T092846.HDB 2004/12/07 09:00:00 USER01
***** End of list *****

F1=Help  F3=Exit  F7=Backward  F8=Forward  F10=Actions  F12=Cancel
```

Figure 391. Export HDB

This is the list of container data sets in the HDB.

Enter line action **S** to select one or more container data sets to export to DB2.

Enter line action **T** to define the DB2 table without selecting the HDB and container. See "Creating DDL to define a DB2 table" on page 663 for details.

Export HDB Data Set

CICS PA can export several container data sets at a time. Select the data sets that contain the data in the required time range to be exported into DB2.

```
File  Options  Help
-----
Export HDB Data Set
Command ==> _____

HDB Name . . . : CICSWEEK
Data Set Name . : CICSPA.HISTORY.CICSWEEK.D03219.T092846.HDB

Select option
1 1. Create DDL to define table      2. Load data into table
_

Create Options                      Load Options
_ Create Database                    1 1. Resume
_ Create Storage Group              2. Replace

DB2 Settings:
DB2 Subsystem ID . . . DB2P
DSNTIAD Plan Name . . DSNTIA91
DB2 Load Library . . . 'DB2.V910.SDSNLOAD' _____
DB2 Exit Library . . . 'DB2.V910.SDSNEXIT' _____
DB2 RUNLIB Library . . 'DB2.V910.RUNLIB.LOAD' _____
Database . . . . . CICSPA__ Storage Group . . SYSDEFLT
VCAT Catalog name . . USER__ Volume . . . . . DA0001
Allocation: Primary  20_____ Secondary . . . . 20_____

Include Clock Field Components      Summary Options
1 1. Time and Count                 / Include Sums of Squares
  2. Time only
  3. Count only

F1=Help      F3=Exit      F7=Backward  F8=Forward  F10=Actions  F12=Cancel
```

Figure 392. Export HDB Data Set

Exporting HDB data into DB2 is a two-step process, controlled by the **Select Option**.

1. Create the DDL to define the DB2 table. See “Creating DDL to define a DB2 table.”
2. Load the data. “Loading data into the DB2 table” on page 665.

You can then use your favorite DB2 query tool to analyze the data. Chapter 23, “Analyzing HDB DB2 Export data,” on page 687

Creating DDL to define a DB2 table

JCL is built that contains the CREATE TABLE statement required to define the DB2 table for this HDB data set. The HDB name is used as the table name, however you can change this by editing the JCL.

The options are:

Create Options

Select **Create Database** if you want the CREATE TABLE statement to be preceded by a CREATE DATABASE statement to define the DB2 database. You might need to ask your DB2 administrator to do this for you if you do not have sufficient authority.

Select **Create Storage Group** if you want the CREATE TABLE statement to be preceded by a CREATE STOGROUP statement to define the DB2 Storage Group.

DB2 Settings

Specify the required DB2 settings for your environment. CICS PA only provides a basic facility to load data into DB2. It does not provide any management or reporting capabilities once the data is in DB2.

If you omit any DB2 settings, CICS PA will insert parameter markers such as <setting> in the JCL stream.

CICS PA uses DSNTIAD, the sample Dynamic SQL program to run the DDL that defines the table.

The options are:

DB2 Subsystem ID

The DB2 Subsystem ID to be used to for the Export function.

DSNTIAD Plan Name

The Plan name for the dynamic SQL program (DSNTIAD), for example DSNTIA91.

DB2 Load Library

The DB2 SDSNLOAD Load Library data set name.

DB2 Exit Library

The DB2 SDSNEXIT Exit Library data set name.

DB2 RUNLIB Library

The DB2 RUNLIB.LOAD Application Load Library data set name.

Database

The DB2 Database name that is to contain the tables.

Note: The Database name will be replaced by the qualifier if a Qualifier has been specified in the HDB definition.

Storage Group

The DB2 Storage Group name for the DB2 Table Spaces.

VCAT Catalog name

Identifies the integrated catalog facility catalog for the storage group.

Volume

Defines the volume of the storage group.

Primary Allocation

Specifies the minimum primary space allocation (PRIQTY) for DB2-managed data sets.

Secondary Allocation

Specifies the minimum secondary space allocation (SECQTY) for DB2-managed data sets.

Include Clock Field Components

CMF performance class Clock fields accumulate data for both their count and time components in the HDB. You have a choice as to which components to load into DB2. For example, selecting **Time only** will load the time component but not the count component. Time only is sufficient for most analysis requirements.

For an HDB that is intended to be used in the CICS PA plug-in for CICS Explorer, this option must be set to "1. Time and Count".

Summary Options

Specify **Include Sums of Squares** to load sum-of-square values into the DB2 Table. CICS PA always loads the Total. This allows you to calculate averages. Sums of Squares are required to calculate standard deviation and peak percentiles. Totals (and not Sums of Squares) is sufficient for most analysis requirements.

This option must not be selected for an HDB that is intended to be used in the CICS PA plug-in.

Review the JCL and then submit it to create the DB2 table.

Review the job output in SDSF to verify that the table was created successfully.

Loading data into the DB2 table

JCL is built that contains the DB2 Load Utility statement required to load the HDB data set into the DB2 table that was defined in the previous step.

CICS PA uses the DB2 Load Utility to load data into the table.

The options are:

Load Options

Select **Resume** if you want the DB2 Load Utility to resume loading data into the table. Typically, this is appropriate for Summary HDBs.

Select **Replace** if you want the DB2 Load Utility to replace data already loaded in the table. Typically, this is appropriate for List HDBs.

Review the JCL and then submit it to load the DB2 table.

Review the job output in SDSF to verify that the table was created successfully.

HDB Extract to CSV

After you have loaded data into an HDB it is then eligible for extract to CSV data sets.

Select option 6 **Extract** from the HDB menu to request an HDB extract..

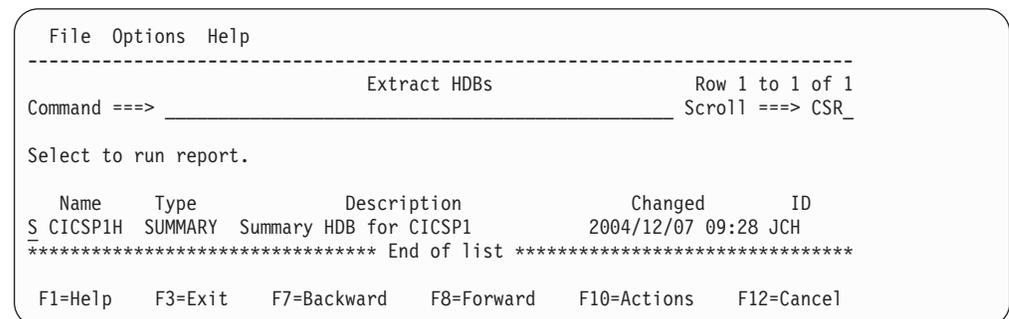


Figure 393. HDB Extract

Select the required HDB from the list to display the Run Extract panel.

```

Run SUMMARY HDB Extract - CICSP1H
Command ==> _____
Specify Extract request options then press Enter to continue submit.

----- Report Interval ----- HDB contains data
      YYYY/MM/DD HH:MM:SS.TH   in the range:
From 2004/12/15 _____ 2004/11/17 05:17   Extract Recap:
To   2004/12/16 _____ 2005/01/17 21:31   DDname . . . HXTS0001

Output Data Set:
Data Set Name . . HDB.EXTRACT _____
Disposition . . . 1 1. OLD 2. MOD (If cataloged)

Extract Format:
Form . . . . . _____ +   Enter "/" to select option
Delimitter . . . . ;         /  Include Field Labels
                             _  Numeric Fields in Float format

Processing Options:
Time Interval . . 01:00:00 (hh:mm:ss) / Edit JCL before submit
Precision . . . . 4 (4-6)

F1=Help   F3=Exit   F4=Prompt   F6=Resize   F12=Cancel

```

Figure 394. Run Summary HDB Extract

The options are:

Report Interval

Specify the reporting time range. You can specify an explicit date, such as 2004/12/15, or a relative date to indicate today (0), yesterday (-1), two days ago (-2), and so on. Adjacent is the time range of data contained in this HDB. If you specify a Report Interval, then it must be within this range otherwise the extract request will fail.

Extract Recap DDname

The DDname for the Recap report which prints at the end of extract processing to provide processing statistics. The DDname is mandatory.

CICS PA assigns a default DDname **HXTS0001**.

This option generates the OUTPUT(ddname) operand.

Output Data Set

The name of the data set where the extract records are written. When specifying the data set name, standard TSO conventions apply.

If CICS PA is to create the data set at run time, the default allocation attributes specified on the Reporting Allocation Settings panel are used in generating the JCL. If the data set is already cataloged, then CICS PA will use DISP=OLD or DISP=MOD according to your request to overwrite or append to the existing data set.

CICS PA generates the DDNAME(ddname) operand and assigns a default DDname **HDBX0001**.

Disposition

This option applies if the extract data set you specified is already cataloged.

Select option **1 - OLD** to overwrite the data set contents with the new extract data.

Select option **2 - MOD** to append the new extract data.

Report Form

Specify a Report Form to tailor the format of the extract records. If you do not specify a Form, CICS PA will write all the fields in the HDB in order.

Delimiter

Specify the field delimiter to be used to separate each data field in the extract data set. The default is a semicolon and generates the DELIMIT(';') operand.

Include Field Labels

Select this option to indicate that the first record to be written to the extract data set is to be a field labels record. This is the default and generates the LABELS operand.

Leave blank if you do not want a field labels record written to the extract data set. This generates the NOLABELS operand.

Numeric Fields in Float format

Select this option if you want CICS PA to write numeric fields to the extract data set in S390 FLOAT format. This generates the FLOAT operand. Specify FLOAT format if you plan to import the extract into a DB2 table. When the DB2 Load Utility is used, it will interpret all numerical fields reliably and consistently in FLOAT format.

If you do not select this option, the numeric fields are written in a mixture of integer, real and exponential using character digits. This is the default and is suitable when importing the extract data into a PC spreadsheet tool. This generates the NOFLOAT operand.

Time Interval

Specify an optional Time Interval when extracting Summary HDBs. The default is the Time Interval used to create the data (as defined in the Template). In our example, Template PRODSUM that was used to create the HDB data specified 15 minutes.

You can specify any interval greater than or equal to the Template Interval. For example, if you are reviewing many days worth of data then you might specify 24:00:00 (24 hours) so that you can view the daily trend. In the example panel in this topic, the Interval has been changed to 1 hour.

Precision

The precision of numeric fields. Numeric fields can be formatted to either 4, 5, or 6 decimal places. The default is 4.

- 4 decimal places is 0.0001 precision
- 5 decimal places is 0.00001 precision
- 6 decimal places is 0.000001 microsecond precision

This option generates the PRECISION(n) global operand.

When you have specified your Extract options, you are prompted to **Press ENTER to proceed with request**. This provides a last opportunity to review and change your request details.

If you selected **Edit JCL before submit** then the Extract HDB JCL is displayed in an edit session.

```

EDIT          userid.SPFTEMP2.CNTL                      Columns 00001 00072
Command ==> _____ Scroll ==> CSR_
***** ***** Top of Data *****
000001 //CICSPA JOB ,NOTIFY=&SYSUID
000002 /* CICS PA V5R1 HDB EXTRACT JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DISP=SHR,DSN=CPA.V5R1M0.SCPALINK
000005 //CPAHDBRG DD DISP=SHR,DSN=CICSPROD.CICSPA.XYX.REPOSTRY
000006 //SYSPRINT DD SYSOUT=*
000007 //HDBX0001 DD DSN=userid.HDB.EXTRACT,
000008 //          DISP=(OLD)
000009 /* Command Input
000010 //SYSIN DD *
000011 * HDB=CICSP1H
000012 * Description=Summary HDB for CICSP1H
000013          CICSPA SMFSTART(2004/12/15,00:00:00.00),
000014          SMFSTOP(2004/12/16,00:00:00.00)
000015          CICSPA NOAPPLID,
000016          LINECNT(60),
000017          FORMAT(':','/'),
000018          PRECISION(4),
000019          HDB(DDNAME(HDBX0001),EXTRACT(CICSP1H),
000020          OUTPUT(HXTS0001),LABELS,DELIMIT(';'),NOFLOAT,
000021          INTERVAL(01:00:00))
000022 /*
000023 /* HDB Container Data Sets. HDB Report processing does not require
000024 /* these data sets to be included in the JCL as they are dynamically
000025 /* allocated when required. They are included:
000026 /* 1) for your reference
000027 /* 2) to ensure that all required data sets are cataloged
000028 /* 3) to allow DFHSM to recall required data sets up front
000029 //HDB00001 DD DISP=SHR,DSN=userid.CICSP1H.D03219.T092846.HDB
***** ***** Bottom of Data *****

```

Figure 395. Edit JCL for Summary HDB Extract

The HDB container data sets are listed at the end of the JCL. They are not required here because the CICS PA batch utility will dynamically allocate the data sets when they are required. CICS PA adds the data sets into the JCL primarily for the purpose of DFHSM recall, if required. It is more efficient to recall data sets in the JCL (where job initiation can recall migrated data sets en masse) rather than one at a time when dynamically allocated.

The command deck specifies operands to extract records from HDB CICSP1H, write them to the extract data set with DDname HDBX0001, and write the Recap report output to the DDname HXTS0001:

```
HDB(DDNAME(HDBX0001),EXTRACT(CICSP1H),OUTPUT(HXTS0001),...)
```

Enter **SUBmit** in the command line to submit the job to run the report.

Successful completion of the Extract request will generate an HDB Summary Extract Recap report.

```

V5R1M0                      CICS Performance Analyzer
                             Historical Database Summary
HXTS0001 Printed at 12:03:45 04/17/2013   Data from 15:00:00 12/15/2004 to 00:00:00 12/16/2004   Page      1

HDBX0001 Extract has completed successfully
Data Set Name . . . . userid.HDB.EXTRACT
Record count . . . .      788

```

Figure 396. HDB Summary Extract Recap report

The extract data set contains records like those in the following example.

```

Start Date;Start Time;MVS;APPLID;Tran;#Tasks;Response Time Avg;Dispatch Time Avg;User CPU Time Avg;Suspend Time
2004/12/15 15:00:00;MV2C ;IYK3ZAC1;CSHQ ; 1;55155.62; .2103; .0212;55155.41; .0331; .0001;
2004/12/15 15:00:00;MV2C ;IYK3ZAC1;CSNC ; 1;55159.06; .3379; .0041;55158.72; .0356; .0001;
2004/12/15 15:00:00;MV2C ;IYK3ZAC1;CSNE ; 1;55153.97; .0881; .0060;55153.88; .0042; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV1;CEX2 ; 1;50237.83; .5030; .2717;50237.33; .1800; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV1;CSHQ ; 1;50234.95; .3105; .0190;50234.64; .5761; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV1;CSNC ; 1;50393.54; .4259; .0058;50393.12; .0026; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV1;CSNE ; 1;50389.87; .1321; .0177;50389.74; .0074; .0001;
2004/12/15 18:00:00;MV2C ;IYK2ZFFV2;CEX2 ; 1;50241.24; .2630; .1828;50240.98; .2255; .0001;

```

Figure 397. HDB Summary Extract record format

Tailoring the HDB extract format

The format of the extract records can be changed by specifying a Report Form. The process for HDB Extract is the same as applying a Report Form to an HDB Report. For more information, see “SUMMARY Report Form” on page 315.

Analyzing the extract data

After HDB data has been loaded into an extract data set in CSV format, you can use your favorite PC spreadsheet tool, such as Lotus Symphony Spreadsheets or Microsoft Excel, to analyze the data. See Chapter 24, “Analyzing CSV extract data,” on page 693 for examples of how to use such tools to analyze the data.

HDB Maintenance

Select option 7 **Maintenance** from the HDB menu to list defined HDBs and maintain your HDB environment. You can delete an HDB or change its options. You can maintain a manifest, which is used by the CICS PA plug-in to access historical performance data for related HDBs from CICS Explorer.

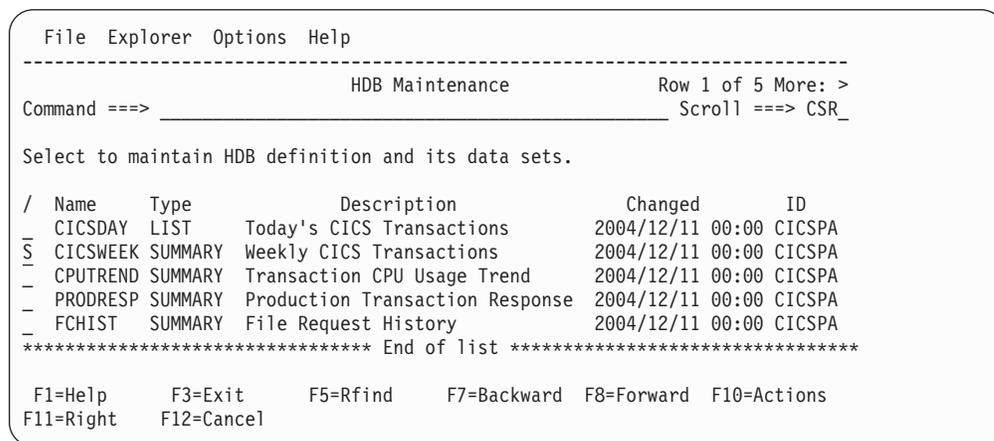


Figure 398. HDB Maintenance

Line Actions

- /** Display the selection list of line actions
- E** Edit (maintain) the HDB.
- S** Select the HDB (same as Edit).
- D** Delete the HDB. The HDB Definition is deleted immediately. The HDB data sets are deleted when Housekeeping is next run.
- A** Display the audit trail of load requests for the HDB. For details, see “HDB Load Audit” on page 672.
- T** Build JCL to create a DB2 table. For details, see “Create DB2 table” on page 675.

Primary Commands

SORT, **LOCATE**, and **FIND** commands are available to help you work with the list of HDBs.

Note: The **FIND** command is not applicable to the Qualifier and Explorer fields.

Maintain HDB definitions

Select an HDB from the list to review and update the options.

```
File Systems Options Help
-----
Command ==>> _____ Maintain HDB _____ More: >

Review and update HDB definition options then press EXIT to save.

Name . . . . . : CICSP1  Type SUMMARY  APPLID  CICSP1__ + Image _____
Qualifier . . . . : _____ Explorer
Description . . . : Summary HDB for CICSP1_____

Specify View . . 1 1. Options  2. Data Sets

HDB Format:                               Selection Criteria:
Template . . . PRODSUM_ +                 _ Performance

Data Retention Period:
HDB: Years 10_ Months ___ Weeks ___ Days ___ Hours ___
DB2: Years ___ Months ___ Weeks ___ Days ___ Hours ___

Data Set Allocation Settings:
DSN Prefix . . . . . USER_____
Management class . . . _____ (Blank for default management class)
Storage class . . . . . _____ (Blank for default storage class)
Volume serial . . . . . _____ (Blank for system default volume)
Device type . . . . . _____ (Generic unit or device address)
Data class . . . . . _____ (Blank for default data class)
Space Units . . . . . CYLS_____ (TRKS, CYLS)
Primary quantity . . 20_____ (In above units)
Secondary quantity  20_____ (In above units)

F1=Help  F3=Exit  F4=Prompt  F7=Backward  F8=Forward  F10=Actions
F11=Right F12=Cancel
```

Figure 399. Maintain HDB definition

Scroll **Right** (F11) to switch between the two views of HDB details:

1. The HDB Definition from where you can change the HDB options. The available options are the same as on the New HDB Definition panel. For more information, see “Define a Performance HDB” on page 644.
2. The list of HDB data sets that contain data for this HDB.

Press **Exit** to save your updates or **Cancel** to discard changes.

Maintain HDB data sets

Scroll **Right** (F11) to view the list of container data sets.

```

File Systems Options Help
-----
                                Maintain HDB                                Row 1 of 1 More: >
Command ==>> _____ Scroll ==>> CSR_

Maintain HDB data sets.

Name . . . . . : CICSP1  Type SUMMARY  APPLID  CICSP1__ + Image _____
Qualifier . . . : QQQQ      / Explorer
Description . . : Summary HDB for CICSP1_____

Specify View . . 2  1. Options  2. Data Sets  3. Volumes

/ Data Set Name                                     Start          Status
S CPAS10.XCTL.V680LIST.D12212.T162249.HDB          2012/07/21 09:48:54  HDB DB2
***** End of list *****
F1=Help  F3=Exit  F4=Prompt  F7=Backward  F8=Forward  F10=Actions
F11=Right F12=Cancel

```

Figure 400. Maintain HDB data sets

The HDB container data set details shown here are:

- The name of the data set.
- The time stamp of the first record in the data set.
- The status of the HDB container data set:
 - If delete pending, it is marked **Del**.
 - If the HDB retention period has been exceeded, it is marked **Exp** (expired).
 - If neither delete pending nor expired, it is marked **Act** (active).
- The status of DB2 table data associated with the HDB container data set:
 - If the DB2 retention period has been exceeded, it is marked **Exp** (expired).
 - If not all data has expired, it is marked **Pxp** (partially expired).
 - If neither delete pending nor expired, it is marked **Act** (active).
 - If the status is unavailable (because the DB2 retention period is not specified), it is marked **n/a**.

Data sets and DB2 data marked Del or Exp are physically deleted when Housekeeping is next run.

Scroll **Right** (F11) to view the VOLSER where the data set resides, if active.

Line Actions

- /** Display the selection list of line actions.
- S** Select the HDB data set to view status information, as shown in Figure 401 on page 672.
- B** Browse the data set using ISPF Browse.
- D** Delete the HDB data set. The data set is deleted in the HDB now, and physically deleted when HDB Housekeeping is next run.
- U** Undo. Reverse an earlier Delete action and reinstate the data set as active in this HDB. Undo is only available on a Deleted data set until Housekeeping is run.

View HDB data set statistics

The HDB Data Set panel displays details about the HDB container data set:

- The name of the data set and VOLSER where it resides.
- The status of the data set: either Active, Expired, or Deleted.
- The date the Load HDB was run and the data set was created.
- The expiry date of the HDB data set determined by the HDB retention period. The expiry date is blank if the data set is deleted.

- The time period spanned by the records in the data set.
- The number of records in the data set.
- The status of the DB2 data: either Active, Expired, Pexpired (partially expired), or n/a.
- The expiry date of the DB2 data determined by the DB2 retention period.

```

HDB Data Set
Command ==> _____
Data Set Name . . . : CPA510.XCTL.V680LIST.D12212.T162249.HDB
VOLSER . . . . . : USER01

HDB Status . . . . : Deleted
Creation Date . . . : 2012/07/30 16:22:55
Expiry Date . . . . :

Data Start . . . . : 2012/07/21 09:48:54
Data End . . . . . : 2012/07/22 17:05:24
Record Count . . . : 503

DB2 Status . . . . : Expired
DB2 Expiry Date . . : 2012/07/23 17:05:24

F1=Help  F3=Exit  F6=Resize F12=Cancel

```

Figure 401. View HDB data set statistics

HDB Load Audit

From the Maintain HDBs list, enter line action A to display the audit details for a particular HDB.

The Load Audit Trail lists the SMF Files used to load data into the HDB, and the status of those requests.

```

File Edit Options Help
-----
HDB Load Audit Trail Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE

SMF Data Set Name      ----- Start ----- Status
S CPPX.CICS620.PMR52938.SMFDATA      2004/11/17 09:05:27 OK
- CPPX.V140.SMF0818                  0000/00/00 00:00:00 FAILED
***** Bottom of data *****

```

Figure 402. HDB Load Audit Trail

The Audit details include:

SMF Data Set Name

The data set name of the SMF Input File used for the Load request.

Start The time stamp of the first record in the SMF File.

Status The status of the Load request, either OK (successful) or FAILED.

Reusing an SMF File that has been successfully loaded

When you load data from an SMF File into an HDB, CICS PA updates the load audit trail for that HDB, setting the status of the SMF File to OK (“data from this SMF File was successfully loaded into this HDB”). When the status is OK, CICS PA denies any subsequent requests to load data from the SMF File into the HDB. This protects you from loading duplicate data into the HDB. However, sometimes you

First SMF Record

The first 64 bytes of the first SMF record in the file. CICS PA uses this record to ensure that only one successful load request is run for this SMF File.

Maintain manifest

A manifest is a proprietary DB2 table that contains all the information required by the CICS PA plug-in for CICS Explorer to access and use historical data. The manifest is a catalog of DB2 tables for HDBs that are associated with the same qualifier and for which the Explorer indicator is set. The manifest for a given qualifier can be rebuilt at any time.

About this task

The manifest definition specifies the qualifier and the settings for the DB2 table that will contain the manifest.

Rebuild the manifest whenever you add or change an HDB in a way that affects its eligibility for inclusion in that manifest. For example, if an HDB is currently included in a manifest and you clear the Explorer option, it is no longer eligible for inclusion in that manifest. If you change the qualifier for an eligible HDB, you should rebuild both the manifest for the old qualifier and the manifest for the new qualifier.

In addition, the manifest will only contain entries for statistics reports with a status of Collect=Yes or Alt and DB2 Load=Yes. If these indicators are not set, the report will not be included in the manifest and therefore will not be accessible through the CICS PA plug-in. Therefore you should rebuild the manifest whenever any changes are made to the status of a report in an eligible Statistics HDB.

```
File Options Help
-----
Manifest Maintenance
Command ==> _____
Specify Qualifier for Manifest.
Qualifier . . . . . _____ _ Create Tablespace
Repository . . . . . : CICSPA.XYX.REPOSTRY
CICS versions (VRM):
Transaction Server . : 680
Transaction Gateway : 900
DB2 Settings:
DB2 Subsystem ID . . . _____
DSNTIAD Plan Name . . _____
DB2 Load Library . . . _____
DB2 Exit Library . . . _____
DB2 RUNLIB Library . . _____
Database . . . . . _____ Storage Group . . _____
VCAT Catalog name . . _____ Volume . . . . . _____
Allocation: Primary _____ Secondary . . . . . _____
F1=Help F3=Exit F7=Backward F8=Forward F10=Actions F12=Cancel
```

Figure 404. Manifest Maintenance

Procedure

1. Select **Explorer** -> **Manifest Maintenance** in the action bar on the HDB Export or Maintenance panel to create or update a manifest for a specified qualifier.
2. Type the name of a qualifier. The manifest table will be named *qualifier.CPA_MANIFEST*. HDBs that have the same qualifier and which are otherwise eligible will be included in this manifest.
3. When creating the first manifest, select Create Tablespace. The tablespace name is MANIFEST. On subsequent uses of Manifest Maintenance (either when creating a manifest for a new qualifier or recreating a manifest to add or delete HDBs) do not select Create Tablespace if it already exists in the specified DB2 Database.
4. Specify the settings for the DB2 table that will be used to store the manifest. For details, see “Creating DDL to define a DB2 table” on page 663.
5. Perform the following steps to create the manifest:
 - a. Press Enter. The panel prompts you to press Enter again to proceed.
 - b. Press Enter again. An edit panel appears, containing JCL to create the required DB2 table for the manifest.
 - c. Enter **sub** to submit the JCL. If you selected Create Tablespace, the DB2 tablespace (named MANIFEST) and the Database and Storage Group are created first.
6. Press the Exit key (F3) to save the manifest definition and return to the CICS PA panel.

Create DB2 table

JCL is built that defines the DB2 table. If the selected HDB definition contains a qualifier, it will be used instead of the Database value to prefix the table name.

About this task

This task explains how to create the DB2 table for an HDB Select option **5 Export** or option **7 Maintenance** from the HDB menu to list the defined HDBs. Specify the T line action against one of the HDBs to specify the DB2 Table details:

```

File Options Help
-----
                                Create DB2 Table
Command ==> _____

HDB Name . . . : HDB4CEXP

Create Options
_ Create Database
_ Create Storage Group

DB2 Settings:
DB2 Subsystem ID . . . _____
DSNTIAD Plan Name . . _____
DB2 Load Library . . . _____
DB2 Exit Library . . . _____
DB2 RUNLIB Library . . _____
Database . . . . . _____ Storage Group . . _____
VCAT Catalog name . . _____ Volume . . . . . _____
Allocation: Primary _____ Secondary . . . . _____

Include Clock Field Components          Summary Options
_ 1. Time and Count                      _ Include Sums of Squares
  2. Time only
  3. Count only
F1=Help      F3=Exit      F7=Backward F8=Forward F10=Actions F12=Cancel

```

Figure 405. Create DB2 Table

Procedure

1. Specify settings for exporting data from historical databases (HDBs) to DB2. For details of how to specify the Create Options, DB2 Settings, Include Clock Field Components, and Summary Options fields, see “Creating DDL to define a DB2 table” on page 663.
2. Review the JCL and then submit it to create the DB2 table.
3. Review the job output in SDSF to verify that the table was created successfully.

What to do next

Once the HDB data has been exported you can access it using the CICS PA plug-in or through DB2 SQL.

Housekeeping

Housekeeping for Statistics and Performance HDBs is performed in the same way.

Select option 8 **Housekeeping** from the HDB menu to reorganize and clean up your HDB environment.

```

                                HDB Housekeeping
Command ==> _____
Repository . : CICSPROD.CICSPA.XYX.REPOSTRY

Select one of the following options
1 1. Submit HDB Housekeeping JCL
_ 2. Repair Repository using VERIFY command

Enter "/" to select option
/ Edit JCL before submit

F1=Help   F3=Exit   F6=Resize  F12=Cancel

```

Figure 406. HDB Housekeeping

Use HDB Housekeeping to perform the following tasks:

1. Submit HDB Housekeeping JCL.

Run HDB Housekeeping periodically to delete expired HDB data sets and DB2 table rows and to reorganize the Repository.

2. Repair Repository using VERIFY command.

The IDCAMS VERIFY command is used to repair the end-of-data-set information in the VSAM Catalog for the Repository. Use repair if message IEC161I is being issued repeatedly. This condition is usually caused by an earlier HDB dialog or batch request that failed.

Chapter 22. Using the HDB commands

The Historical Database (HDB) facility is driven from the CICS PA dialog, but has associated batch processes:

1. Load HDB
2. HDB reporting
3. HDB extract to CSV
4. HDB export to DB2
5. HDB housekeeping

For these batch processes, CICS PA dialog generates the JCL and commands automatically, but you are given the opportunity to edit them before job submission. The jobs can also be run at a later time independent of the dialog.

The HDB commands are specified in the SYSIN DD statement. The format of the commands is consistent with other CICS PA commands. For more information, see “General command format” on page 377.

JCL for HDB load, report, extract

The following JCL is an example of the job stream for requesting HDB load or report processing. This is the same as the JCL for generating reports and extracts (see Figure 188 on page 361), but has the following additional statement specific to HDB processing:

CPAHDBRG DD

This DD statement identifies the Repository data set. The Repository is a VSAM KSDS that is the repository for all definitions associated with the HDB.

```
//CPAHDBP JOB (Job Accounting)
//*
//CICSPA EXEC PGM=CPAMAIN,PARM='UPPER'
//STEPLIB DD DSN=CICSPA.V5R1M0.SCPALINK,DISP=SHR
//CPAHDBRG DD DSN=USER.CICSPA.XYX.REPOSTRY,DISP=SHR
//SYSPRINT DD SYSOUT=*
//* SMF Files for APPLID=CICSP
//SMFIN001 DD DSN=CICS.APPL1.FILE1,DISP=SHR
// DD DSN=CICS.APPL1.FILE2,DISP=SHR,UNIT=AFF=SMFIN001
//SYSIN DD *
* HDB=CICSP1H
* Description=Summary HDB for CICSP1
  CICSPA SMFSTART(2004/12/01,),
          SMFSTOP(2004/12/02,)
* HDB Load for APPLID=CICSP1
  CICSPA IN(SMFIN001),
          APPLID(CICSP1),
          HDB(OUTPUT(HDBL0001),LOAD(CICSP1H)),
          HDB(OUTPUT(HDBR0001),REPORT(CICSP1H))
/*
/* Dictionary records
//CPADICTR DD DISP=SHR,DSN=CICSPA.CICSP1.DICT
```

Figure 407. JCL for HDB load and report processing

HDB Loading

The **HDB(LOAD...)** operand requests CICS PA to load CMF performance data from SMF data sets into an HDB.

The command format is:

```
CICSPA HDB(LOAD(hdbname),  
          [OUTPUT(ddname)])
```

The options are:

LOAD

Specifies the name of the HDB to be loaded. The HDB must be defined in the Repository (DDname **CPAHDBRG**).

OUTPUT

Recap report output file name. CICS PA records the results of the Load operation in this File. If not specified, CICS PA assigns a DDname of **HDBLnnnn** where nnnn is the numerical sequence number **0001-9999**.

Note: LOAD ignores any additional HDB request operands, including FIELDS and SELECT. Load processing uses:

1. The Template to determine which fields are contained in the HDB. It does not use the FIELDS operand.
2. Selection Criteria specified in the HDB definition and its Template. It does not use the SELECT operand.

HDB Reporting

The **HDB(REPORT)** operand requests CICS PA to generate reports from performance HDB data.

The command format is:

```
CICSPA HDB(REPORT(hdbname),  
          [OUTPUT(ddname),]  
          [NOTOTALS|TOTALS(n),]  
          [SUFACTOR(hdbname(nnnnn.nnn)),]  
          [INTERVAL(hh:mm:ss),]  
          [FIELDS(field1[(options)],...),]  
          [LINECount(nnn),]  
          [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...),]  
          [SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))])
```

The options are:

REPORT

Specifies the name of the performance HDB to report against. The HDB must be defined in the Repository (DDname **CPAHDBRG**).

OUTPUT

Report output file name. See "OUTPUT" on page 384 for further information. If not specified, CICS PA assigns a DDname in the format **HDBRnnnn** where nnnn is the report sequence number **0001-9999** to uniquely identify the output.

NOTOTALS | TOTALS(n)

The totals level applies only to the Summary report.

Specify TOTALS(1) to TOTALS(8) to accumulate subtotals for up to 8 sort fields, print the subtotals when the sort field changes, and print a grand total at the end of the report. Default: **TOTALS(8)**

Specify TOTALS(0) for no subtotals, but print only the grand total.

Specify NOTOTALS for neither subtotals nor grand total.

SUFACTOR

Specifies a CPU SU conversion factor to apply to the HDB records. The SUFACTOR operand includes two keywords to identify the HDB name and its associated conversion factor. The value must be a decimal number or integer in the range 1 - 999999999 (nine 9s).

INTERVAL

This operand applies to Summary HDBs. It specifies a time interval when the report summarizes transaction activity over time. The interval is in the range 1 second to 24 hours in the format *hh:mm:ss* for hours, minutes, and seconds. The HDB Summary data is already summarized by time. You can omit the INTERVAL operand to use the data's interval, or specify an interval that is longer than the data interval. For example, specify 00:15:00 if you want to summarize transaction activity over 15 minute intervals.

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

1 becomes 00:01:00

1.1 becomes 00:01:00 (rounded down from 00:01:01)

1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

FIELDS

Specifies which fields are reported, the order in which they appear in the report, and their summarization presentation. Only fields that are specified in the HDB Template can be specified. Fields not contained in the HDB are reported as **Missing**.

When reporting from a Summary HDB, the options for specifying fields are similar to the options for a Performance Summary report. For details, see "SUMMARY(FIELDS" on page 421.

When reporting from a List HDB, the options for specifying fields are similar to the options for a Performance List report. For details, see "LIST(FIELDS" on page 398.

LINECount

Controls the number of lines per page in the HDB report. See "LINECount" on page 386 for further information.

SELECT, SELECT2

Specifies what data to include or exclude from the report based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

Only fields that are specified in the HDB Template can be specified. Select Fields not contained in the HDB will cause selection to fail and reporting will skip the record. SELECT and SELECT2 can both be specified to perform record filtering. The CICS PA dialog generates SELECT2 statements in the command deck when you use a Report Form that has active Selection Criteria. If both SELECT and SELECT2 are specified, then the record must pass selection by both specifications for it to be included in the report.

Statistics HDB Alerts Reporting

The **HDB(STATSALERT)** operand requests CICS PA to generate Statistics Alert reports from statistics HDB data.

The command format is:

```
CICSPA HDB(STATSALERT(hdbname),
           [OUTPUT(ddname),]
           [EXTERNAL(ddname),]
           STALTDEF(statistics-alert-definition),
           [BY(APPLID[(LIST,SUMMARY)] |
             ALERT[(LIST,SUMMARY)] |
             COLLECT |
             INTERVAL |
             RESOURCE),]
           [TYPE(EOD,INT,USS,REQ,RRT)])
```

The Statistics HDB and Statistics Alert definition that you use for this report must be stored in the same Repository (an HDB reporting job can specify only one Repository).

Except for the STATSALERT operand itself (which specifies the Statistics HDB to be used), the options are the same as the options for the CICS PA STATSALERT operand to generate Statistics Alert reports from SMF data. For details, see "STATSALERT - Statistics Alert reports" on page 489.

HDB Extract to CSV

The **HDB(EXTRACT)** operand requests CICS PA to generate CSV extracts from HDB data.

The command format is:

```
CICSPA HDB(EXTRACT(hdbname),
           [OUTPUT(ddname),]
           [DDNAME(ddname),]
           [STATnnnn(ddname),]
           [HSTGnnnn(ddname),]
           [DELIMIT('field-delimiter'),]
           [LABELS|NOLABELS,]
           [FLOAT,]
           [SUFACTOR(hdbname(nnnnn.nnn)),]
           [INTERVAL(hh:mm:ss),]
           [FIELDS(field1[(options)],...),]
           [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...)),]
           [SELECT2(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),...))])
```

The options are:

EXTRACT

Specifies the name of the HDB from which to extract data. The HDB must be defined in the Repository (DDname **CPAHDBRG**).

OUTPUT

Specifies the DDname for the Recap report output. If not specified, the CICS PA dialog assigns a DDname in the format **HXTS0001** to uniquely identify the output.

DDNAME (performance HDBs only)

Specifies the DDname for the performance extract data set. Dialog default: **HDBX0001**

STATnnnn, HSTGnnnn (statistics HDBs only)

Specifies the DDname for the extract data set for each statistics report that you want to extract, where nnnn is the statistics ID. **STATnnnn** identifies a CICS Transaction Server statistics report; **HSTGnnnn** identifies a CICS Transaction Gateway statistics report. For example, **HSTG000A(TGCMCSV)** instructs CICS PA to extract CICS Transaction Gateway Connection Manager statistics report data to the extract data set identified by the DDname **TGCMCSV**. Dialog default: DDname matches keyword; for example, **STAT010A(STAT010A)**.

DELIMIT

Specifies the field delimiter, enclosed in quotes, to be used to separate each data field in the extract data set. The default is a semicolon **DELIMIT(';')**.

LABELS | NOLABELS

LABELS indicates that the first record to be written to the extract data set is to be a field labels record. This is the default.

NOLABELS indicates that CICS PA is not to write a field labels record to the extract data set.

FLOAT (performance HDBs only)

Write numeric fields in the extract in S390 **FLOAT** format.

Specify **FLOAT** format if you plan to import the extract into a DB2 table. When the DB2 Load Utility is used, it will interpret all numerical fields reliably and consistently in **FLOAT** format.

If **FLOAT** is not specified, the numeric fields are written in a mixture of integer, real and exponential using character digits. This is the default and is suitable when importing the extract data into a PC spreadsheet tool.

SUFACTOR

Specifies a CPU SU conversion factor to apply to the HDB container. The **SUFACTOR** operand includes two keywords to identify the HDB name and its associated conversion factor. The value must be a decimal number or integer in the range 1 - 999999999 (nine 9s).

INTERVAL

This operand applies to Summary HDBs. It specifies a time interval when the extract summarizes transaction activity over time. The interval is in the range 1 second to 24 hours in the format *hh:mm:ss* for hours, minutes, and seconds. The HDB Summary data is already summarized by time. You can omit the **INTERVAL** operand to use the data's interval, or specify an interval that is longer than the data interval. For example, specify **00:15:00** if you want to summarize transaction activity over 15 minute intervals.

A time interval of less than one hour must fit evenly into the hour. CICS PA will round it down to the nearest interval that aligns to the hour. For example, 1.35 is reduced to 00:01:30 minutes which will produce 40 interval report lines for each hour of data.

A time interval of more than one hour must fit evenly into the day. CICS PA will round it down to the nearest interval that aligns to the day. For example, 10.30.23 is reduced to 08:00:00 hours which will produce 3 interval report lines for each day of data.

Minutes take precedence for an abbreviated entry. For example:

- 1 becomes 00:01:00
- 1.1 becomes 00:01:00 (rounded down from 00:01:01)
- 1.1.1 becomes 01:00:00 (rounded down from 01:01:01)

FIELDS

Specifies which fields are extracted, the order in which they appear in the extract, and their summarization presentation. Only fields that are specified in the HDB Template can be specified. Fields not contained in the HDB are written as **Missing**.

SELECT, SELECT2

Specifies what data to include or exclude from the extract based on data field values. See "Using SELECT statements" on page 516 for an explanation and examples.

Only fields that are specified in the HDB Template can be specified. Select Fields not contained in the HDB will cause selection to fail and extract will skip the record. SELECT and SELECT2 can both be specified to perform record filtering. The CICS PA dialog generates SELECT2 statements in the command deck when you use a Report Form that has active Selection Criteria. If both SELECT and SELECT2 are specified, then the record must pass selection by both specifications for it to be included in the extract.

HDB Export to DB2

The CICS PA dialog can generate JCL to define DB2 tables and then export HDBs to those tables. This JCL uses utilities supplied with DB2: DSNTIAD to define tables, and DSNUTILB to load tables.

You can export an HDB to DB2 either:

- In the same job in which you load the HDB with SMF data
- or
- In an export-only job, some time after loading the HDB

For an example of JCL that loads an HDB and exports to DB2 in the same job, see Figure 381 on page 653.

HDB Housekeeping

The **HDB(HKEEP)** operand requests CICS PA to perform housekeeping on the Repository (DDname **CPAHDBRG**). Housekeeping deletes expired HDB container data sets and DB2 data and removes definitions from the Repository that are no longer required.

The command format is:

```
CICSPA HDB(HKEEP)
```

Note: There is a second function available in HDB housekeeping, **Repair Repository using VERIFY command**. This is available only from the CICS PA dialog.

JCL for HDB housekeeping

The following JCL is an example of the job stream for requesting HDB housekeeping.

```
//CPAHDBK JOB (Job Accounting)
//*
//CICSPA EXEC PGM=CPAMAIN,PARM='UPPER'
//STEPLIB DD DSN=CICSPA.V5R1M0.SCPALINK,DISP=SHR
//CPAHDBRG DD DSN=USER.CICSPA.XYX.REPOSTRY,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
        CICSPA HDB(HKEEP)
/*
//CPAHKDEL DD DSN=&CPAHKDEL,DISP=(NEW,PASS),
//          UNIT=DASD,
//          SPACE=(CYL,(1,1))
//*
//DELETE EXEC PGM=IDCAMS,COND=(0,NE,HKEEP)
//SYSPRINT DD SYSOUT=*
//SYSIN DD DSN=&CPAHKDEL,DISP=(OLD,DELETE)
//*
/* DELETE EXPIRED DB2 TABLE ROWS
//RUNTIAD EXEC PGM=IKJEFT01,DYNAMNBR=20
//STEPLIB DD DISP=SHR,DSN=DB2.SDSNLOAD
//          DD DISP=SHR,DSN=DB2.SDSNEXIT
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD *
        DSN SYSTEM(DB2P)
        RUN PROGRAM(DSNTIAD) -
            LIB('DB2.RUNLIB.LOAD') PLAN(DSNTIAD)
/*
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN DD *
DELETE FROM CPAX.CPA_TRANTLST
WHERE
    START_DATE < '2012-12-29' or
    (START_DATE = '2012-12-29' AND START_TIME <= '12.00.00');
COMMIT;
/*
```

Figure 408. JCL for HDB housekeeping

Note that the data sets and DB2 data are deleted by subsequent job steps.

HDB examples

This example shows you how to use one command to request a List HDB load and report, and a Summary HDB load and report. Sample output is also shown.

```
CICSPA IN(SMFIN001),
        HDB(OUTPUT(HDBL0001),LOAD(LIST01)),
        HDB(OUTPUT(HDBR0001),REPORT(LIST01)),
        HDB(OUTPUT(HDBL0002),LOAD(SUMMARY2)),
        HDB(OUTPUT(HDBR0002),REPORT(SUMMARY2))
```

V5R1M0 CICS Performance Analyzer
HDB LOAD Recap Report
HDBL0001 Printed at 12:03:45 04/17/2013 Data from 15:41:19 12/13/2004 to 16:19:11 12/13/2004 Page 1

LOAD requested for HDB: LIST01 Repository DSN: CPPX.CICSPA.XYX.REPOSTRY

The following Container(s) were created and loaded:
Container DSN: SKU.LIST01.D03223.T142645.HDB No of Records: 119
Start Time Stamp: 2004-12-13-15.41.19.025360 End Time Stamp: 2004-12-13-16.19.11.850894

LOAD process complete.

Figure 409. List HDB Load Recap report

V5R1M0 CICS Performance Analyzer
Historical Database List
HDBR0001 Printed at 12:03:45 04/17/2013 Data from 15:41:28 12/13/2004 Page 1

| Start Time | MVS | APPLID | Tran | Userid | Program | TaskNo | Response Time | Dispatch Time | User CPU Time | Suspend Time | DispWait Time | FC Wait Time | FCAMRq | IR Wait Time |
|--------------|------|----------|------|----------|----------|--------|---------------|---------------|---------------|--------------|---------------|--------------|--------|--------------|
| 15:41:28.649 | P390 | CICS53A1 | CPLT | CICSUSER | DFHSIPLT | 6 | .5196 | .1771 | .0316 | .3425 | .3422 | .0000 | 0 | .0000 |
| 15:41:29.598 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 15 | .4595 | .0036 | .0033 | .4558 | .0000 | .0000 | 0 | .0000 |
| 15:41:29.604 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 16 | .9663 | .0069 | .0088 | .9594 | .0795 | .0000 | 0 | .0000 |
| 15:41:29.610 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 17 | 4.0131 | .1379 | .0311 | 3.8752 | 1.7449 | .0000 | 0 | .0000 |
| 15:41:29.570 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 12 | 4.2133 | .1621 | .0494 | 4.0511 | 2.5906 | .0000 | 0 | .0000 |
| 15:41:29.191 | P390 | CICS53A1 | CGRP | CICSUSER | DFHZCGRP | 11 | 5.1156 | .1956 | .0603 | 4.9199 | 1.9401 | .0000 | 0 | .0000 |
| 15:41:29.591 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 14 | 4.7978 | .1880 | .0652 | 4.6098 | 2.3487 | .0000 | 0 | .0000 |
| 15:41:29.178 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 10 | 5.2738 | 1.4746 | .2259 | 3.7992 | .6720 | .0000 | 0 | .0000 |
| 15:41:29.177 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 9 | 5.3366 | .7647 | .1494 | 4.5719 | 1.6657 | .0000 | 0 | .0000 |
| 15:41:29.590 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 13 | 5.2787 | .7009 | .1740 | 4.5778 | 2.0694 | .0000 | 0 | .0000 |
| 15:42:24.011 | P390 | CICS53A1 | CLQ2 | CICSUSER | DFHLUP | 19 | 7.2473 | .2907 | .0416 | 6.9566 | 1.9555 | .0000 | 0 | 3.7840 |
| 15:41:29.172 | P390 | CICS53A1 | CSSY | CICSUSER | DFHAPATT | 111 | 74.6388 | 48.6230 | 18.0249 | 26.0158 | 7.7521 | .6756 | 1506 | .0000 |
| 15:42:43.395 | P390 | CICS53A1 | CLR2 | CICSUSER | DFHLUP | 20 | .4513 | .0130 | .0128 | .4383 | .0215 | .0000 | 0 | .4363 |

Figure 410. List HDB report

V5R1M0 CICS Performance Analyzer
HDB LOAD Recap Report
HDBL0002 Printed at 12:03:45 04/17/2013 Data from 15:41:00 12/13/2004 to 16:19:00 12/13/2004 Page 1

LOAD requested for HDB: SUMMARY2 Repository DSN: CPPX.CICSPA.XYX.REPOSTRY

The following Container(s) were created and loaded:
Container DSN: SKU.SUMMARY2.D03323.T142648.HDB No of Records: 70
Start Time Stamp: 2004-12-13-15.41.00 End Time Stamp: 2004-12-13-16.19.00

LOAD process complete.

Figure 411. Summary HDB Load Recap report

V5R1M0 CICS Performance Analyzer
Historical Database Summary
HDBR0002 Printed at 12:03:45 04/17/2013 Data from 15:41:00 12/13/2004 to 16:19:00 12/13/2004 Page 1

| Start Interval | MVS | APPLID | Tran | #Tasks | Avg Response Time | Avg Dispatch Time | Avg User CPU Time | Avg Suspend Time | Avg DispWait Time | Avg FC Wait Time | Avg FCAMRq | Avg IR Wait Time | Avg SC24UHM |
|------------------|------|----------|------|--------|-------------------|-------------------|-------------------|------------------|-------------------|------------------|------------|------------------|-------------|
| 2004/12/13 15:41 | P390 | CICS53A1 | CGRP | 1 | 5.1156 | .1956 | .0603 | 4.9199 | 1.9401 | .0000 | 0 | .0000 | 0 |
| 2004/12/13 15:41 | P390 | CICS53A1 | CPLT | 1 | .5196 | .1771 | .0316 | .3425 | .3422 | .0000 | 0 | .0000 | 0 |
| 2004/12/13 15:41 | P390 | CICS53A1 | CSSY | 9 | 11.6642 | 5.7846 | 2.0813 | 5.8796 | 2.1025 | .0751 | 167 | .0000 | 0 |
| 2004/12/13 15:41 | P390 | CICS53A1 | | 11 | 10.0557 | 4.7668 | 1.7113 | 5.2890 | 1.9277 | .0614 | 137 | .0000 | 0 |
| 2004/12/13 15:41 | P390 | CICS53T1 | CGRP | 1 | 5.4980 | .7931 | .0613 | 4.7049 | 3.7141 | .0000 | 0 | .0000 | 0 |
| 2004/12/13 15:41 | P390 | CICS53T1 | CPLT | 1 | .3939 | .0782 | .0325 | .3158 | .3149 | .0000 | 0 | .0000 | 0 |
| 2004/12/13 15:41 | P390 | CICS53T1 | CSSY | 9 | 11.1753 | 5.7900 | 2.0359 | 5.3853 | 2.5363 | .2112 | 167 | .0000 | 0 |
| 2004/12/13 15:41 | P390 | CICS53T1 | | 11 | 9.6790 | 4.8164 | 1.6743 | 4.8626 | 2.4415 | .1728 | 137 | .0000 | 0 |
| 2004/12/13 15:41 | P390 | | | 22 | 9.8674 | 4.7916 | 1.6928 | 5.0758 | 2.1846 | .1171 | 137 | .0000 | 0 |
| 2004/12/13 15:41 | | | | 22 | 9.8674 | 4.7916 | 1.6928 | 5.0758 | 2.1846 | .1171 | 137 | .0000 | 0 |
| 2004/12/13 15:42 | P390 | CICS53A1 | CLQ2 | 1 | 7.2473 | .2907 | .0416 | 6.9566 | 1.9555 | .0000 | 0 | 3.7840 | 0 |
| 2004/12/13 15:42 | P390 | CICS53A1 | CLR2 | 1 | .4513 | .0130 | .0128 | .4383 | .0215 | .0000 | 0 | .4363 | 0 |
| 2004/12/13 15:42 | P390 | CICS53A1 | CRSQ | 1 | .7659 | .0740 | .0247 | .6919 | .6893 | .0000 | 0 | .0000 | 0 |
| 2004/12/13 15:42 | P390 | CICS53A1 | CSFU | 1 | .3998 | .3770 | .0234 | .0228 | .0184 | .0000 | 0 | .0000 | 0 |
| 2004/12/13 15:42 | P390 | CICS53A1 | CSHQ | 1 | 2188.102 | 2.5956 | .2007 | 2185.506 | .4205 | .0000 | 0 | .0000 | 0 |

Figure 412. Summary HDB report

Chapter 23. Analyzing HDB DB2 Export data

After HDB data has been loaded into DB2, you can use your favorite DB2 query tool to analyze the data.

This chapter describes the format of the HDB data fields and gives examples that show you how to use QMF™ SQL queries to analyze the data.

For more information on working with DB2, see the *DB2 UDB for z/OS Administration Guide*.

Field formats

CICS PA saves data in its container data sets in a format suitable for loading directly into DB2 tables. Field data saved in the container data set depends on its CMF data type and the HDB type.

The following tables outline the various data types and how data is saved for each type of HDB.

List HDB fields

Table 15. Format of List HDB fields

| CMF Data Type | DB2 Data Type | Field Length |
|--------------------------------|---|---|
| T – Time stamp (see note 1) | TIMESTAMP 'YYYY-MM-DD-HH.MM.SS.THMIJU' | 26 |
| C – Character | CHAR(n) | Same as CMF field length. For example, TRAN has length 4. |
| A – Counter | INT | 4 |
| P – Packed | INT | 4 |
| S – Clock | TIME component is FLOAT COUNT component is INT | 8 4 |
| Other Clocks (see note 2) | FLOAT | 8 |

Summary HDB fields

Table 16. Format of Summary HDB fields

| CMF Data Type | DB2 Data Type | Field Length |
|--------------------------------|---|---|
| T – Time stamp (see note 1) | Date component is DATE: 'YYYY-MM-DD' One-byte separator is '-' Time component is TIME: 'HH.MM.SS' | 10 1 8 |
| C – Character | CHAR(n) | Same as CMF field length. For example, TRAN has length 4. |
| A – Counter (see note 3) | Two FLOAT numbers: Total Sum of Squares | 8 8 |

Table 16. Format of Summary HDB fields (continued)

| CMF Data Type | DB2 Data Type | Field Length |
|------------------------------------|-----------------------------|--------------|
| P – Packed (see note 3) | Two FLOAT numbers: | |
| | Total | 8 |
| | Sum of Squares | 8 |
| S – Clock | TIME is two FLOAT numbers: | |
| | Total | 8 |
| | Sum of Squares | 8 |
| | COUNT is two FLOAT numbers: | |
| | Total | 8 |
| | Sum of Squares | 8 |
| Other Clocks (see note 2) | Two FLOAT numbers: | |
| | Total | 8 |
| | Sum of Squares | 8 |
| TASKCNT TASKCNT (see note 4) | FLOAT | 8 |

Note:

1. Time stamp fields are loaded differently for List and Summary HDBs. List HDB time stamps are loaded as a full **TIMESTAMP**. Summary HDB time stamps are broken down into their **DATE** and **TIME** components. This provides more flexibility to summarize data over time.
2. “Other Clocks” include special fields like **RESPONSE** (response time) which are derived from other fields (**RESPONSE** = **STOP** minus **START**).
3. For summary HDBs, CICS PA keeps 2 accumulators for count and clock fields; **Total** and **Sum of Squares**. **Total** is used to calculate average. **Sum of Squares** is used to calculate standard deviation and peak percentiles.
4. **TASKCNT** and **TASKCNT** are special counters in the Summary HDB. **TASKCNT** is the number of transactions (tasks) that were accumulated to build this summary record. **TASKCNT** is the number of Task Termination records. Either **TASKCNT** or **TASKCNT** is used to calculate the average of count and clock fields.

Time precision

CICS PA stores time fields in **FLOAT** format in units of seconds and a precision of micro-seconds. For example, if the accumulated response time total in a Summary HDB is 10.202122 and the task count (**TASKCNT** field) for this interval is 20, then the average response time is $10.202122/20=0.510106$ seconds.

SQL queries for Summary HDB

Summary tables contain data exported from a Summary HDB. Summary tables are the most commonly used for performance reporting.

Simple query

Summary tables are already summarized (by time), so a basic query does not require any scalar functions. The following query lists selected fields in the summary table:

```

SELECT TRAN,
       INT(TASKCNT)           AS TASKCNT,
       DEC(RESPONSE_TIME,8,2) AS RESPONSE_TIME,
       DEC(CPU_TIME,8,2)      AS CPU_TIME,
       DEC(SUSPEND_TIME,8,2)  AS SUSPEND_TIME,
       DEC(DISPATCH_TIME,8,2) AS DISPATCH_TIME
FROM   CICSPA.CICSP1H

```

This query produces output like the following:

| TRAN | TASKCNT | RESPONSE TIME | CPU TIME | SUSPEND TIME | DISPATCH TIME |
|------|---------|------------------|-------------|-----------------|------------------|
| CSOL | 1 | 1887.43 | 16.00 | 9.00 | 16.00 |
| CSMT | 1 | 1887.22 | 16.00 | 9.00 | 16.00 |
| FICX | 1 | 0.00 | 1.00 | 1.00 | 1.00 |
| SU4B | 1 | 0.07 | 625.00 | 625.00 | 625.00 |
| CWBG | 1 | 0.00 | 1.00 | 1.00 | 1.00 |
| BIC2 | 1 | 0.00 | 1.00 | 1.00 | 1.00 |
| BIC2 | 1 | 0.00 | 1.00 | 1.00 | 1.00 |
| AP77 | 1 | 1.17 | 3969.00 | 3969.00 | 3969.00 |
| CAMA | 1 | 0.01 | 25.00 | 25.00 | 25.00 |
| CKPT | 4 | 0.56 | 2313.00 | 2313.00 | 2313.00 |
| CM99 | 1 | 0.01 | 1.00 | 1.00 | 1.00 |
| CNA7 | 9 | 0.47 | 180.00 | 180.00 | 180.00 |
| CNB0 | 3 | 0.17 | 891.00 | 891.00 | 891.00 |

Figure 413. Simple SQL query against Summary DB2 table

Grouping by APPLID

The following query summarizes all transactions that ran yesterday, grouping by APPLID.

```

SELECT APPLID,
       INT(SUM(TASKCNT))           AS TASK_COUNT,
       DEC(SUM(CPU_TIME),16,4)     AS TOTAL_CPU,
       DEC(SUM(CPU_TIME)/SUM(TASKCNT),5,4) AS AVE_CPU,
       DEC(SUM(RESPONSE_TIME)/SUM(TASKCNT),5,4) AS AVE_RESPONSE
FROM   CICSPA.CICSPX
WHERE  START_DATE = CURRENT_DATE - 1 DAY
GROUP BY APPLID
ORDER BY APPLID

```

This query produces output like the following:

| APPLID | TASK COUNT | TOTAL CPU | AVE CPU | AVE RESPONSE |
|---------|---------------|--------------|------------|-----------------|
| CICSP1 | 900 | 10.1467 | 0.0112 | 0.1520 |
| CICSP2 | 520 | 1.0163 | 0.0019 | 0.1647 |
| CICSP3 | 972 | 6.4394 | 0.0066 | 0.0882 |
| CICSP4 | 36 | 0.6607 | 0.0183 | 0.2049 |
| CICSP5 | 504 | 5.7875 | 0.0114 | 0.1400 |
| CICSP6 | 504 | 5.6444 | 0.0111 | 0.1202 |
| CICSP7 | 504 | 5.7117 | 0.0113 | 0.1021 |
| CICSP8 | 540 | 6.1050 | 0.0113 | 0.1508 |
| CICSP9 | 540 | 5.9684 | 0.0110 | 0.1515 |
| CICSP10 | 180 | 1.6885 | 0.0093 | 0.1451 |

Figure 414. SQL query grouping yesterday's transactions by APPLID

Calculating averages

Averages are calculated by dividing the field value by the task count (TASKCNT).

The following query calculates the average response time.

```
SELECT TRAN,
       INT(SUM(TASKCNT))                AS "Task Cnt",
       DEC(SUM(RESPONSE_TIME),8,4)     AS "Response Time Tot",
       DEC(SUM(RESPONSE_TIME)/SUM(TASKCNT),8,4) AS "Response Time Ave"
FROM CICSPA.CICSP1H
GROUP BY TRAN
ORDER BY TRAN
```

This query produces output like the following:

| TRAN | Task Cnt | Response Time Tot | Response Time Ave |
|------|----------|-------------------|-------------------|
| APN8 | 3 | 2.1231 | 0.7077 |
| AP01 | 27 | 0.9987 | 0.0369 |
| AP02 | 42 | 10.3802 | 0.2471 |
| AP04 | 4 | 1.2992 | 0.3248 |
| CATA | 19 | 0.5517 | 0.0290 |
| CATD | 19 | 0.4133 | 0.0217 |
| CKBP | 1297 | 148.2471 | 0.1143 |
| CMNE | 2 | 1.3765 | 0.6882 |
| CMNK | 2 | 0.5178 | 0.2589 |
| CMN1 | 2 | 0.4091 | 0.2045 |
| CMOB | 8 | 2.7378 | 0.3422 |

Figure 415. SQL query calculating average response time

Calculating standard deviation

Standard Deviation is a statistical estimate of the amount of variation in numerical values. The higher the standard deviation the more variation in the values. CICS PA requires the Sum of Squares to be loaded into the DB2 table to calculate standard deviation.

The following example calculates the standard deviation of response time. The CASE statement shows the function required to calculate standard deviation.

```
SELECT TRAN,
       INT(SUM(TASKCNT))                AS TASKCNT,
       DEC(SUM(RESPONSE_TIME),8,6)     AS RESPONSE_TIME_TOT,
       DEC(SUM(RESPONSE_TIME)/SUM(TASKCNT),8,6) AS RESPONSE_TIME_AVG,
       CASE WHEN (SUM(TASKCNT) > 1) THEN
         DEC(SQRT(((SUM(TASKCNT)*SUM(RESPONSE_TIME_SSQ))
                   -POWER(SUM(RESPONSE_TIME),2))
                /(SUM(TASKCNT)*(SUM(TASKCNT)-1))),10,4)
       ELSE 0
       END
       AS RESPONSE_TIME_DEV
FROM CICSPA.CICSP1H
GROUP BY TRAN
```

This query produces output like that shown in Figure 416 on page 691

| TRAN | TASKCNT | RESPONSE TIME TOT | RESPONSE TIME AVG | RESPONSE TIME DEV |
|------|---------|-------------------------|-------------------------|-------------------------|
| SGM | 1 | 0.418736 | 0.418736 | 0.0000 |
| ABAL | 3 | 0.002592 | 0.000864 | 0.0000 |
| ATRN | 7 | 0.007104 | 0.001014 | 0.0001 |
| AUTS | 1 | 0.000752 | 0.000752 | 0.0000 |
| BALA | 4 | 0.004016 | 0.001004 | 0.0004 |
| CATA | 2 | 0.006336 | 0.003168 | 0.0000 |
| CRSR | 5 | 0.001696 | 0.000339 | 0.0000 |
| CSGM | 1 | 0.000528 | 0.000528 | 0.0000 |
| CSMI | 11 | 0.009120 | 0.000829 | 0.0004 |
| CSSN | 2 | 0.001232 | 0.000616 | 0.0000 |
| DESC | 2 | 0.001280 | 0.000640 | 0.0000 |

Figure 416. SQL query calculating standard deviation of response time

Calculating peak percentile

Peak Percentile is a statistical estimate (based on the Normal Distribution) that provides an upper limit value of when nn% of tasks completed processing. For example 90% of transactions had a response time of 1 second or less. Peak Percentile allows you to measure whether workload targets are being met.

The following query calculates the 90% peak percentile of response time. The CASE statement shows the function required to calculate peak percentile.

```

SELECT TRAN,
       INT(SUM(TASKCNT))                AS TASK_COUNT,
       DEC(SUM(RESPONSE_TIME),8,6)     AS RESPONSE_TIME_TOT,
       DEC(SUM(RESPONSE_TIME)/SUM(TASKCNT),8,6) AS RESPONSE_TIME_AVE,
       CASE WHEN (SUM(TASKCNT) > 1) THEN
         DEC((1.282*SQRT(((SUM(TASKCNT)*SUM(RESPONSE_TIME_SQ))
           -POWER(SUM(RESPONSE_TIME),2))
           / (SUM(TASKCNT)*(SUM(TASKCNT)-1))))
           +SUM(RESPONSE_TIME)/SUM(TASKCNT),10,8)
       ELSE DEC(SUM(RESPONSE_TIME)/SUM(TASKCNT),10,8)
       END                               AS "RESPONSE_PEAK_90%"
FROM CICSPA.CICSP1H
GROUP BY TRAN
ORDER BY TRAN

```

This query produces output like the following:

| TRAN | TASK COUNT | RESPONSE TIME TOT | RESPONSE TIME AVE | RESPONSE PEAK 90% |
|------|---------------|-------------------------|-------------------------|-------------------------|
| ABAL | 3 | 0.002592 | 0.000864 | 0.00095340 |
| APOS | 4 | 0.003392 | 0.000848 | 0.00094987 |
| ASUM | 4 | 0.003488 | 0.000872 | 0.00092082 |
| AUTS | 1 | 0.000752 | 0.000752 | 0.00075200 |
| BALA | 4 | 0.004016 | 0.001004 | 0.00163763 |
| BDEP | 1 | 0.000704 | 0.000704 | 0.00070400 |
| CATA | 2 | 0.006336 | 0.003168 | 0.00316800 |
| CSMI | 11 | 0.009120 | 0.000829 | 0.00138661 |
| EORE | 3 | 0.004272 | 0.001424 | 0.00215297 |
| ERLE | 2 | 0.002336 | 0.001168 | 0.00148709 |
| MBOX | 1 | 0.000816 | 0.000816 | 0.00081600 |
| NEWS | 2 | 0.001952 | 0.000976 | 0.00138211 |

Figure 417. SQL query calculating 90% peak percentile of response time

Peak Percentiles are calculated using the formula:

Factor*Standard Deviation+Average

In the example, the Factor for 90% is 1.282. The following table shows the Factors for each 5 percentile above 50% (the average):

| | |
|-------|-----|
| 0.126 | 55% |
| 0.253 | 60% |
| 0.385 | 65% |
| 0.524 | 70% |
| 0.674 | 75% |
| 0.842 | 80% |
| 1.036 | 85% |
| 1.282 | 90% |
| 1.645 | 95% |

SQL queries for List HDB

List HDB data is typically used to drill down to isolate performance problems or for ad-hoc reporting.

Take care when exporting List HDBs into DB2. The volume of data can be high, resulting in a table that is too large to manage.

Top ten worst transaction times

The following query reports the top 10 worst response times:

```
SELECT TRAN,
       TIME(START)           AS "Start Time",
       DEC(RESPONSE_TIME,10,4) AS "Response Time",
       DEC(CPU_TIME,10,4)     AS "CPU Time",
       DEC(SUSPEND_TIME,10,4) AS "Suspend Time",
       DEC(DISPATCH_TIME,10,4) AS "Dispatch Time"
FROM CPADB.AORLIST
ORDER BY RESPONSE_TIME DESC
FETCH FIRST 10 ROWS ONLY
OPTIMIZE FOR 10 ROWS
```

This query produces output like the following:

| TRAN | Start Time | Response Time | CPU Time | Suspend Time | Dispatch Time |
|------|------------|---------------|----------|--------------|---------------|
| ---- | ----- | ----- | ----- | ----- | ----- |
| CSOL | 13.14.34 | 1887.6433 | 0.0004 | 1887.6428 | 0.0005 |
| CQRY | 14.26.57 | 11.1696 | 0.0008 | 11.1636 | 0.0060 |
| MV02 | 14.09.45 | 10.8949 | 0.0176 | 10.8724 | 0.0225 |
| TANS | 13.47.03 | 9.1463 | 0.3634 | 8.6515 | 0.4948 |
| TANS | 14.16.50 | 7.6264 | 0.3534 | 7.1469 | 0.4795 |
| MV14 | 14.25.33 | 6.0772 | 0.0216 | 6.0395 | 0.0377 |
| ADBQ | 12.00:40 | 4.0492 | 0.0023 | 0.0011 | 0.0012 |
| CDAA | 14.25.33 | 3.0232 | 0.0153 | 0.0120 | 0.0129 |
| BINS | 11.12.54 | 2.0112 | 0.0022 | 0.0221 | 0.0177 |
| CFIM | 12.11.31 | 1.0938 | 0.0153 | 0.0122 | 0.0032 |

Figure 418. SQL query listing top 10 worst response times

Chapter 24. Analyzing CSV extract data

An extract data file such as an HDB extract or Performance Data extract is a delimited text file that can be imported into PC spreadsheet or database tools for further reporting and analysis.

Importing into Lotus Symphony Spreadsheets

To import the extracted data into Lotus Symphony, follow these steps:

1. In Lotus Symphony, click **File > Open** from the main menu.
2. Select the .csv file to be opened. You might have to go to another folder or drive to find it.
3. Click **Open**. Lotus Symphony displays the Text Import window.
4. In the “Separator options” area, either choose one of the separator characters to indicate the delimiter, or type the delimiter character in the **Other** text box.
The preview area shows how the imported text will look after it is separated into columns.
5. Click **OK**. After a few seconds of processing, Lotus Symphony imports the data into records in the worksheet.

Importing into Lotus Approach

To import the extracted text file performance data set into Lotus Approach®, switch to the Approach Browse environment, and follow these steps:

1. In Approach, click the **Import** SmartIcon or choose **File - Import Data**. Approach opens the Import Data dialog box.
2. Select a text type of **Text - Delimited (*.TXT)**.
3. Select the file to be imported. You might have to go to another folder or drive to find it.
4. Click **Import**. Approach displays the Text File Options dialog box.
5. Either click the option button to indicate the character that separates the data fields or type the separator character in the **Other** text box.
6. Place a checkmark in the **First Row Contains Field Names** checkbox. A checked checkbox is the default.
7. Click **OK**. Approach opens the Import Setup dialog box.
8. Drag the fields on the right side of the dialog box to match the related fields on the left side.
9. Click **OK**. After a few seconds of processing, Approach imports the data into records at the end of the file.
10. Edit the new records as needed.

Part 7. Reference

The chapters in this part provide reference information about CICS PA:

- The “Messages” chapter lists the error messages and descriptions.
- The “Problem Determination” chapter provides advice to avoid user errors and help diagnose problems.
- There are three cross-reference tables to help you more easily use CICS PA and understand the data it is reporting. They apply to CMF performance class and transaction resource class data:
 - The “CMF Field IDs by CICS version” chapter contains a cross-reference table relating the CICS monitoring facility (CMF) fields with the corresponding CICS PA field names and CICS version.
 - The “CICS PA field names by CICS version” chapter contains a cross-reference table relating the CICS PA field names with the corresponding CICS CMF fields and CICS version.
 - The “Fields by forms, HDB templates” chapter contains a cross-reference table relating the CICS PA field names with the Report Forms and HDB Templates where they can be specified.

Chapter 25. Messages

This section lists all the messages issued by CICS PA, a brief description of each, the action the system takes when the message is issued, and the action you should take when you get the message. The return codes set at the completion of batch processing are also listed.

The types of messages and their format are described, followed by the messages in numerical order.

The types of CICS PA messages are:

Number

Type

0001–0999

Batch processing. These messages are issued during CICS PA report processing due to command errors, I/O and file errors, to give the status of job execution, and so on.

1000–1099

CICS PA dialog. These messages are issued by the CICS PA dialog during JCL generation, or when creating Report Sets, Report Forms, Object Lists, and so on. For other CICS PA dialog messages, refer to the Online Help.

2000–2099

Data take-up. These messages are issued during take-up processing. See “Personal Take-Up from SMF File” on page 106.

3000–3099

HDB. These messages are issued during HDB processing. See Chapter 21, “Using the HDB dialog,” on page 621.

4000–4099

HDB SMF Statistics. These messages are issued during HDB Statistics report processing. See Chapter 18, “Using the Statistics reporting dialog,” on page 543.

Return codes

The following return codes are set by CICS PA at the completion of batch processing:

RC Meaning

- | | |
|----|---|
| 0 | Batch processing completed successfully. |
| 4 | Batch processing completed successfully, but a warning message was issued. |
| 8 | Batch processing completed, but an error message was issued. Some reports might not have completed. |
| 16 | Batch processing failed because of a command error. |

Message format

The CICS PA messages begin with a unique message identifier, followed by message text which might contain variable information to identify the particular circumstance which caused the message.

The message identifier has the format **CPAnnnnx** where:

- CPA** The **program identifier** identifies the message as a CICS PA message. All CICS PA messages begin with CPA.
- nnnn** The **message identification number** is a four-digit number that uniquely identifies each message.
- x** The **severity level** is a letter that indicates the return code (see "Return codes" on page 697), the purpose of the message, and the type of response required.

The severity levels, from least to most severe, are:

- I** Information. No action is required.
- W** Warning. CICS PA has detected a possible error condition that the user should evaluate.
- E** Error. User action is required before CICS PA can continue processing.
- S** Severe. CICS PA processing is suspended until action has been taken.

All batch command processing error messages have the same general format for the **Message Text** as follows:

| Severity Prefix | Operand Data | General Error Text | Specific Error Text | Source Text |
|-------------------|------------------|---------------------------|----------------------------|---------------------|
| Warning or Severe | Operand in error | General error description | Specific error description | User input in error |

The parts of the message are printed in the order shown in the diagram. Not all parts are present in every message. At least the general or specific text is present to describe the error.

Severity Prefix

The first part of the message indicates whether the message is a warning message or a message which denotes a severe error. A warning is indicated by:

**** Possible Error ****

A warning is issued for conditions that do not prevent report program execution. However, you should analyze all warning messages to determine if the conditions cited affect the expected results. Warning messages are not printed if PARM NOINFOMSGS has been specified.

A severe command error is indicated by one of two prefixes:

**** Command Error *****

**** Error During Scan *****

These messages are printed even if PARM NOINFOMSGS was specified. Most severe command errors cause a severe error flag to be set. At the end of command input processing, this flag is tested. If the flag tests true, no

record processors are run. CICS PA terminates at this point with a condition code of 16. To continue processing, you must correct the commands in error and resubmit the job.

Operand Data

If the error is associated with a recognizable operand, the operand is printed after the prefix. This part of the message is usually present. It is omitted when a recognizable operand cannot be associated with the error.

General Error Text

This describes the general nature of the error. It includes descriptive text appropriate for errors that can occur on any command; for example, a missing operand or label. This part of the message is usually present. It is omitted when the error is unique to the command being processed.

Specific Error Text

This is inserted by the individual command processor. It describes a condition unique to the command in error. Specific text might be provided in addition to the general text described previously to further clarify the error description. It can also be provided without general text, when the error condition is unique and the general text is inappropriate.

Source Text

This identifies the portion of the command input found to be in error during analysis. This part of the message is usually present.

Example:

If **CICSPA LIST(PUTPUT(LIST0001)** was coded when **CICSPA LIST(OUTPUT(LIST0001)** was intended, CICS PA provides the following message:

```
CPA0015E ** Command Error *** LIST Operand not recognized -  
valid values are: listed in the User's Guide.  
The suboperand is: PUTPUT(
```

This message indicates a severe error that must be corrected to continue report processing. The command contains a suboperand (PUTPUT) that is not recognized by the CICS PA command processor as a valid LIST operand. Correct the command by supplying valid values as defined by the specific error text. In this case, the specific error text directs you to this book. See Chapter 16, "Using the CICS PA commands," on page 377 which describes all the commands and operands.

The example message CPA0015E contains all five message parts:

Message Part
Text

Severity prefix
** Command Error ***

Operand data
LIST

General error text
Operand not recognized - valid values are:

Specific error text
listed in the User's Guide. The suboperand is:

Source text
PUTPUT(

0000–0999 Batch processing messages

These messages are issued during CICS PA report processing due to command errors, I/O and file errors, to give the status of job execution, and so on.

CPA0000E Invalid Error Code – *CPAxxxx*

Explanation: A CICS PA module attempted to issue an error message using a message ID that is not defined. This is an internal logic error.

System action: Processing continues.

User response: Determine the issuing module and contact your IBM representative for help.

CPA0001E NAME operand invalid – exceeds max allowable length

Explanation: A character string representing a name was flagged by CICS PA as being too long. Any name field associated with a DDNAME has a maximum length of 8.

System action: Processing is terminated.

User response: See Operand value formats for syntax rules and restrictions on operands for the command in error. Correct the command input and resubmit the job.

CPA0002E Operand has been previously used – this use overrides prior use

Explanation: The specified operand has been used previously in a command.

System action: The specified operand has been used previously in a command.

User response: Either be sure this override is intended or correct the command input to use the operand only once, and resubmit the job.

CPA0003E DDname is missing or is DD DUMMY – use is ignored

Explanation: A command was entered using a DDNAME operand. However, the DD statement definition was not in the JCL stream. Execution proceeds, but could terminate at a later point if the DDNAME is for an input file or a required output file.

System action: Processing continues, but the report requiring this DDname might fail.

User response: Check for a spelling error on the DDNAME or OUTPUT operand, or supply the missing JCL statements, then resubmit the job.

CPA0004E Operand is not recognized – skipping to next operand

Explanation: During command analysis, an operand

was expected but unrecognizable input was encountered.

System action: Processing is terminated after all commands are validated.

User response: Correct the command input and resubmit the job.

CPA0005E *** Processing stopped on this command due to errors listed above

Explanation: One or more severe errors were encountered while processing the command input. No record processors are run. This message is preceded by additional command error messages describing the specific command input errors.

System action: Processing is terminated.

User response: Correct the command input and resubmit the job.

CPA0006E Operand requires a value – none found

Explanation: The specified operand requires a value specified in parentheses. For example, the DDNAME operand was specified without a DDname value.

System action: The operand is skipped and command processing continues at the next operand. Processing is terminated after all commands are validated.

User response: Correct the command input by specifying the operand value and resubmit the job.

CPA0007E Operand syntax invalid – skipping to next operand

Explanation: The specified operand has invalid syntax and is ignored by CICS PA.

System action: The operand is ignored and command processing continues at the next operand. Processing is terminated after all commands are validated.

User response: Correct the operand syntax and resubmit the job.

CPA0009E Syntax invalid or not recognized

Explanation: The command or operand syntax is not supported by CICS PA.

System action: The command or operand is skipped and command processing continues. Processing is terminated after all commands are validated.

User response: Correct the command or operand syntax and resubmit the job.

CPA0010E Range specification invalid – first value exceeds second

Explanation: A range was specified with a lower range value greater than the upper range value.

System action: The range specification is skipped and command processing continues. Processing is terminated after all commands are validated.

User response: Correct the range specification and resubmit the job.

CPA0011E Maximum specification exceeded

Explanation: The maximum allowed value for an operand has been exceeded.

System action: The maximum accepted value is printed and is substituted for the specified input value. Processing continues.

User response: If the maximum value produces unsatisfactory results, correct the command input and resubmit the job.

CPA0012E Command requires a Label

Explanation: The specified command requires an identifying label starting in column 1. The label can be 1 to 8 characters long.

System action: The command is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Specify a label and resubmit the job.

CPA0013E Processing continues for diagnostics

Explanation: CICS PA has previously encountered an unrecoverable error and diagnostic processing is activated.

System action: Diagnostic messages are issued and processing terminates.

User response: Look for previous error messages to determine the reason for the problem. If unresolved, contact your IBM representative for help.

CPA0014E Operand required but not found

Explanation: CICS PA determined that a required operand was not specified in the command input.

System action: The command is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Specify the required operand and resubmit the job.

CPA0015E Operand not recognized – valid values are:

Explanation: An invalid operand was specified. A list of allowed operand values accompanies this message.

System action: The operand is ignored and command processing continues.

User response: Remove or correct the operand and resubmit the job.

CPA0100S STAE Exit invoked

Explanation: An abend occurred when PARM STAE was specified or accepted as a default. This message might occur with another message for the error condition that triggered the abend. See Batch Abends U1000, U1001, U1002 for more information on STAE exits.

System action: Processing is terminated.

User response: Look for previous error messages to determine the reason for the problem. If unresolved, contact your IBM representative for help.

CPA0114E Attempting to free MQ entry not on queue

Explanation: This is an internal logic error.

System action: The operation is ignored.

User response: Contact your IBM representative for help.

CPA0115E Invalid use of program – Dup use or no Prescan. Program deleted

Explanation: This is an internal logic error.

System action: The record processor is deleted and execution continues.

User response: Contact your IBM representative for help.

CPA0116E xxxxxxxx Report Processor deleted – Requires Control Table

Explanation: The report processor initialization could not find the control table for the indicated report processor. This is an internal logic error.

System action: The report processor is deleted, the request skipped, and execution continues.

User response: Contact your IBM representative for help.

CPA0117E Invalid use of CAIDCOMD

Explanation: Used for IBM debugging purposes.

System action: The execute command is ignored and processing continues.

User response: Contact your IBM representative for help.

CPA0118E Invalid Operand Sublist Structure

Explanation: The operand sublists are specified incorrectly. This is an internal logic error.

System action: The operand is skipped.

User response: Contact your IBM representative for help.

CPA0119W Three fields max under SUMMARY(BY(,**,**)). Extras ignored.**

Explanation: More than three fields were specified for summarizing the data on the Performance Summary Report.

System action: Extra fields are ignored.

User response: The command stream must contain three or fewer SUMMARY(BY fields. Make corrections by eliminating the extra fields and resubmit the job.

CPA0120S Error on some queue – Internal Logic Error

Explanation: This is an internal logic error.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0121S Error in Prescan – Reprocess buffer full

Explanation: This is an internal logic error.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0122E Length is a valid Suboperand only for CHARACTER

Explanation: The LENGTH suboperand specified with the CROSSsystem report operand can be used with the character user field only. It is not valid with COUNT, CLOCKTIME, or CLOCKCOUNT user fields.

System action: The suboperand is ignored and processing continues.

User response: Examine the command stream, make the necessary corrections, and resubmit the job.

CPA0123E Number not a valid suboperand for CHARACTER

Explanation: The NUMBER suboperand specified with the CROSSsystem report operand is not valid for character user fields. It is used with COUNT, CLOCKTIME, or CLOCKCOUNT user fields.

System action: The suboperand is ignored and processing continues.

User response: Examine the command stream, make the necessary corrections, and resubmit the job.

CPA0124E Invalid length specified for CHARACTER (LENGTH(

Explanation: The length of the character user fields on the Cross-System Work report must be between 1 and 256.

System action: The suboperand is ignored and processing continues.

User response: Examine the command stream, make the necessary corrections, and resubmit the job.

CPA0125E More than 50 user fields requested

Explanation: A maximum of 50 user fields can be requested for generating a Cross-System Work Extract.

System action: The extra user fields are ignored and processing continues.

User response: Examine the command stream and make the necessary changes to reduce the number of user fields.

CPA0126E Only one type of data record allowed under a SELECT operand

Explanation: When using the SELECT operand, only one type of data record can be selected, such as PERFORMANCE or EXCEPTION. A separate SELECT operand must be used for each type of data record chosen.

System action: When using the SELECT operand, only one type of data record can be selected, such as PERFORMANCE or EXCEPTION. A separate SELECT operand must be used for each type of data record chosen.

User response: Examine the command stream, make the necessary corrections, and resubmit the job.

CPA0127E Must have a VALUE operand for Selection

Explanation: The VALUE suboperand, and its necessary operands, must be specified with the SELECT operand to determine selection criteria.

System action: Processing continues, but the results

from selection are unpredictable.

User response: Examine the command stream, make the necessary corrections, and resubmit the job.

CPA0129W Three fields max under LISTX(BY(,**,**)). Extras ignored.**

Explanation: More than three fields were specified for sorting the data on the Performance List Extended Report.

System action: The extra fields are ignored.

User response: The command stream must contain three or fewer LISTX(BY fields. Make corrections by eliminating the extra fields and resubmit the job.

CPA0131E PROFILING request, ID(nnnn), without matching BASELINE/REPORT

Explanation: A PROFILING request has been found without matching BASELINE and REPORT commands.

System action: Request is terminated.

User response: Rerun request with matching commands.

CPA0202E Data set open failed – Report Processors skipped, DDname=xxxxxxx

Explanation: The indicated input data set could not be opened.

System action: All commands specifying reports using that input data set are skipped, and processing continues.

User response: Correct the JCL for the data set and resubmit the job.

CPA0204E No DD card supplied; Routine deleted

Explanation: The record processor indicated in the associated dump list has one specific input data set that must be included.

System action: The record processor is skipped and processing continues.

User response: Include a JCL statement for the data set to be used by the indicated record processor and resubmit the job.

CPA0205E SORT Error – Permanent I/O Error, DDname=xxxxxxx

Explanation: The sort module encountered a SYNAD error while attempting to perform an I/O operation on the data set referenced by data set xxxxxxx.

System action: Control returns to the module that issued the sort request.

User response: Look for any system message that

might be related to this error. Check the JCL and data set space allocation. The space requirements vary by application and by volume of input. The data set should be a temporary sequential data set. Do not specify the record format, logical record length, or block size in the JCL. Refer to the sample JCL specification in JCL for generating CICS PA reports and extracts (part 1 of 2) for the correct JCL specification of the sort work data sets.

CPA0206E SORT Error – INIT requested for open DCB, DDname=xxxxxxx

Explanation: The CICS PA sort module has received a request from a record processor to reinitialize a data set, referenced by xxxxxxx, that is already in use. This might be an internal logic error.

System action: Control returns to the module that issued the INIT request.

User response: Check the JCL and command input stream. A sort work data set cannot be used by more than one application. If the data set appears to be defined correctly, contact your IBM representative for help.

CPA0207E SORT Error – Key length exceeds 255, DDname=xxxxxxx

Explanation: The combined length of all Key fields exceeds the maximum SORT key limit of 255 characters.

System action: Report processing stops.

User response: Remove Key fields to reduce the combined key length to no more than 255 characters.

CPA0208E SORT Error – Data length exceeds 4095, DDname=xxxxxxx

Explanation: This is an internal logic error. xxxxxxx is the name of the work data set associated with the sort error.

System action: Control returns to the module that issued the sort request.

User response: Contact your IBM representative for help.

CPA0209E SORT Error – Key+Data length less than 1, DDname=xxxxxxx

Explanation: This is an internal logic error. xxxxxxx is the name of the work data set associated with the sort error.

System action: Control returns to the module that issued the sort request.

User response: Contact your IBM representative for help.

CPA0210E SORT Error – Data Set open failed, DDname=xxxxxxx

Explanation: The CICS PA sort module was unable to open the data set referenced by xxxxxxx.

System action: Control returns to the module that issued the sort request.

User response: Look for any system message that might be related to this error. Check the JCL and data set space allocation. The space requirements varies by application and by volume of input. The data set should be a temporary sequential data set. Do not specify the record format, logical record length, or block size in the JCL. Refer to the sample JCL specification in JCL for generating CICS PA reports and extracts (part 1 of 2) for the correct JCL specification of the sort work data sets.

CPA0211E SORT Error – ADD attempted before INIT, DDname=xxxxxxx

Explanation: The application is trying to add records to the data set before it has been initialized by the CICS PA sort module. This is an internal logic error.

System action: Control returns to the module that issued the sort request.

User response: Contact your IBM representative for help.

CPA0212E SORT Error – bad Return Code from SORT, DDname=xxxxxxx

Explanation: The CICS PA sort module received a nonzero return code from the system sort routine attempting to sort the file xxxxxxx.

System action: Control returns to the module that issued the sort request.

User response: Look for any system message that might be related to this error. Ensure that the SYSOUT DD statement was specified. If so, look for SORT error messages in SYSOUT. Check the JCL and data set space allocation. The space requirements vary by application and by volume of input. The data set should be a temporary sequential data set. Do not specify the record format, logical record length, or block size in the JCL. Refer to the sample JCL specification in JCL for generating CICS PA reports and extracts (part 1 of 2) for the correct JCL specification of the sort work data sets.

CPA0213E SORT Error – no records in file to read or sort, DDname=xxxxxxx

Explanation: No input data was received. The probable cause is an empty data set or an input data set that does not contain the record IDs being selected.

System action: Control returns to the module that issued the sort request.

User response: Check the input data set for the record types required on the requested report. If the data set appears to be in order, contact your IBM representative for help.

CPA0214E SORT Error – SORT/Read running, 2nd request ignored, DDname=xxxxxxx

Explanation: The CICS PA sort module received a request for a SORT or READ on a data set that has already processed a SORT or READ request. This might be an internal logic error.

System action: Control returns to the module that issued the sort request.

User response: A unique SORT work data set must be specified for each unique report using the sort facility. The names must match the PARMNAME of the reports. If the sort work data sets appear to be defined correctly, contact your IBM representative for help.

CPA0215E SORT Error – File failed to close, DDname=xxxxxxx

Explanation: The CICS PA sort module received a nonzero return code after issuing a close macro on the data set xxxxxxx.

System action: Control returns to the module that issued the sort request.

User response: Contact your IBM representative for help.

CPA0216E Times out of sequence in Graph queue

Explanation: The graph queue entries are not ordered by time. This problem might result from bad input data from the CICS Monitoring Facility (CMF) or from an internal logic error.

System action: The job abends with a user abend code.

User response: Review the input; if it appears to be correct, contact your IBM representative for help.

CPA0217E OFFSET value too large – exceeds queue size

Explanation: This is an internal logic error.

System action: The job abends with a user abend code.

User response: Contact your IBM representative for help.

CPA0218I Record processing for SMF File *xxxxxxx* has started

Explanation: CICS PA has commenced reading SMF records from the specified SMF File. SMF records are passed to the Report Processors to build the reports and extracts.

System action: Processing continues.

User response: None required.

CPA0219I End of File processing for SMF File *xxxxxxx+* has started

Explanation: CICS PA has commenced End of File processing for the specified SMF File(s). A + (plus sign) after the DDname indicates that more than one SMF File was specified in the INPUT operand. The Report Processors are called to create the final reports or extracts.

System action: Processing continues.

User response: None required.

CPA0220I SMF records for System *xxxx* start at *mm/dd/yyyy hh.mm.ss.th*

Explanation: CICS PA has detected the first SMF record to process in the current SMF File. The specified system identifies the System ID of the SMF records.

System action: Processing continues.

User response: None required.

CPA0221I Dictionary Record read from SMF File
DDname=*xxxxxxxx*, **+nnn**,
APPLID=*xxxxxxxx*, **SID=***xxxx*,
Release=*v.r.m*, **Record Date=***mm/dd/yyyy*,
Time=*hh:mm:dd*

Explanation: CICS PA has detected a Dictionary record in the current SMF File, at concatenation *+nnn* if applicable, for the specified CICS APPLID and MVS system ID. CICS PA cannot start processing CMF performance records for an APPLID until the Dictionary record is read. The second line of this message details the date and time of the record, along with the CICS version.

System action: Performance reporting can commence for the specified APPLID.

User response: None required.

CPA0222I SMF records for System *xxxx* end at *mm/dd/yyyy hh.mm.ss.th*

Explanation: CICS PA has processed the last SMF record in the current SMF File. This message signifies that End of File for the current SMF File has been reached.

System action: Processing continues.

User response: None required.

CPA0223W SMF File *xxxxxxx* has no records to process

Explanation: CICS PA has detected that there were no SMF records to process in the current SMF File. The reports and extracts will contain no data.

System action: Processing continues.

User response: Ensure that the CICS monitor is active during the time period that reporting is required.

CPA0225E *xxxxxxx* DCB failed to open

Explanation: The data control block (DCB) for the indicated data set could not be opened.

System action: The function which uses that data set is not performed.

User response: Ensure that the data set was included in the JCL. If it was, correct the necessary parameters and resubmit the job.

CPA0226I Reporting started at *mm/dd/yyyy hh.mm.ss.th*

Explanation: CICS PA has detected the first CMF record within the specified SMFSTART/SMFSTOP time range.

System action: Reporting starts for the current SMF File.

User response: None required.

CPA0227I Reporting stopped at *mm/dd/yyyy hh.mm.ss.th*

Explanation: CICS PA has detected the first CMF record outside the specified SMFSTART/SMFSTOP time range.

System action: Reporting stops for the current SMF File.

User response: None required.

CPA0228I Dictionary Record from Dialog is being used, **DDname=**CPADICTR **+nnn**,
APPLID=*xxxxxxxx*, **SID=***xxxx*,
Release=*v.r.m*, **Record Date=***mm/dd/yyyy*,
Time=*hh:mm:dd*

Explanation: CICS PA has read a Dictionary record from the CPADICTR File, at concatenation *+nnn* if applicable, for the specified CICS APPLID. CICS PA needs to use it because a Performance record was encountered in the SMF File without a preceding Dictionary record. The third line of this message details

the date and time of the record, along with the CICS version.

System action: Performance reporting commences for the specified APPLID.

User response: None required.

CPA0229I CICS PA has completed processing, RC=*mm*

Explanation: CICS PA has completed reporting with the specified return code. If the return code is not zero, then CICS PA encountered a problem while producing the reports.

System action: CICS PA terminates.

User response: None required.

CPA0230I Dictionary Record default is being used, APPLID=*xxxxxxxx*, Release=*v.r.m*

Explanation: CICS PA is using the CICS default Dictionary record. CICS PA needs to use it because a Performance record was encountered in the SMF File without a preceding Dictionary record, and the Dictionary record for this APPLID could not be located in the CPADICTR File.

System action: Performance reporting commences for the specified APPLID.

User response: None required.

CPA0231W Dictionary Record default cannot be used, APPLID=*xxxxxxxx*, Release=*v.r.m*

Explanation: CICS PA has tried to use the CICS default Dictionary record for the specified APPLID, but was unable to do so. The field connectors in the Performance records do not match the Dictionary record. CICS PA needs to use it because a Performance record was encountered in the SMF File without a preceding Dictionary record, and the Dictionary record could not be located in the CPADICTR File. The most likely cause of this problem is your MCT definition which might have removed some CMF fields.

System action: Performance records are ignored until a Dictionary record is encountered in the SMF file.

User response: Use the CICS PA dialog to create a Dictionary record for the offending APPLID. Then regenerate the report JCL, which will now include a CPADICTR DD statement containing the APPLID's Dictionary record. See CICS(r) System (APPLID) definition to see how to create a Dictionary DSN.

**CPA0233E Dynamic Allocation failed. RC=*xx*
Error=*xxxx* Info=*xxxx***

Explanation: CICS PA attempted to allocate an Object dynamically and was unsuccessful. The Return Code (RC) from the attempt as well as the Error and Information codes are provided to aid diagnosis.

System action: Further messages from the Dynamic Allocation request might be printed following this message. Processing of the CICS PA command is halted.

User response: Analyze the error, rectify the problem(s) causing the Request to fail and retry the CICS PA command.

CPA0301E ID Selection checked was invalid – record ignored

Explanation: This error message is issued from the selection module when the dictionary processor was unable to find the field being used in selection.

System action: The record is ignored and control returns for further record processing.

User response: Selection might have been specified using a field that was not collected in the CICS Monitoring Facility (CMF) record. Check the field selections in the command input stream against the fields collected in the CMF record. If the selected fields are being collected, contact your IBM representative for help.

CPA0302E Missing *xxxxx* time in *xxxxxxxxxx* record – record ignored

Explanation: The start or stop time was missing in the indicated record class.

System action: The record is ignored and control returns for further record processing.

User response: This might be a problem with the CICS Monitoring Facility (CMF) data. Analyze the data by using the CICS sample program DFH\$MOLS. Incorrect data in the CMF records is normally caused by not selecting a field for inclusion in the data.

If the data appears to be correct, this might be a problem with CICS PA. Contact your IBM representative for help.

CPA0303E Number of Key fields exceed maximum of 8

Explanation: CICS PA supports up to 8 Key fields.

System action: Report processing stops.

User response: Reduce the number of Key fields to 8 or less.

CPA0310E Summary Key error - Key sequence error detected at field xxxxxxxx

Explanation: The field named in xxxxxxxx was included in the Key fields sequence but is not a valid Key field. Key fields must be specified contiguously.

System action: Report processing stops.

User response: Delete the named field from the Key sequence or move it after the Key fields.

CPA0311E Field ID xxxxxxxxxxxx is not defined to Dictionary – field ignored

Explanation: The dictionary processor was unable to locate a CMF field required for the requested report. For CICS defined fields this may be due to the required field having been excluded from the performance class record by a user defined Monitoring Control Table (MCT). For user-defined fields this may be due to CICS PA not having processed the required dictionary before encountering the first data record.

System action: The requested field and all subsequent fields on the report are ignored.

User response: Analyze the CMF data using DFH\$MOLS for assistance in checking that the field ID required for the report is actually collected in the CMF record. If a user-defined Monitoring Control Table (MCT) is being used, then check that the requested field id has not been excluded from the performance record. The CICS journal utility program DFHJUP can be also used to further analyze the content of the CMF record the structure and format of which can be found in the *CICS Customization Guide*. If the necessary field ids are present in both the dictionary record and the performance class records, contact your IBM representative for help.

CPA0312E Unknown type of field – all further fields ignored

Explanation: An invalid type of field (the CICS 12-byte ID) was set up by the command processor. This is an internal logic error.

System action: The Performance List, Performance List Extended and Performance Summary reports are printed with the data to the left of the field in question on the print line. The field in question and all the fields to the right of it are ignored.

User response: Contact your IBM representative for help.

CPA0313W EOF reached before STOP record encountered

Explanation: During the processing of history or alert monitor summary collections, end-of-file was reached on the input data set without encountering a stop record. The missing stop record might imply that part

of the summary collection was lost or that the file is continued on another data set.

System action: A stop record is assumed. The data is summarized and the report printed.

User response: None required.

CPA0314W START record encountered after DETAIL record with no STOP record

Explanation: A start record was encountered when a stop record was expected. A stop record, indicating the end of summary collection, was not written to the journal data set.

System action: When a start record follows a detail record, a stop record is implied. At that point, the summary portion of the report is printed. A new report is started for the start record and the following detail records.

User response: None required.

CPA0316E Report in xxxxxxxx has too many fields to print – extra fields ignored

Explanation: CICS PA found that the number of fields requested for either the Performance List, Performance List Extended, or Performance Summary Reports could not fit on the print line. xxxxxxxx is the DDname of the report output for the particular report in error. The fields for these reports are requested using the FIELDS operand.

System action: The fields are truncated to show as much data as fits on the print line.

User response: Recode the FIELDS operand to request fewer fields. You might also consider running multiple reports if more data is needed than can fit on one line.

CPA0317W Truncated Monitor record encountered

Explanation: CICS PA found that the record length was less than the record length that CICS wrote at the front of the record.

System action: CICS PA runs with the shorter record length. This might allow the program to complete normally. A fetch protection or other abends might occur due to the invalid data. All data on the report is in doubt.

User response: You should be sure that you have not copied the CICS CMF data with a utility that truncates without warning. These records can easily be truncated since they are in undefined record format and do not give length errors. You should consider increasing the block size of the output data set. Care must also be taken when concatenating the input data sets. The first data set must not have a smaller block size than the succeeding data sets. The data set with the largest

block size must be at the beginning of the concatenation.

CPA0318W Padded Monitor record encountered

Explanation: CICS PA found that the record length was longer than the record length that CICS wrote at the front of the record.

System action: CICS PA runs normally. You should be aware of this problem since it might be due to invalid data. You might also have caused this problem by copying the data from one unit to another with a utility that padded the record. If the record was padded, it will not use space efficiently and might affect the processing time of CICS PA.

User response: Determine why the record was padded and correct the problem.

CPA0319E Error in number of or offset to data fields

Explanation: See "CPA0322E."

CPA0320E Processing beyond end of SMF record attempted

Explanation: See "CPA0322E."

CPA0321E Data section length error

Explanation: See "CPA0322E."

CPA0322E Error in number of or offset to Field Identifiers

Explanation: One or more of the messages CPA0319E, CPA0320E, CPA0321E, or CPA0322E is issued when an incorrect record length, section length, or data field pointer is encountered during processing of the CICS Data Section in the SMF record. The error is in one of the following fields:

- Data Section Length
- Offset to field connectors (SMFMNDCA)
- Number of field connectors (SMFMNDCN)
- Offset to data records (SMFMNDRA)
- Number of data records (SMFMNDRN)

These fields are contained in the SMF Product Section, which precedes the CMF data records.

The format and description of the SMF Header, SMF Product Section, and CMF data records can be found in the *CICS Customization Guide*.

System action: CICS PA skips the record in error and continues processing the remaining records. The error record is printed along with a 4-byte field containing the displacement of the error record in the physical record. Only the first 256 bytes of the record are printed. If more than 256 bytes is required, you might

specify the amount of data printed by using the command PARM MAXDUMP(*nnnn*).

User response: Determine the fields in error and contact your IBM representative for help.

CPA0323E Invalid SMF record type encountered

Explanation: An invalid SMF record type was encountered by CICS PA.

System action: CICS PA skips the record in error and continues processing the remaining records. The error record is printed along with a 4-byte field containing the displacement of the error record in the physical record. Only the first 256 bytes of the record are printed. If more than 256 bytes is required, you might specify the amount of data printed by using the command PARM MAXDUMP(*nnnn*).

User response: Determine the fields in error and contact your IBM representative for help.

CPA0324S Error threshold count reached...Job terminated

Explanation: CICS PA has reached the maximum number of errors allowed. When ten errors (described in messages CPA0319E through CPA0322E) occur, CICS PA ends the job.

System action: CICS PA terminates the job.

User response: Determine the fields in error and contact your IBM representative for help.

CPA0325I Prescan Reprocessing Table filled – TABLE_{nnnn} allocated

Explanation: This is an informational message only. CICS PA uses an internal table to deblock the data from the monitor data record. The table was not large enough to contain all the data that had to be deblocked so space for an additional table was acquired. The additional table is concatenated to the original. The value *nnnn* in the message tells how many tables have been acquired at the time of the message.

System action: CICS PA continues to run normally but the processing time is increased by the need to obtain additional storage requests.

User response: Verify that there is no bad data causing CICS PA to incorrectly deblock the monitor data. If the blocksize of the monitor data set is large, this message can be ignored.

CPA0327W SUMMARY key field not specified

Explanation: The Summary report requires at least one key field to be specified but none were detected.

System action: Request is terminated.

User response: Specify a key field in the Summary

Form or FIELDS operand and rerun.

CPA0329E Dictionary returned error on Field ID
xxxxxxxxxxxx

Explanation: The dictionary processor was unable to find the data associated with the 12-byte FIELD ID.

System action: The data fields on the report are printed as Missing.

User response: Verify that the CMF data required for the requested report was collected in the CMF records. The DFH\$MOLS sample program can be used to analyze the contents of the dictionary records.

CPA0330W Dictionary called by Prescan with unknown record type

Explanation: The record encountered was not a performance, exception, or dictionary record. This is an internal logic error.

System action: The data record is ignored and processing continues.

User response: Obtain a dump of the records and contact your IBM representative for help.

CPA0331E Performance data encountered before Dictionary, APPLID=xxxxxxxx. Data lost!

Explanation: A performance record was read for the specified APPLID, but a dictionary record for that APPLID has not been read yet. CICS PA cannot process the CMF performance data records without first processing the dictionary record for the same APPLID. CICS PA only issues one CPA0331E message per APPLID. More data records might have been ignored.

The cause of a missing dictionary record might include:

1. The switch of an SMF MANx data set while the monitor is running. CICS only writes a dictionary record when the monitor commences.
2. Multi-volume input files are not specified in time sequence.
3. Merged SMF files have records in incorrect sequence.

System action: The data record is ignored and processing continues.

User response: If the SMF input file specification is correct, and the missing dictionary record is unavoidable, then use the dictionary record creation facility in the dialog. A dictionary record can be created from the CICS system definition for the offending APPLID. See CICS(r) System (APPLID) definition. When CICS PA generates report JCL, the CPADICTR DD statement will include the required dictionary records. You can also use the Monitoring Dictionary Utility Program DFHMNDUP to create the dictionary records required.

Data sets containing required dictionary records can be specified in two places in the JCL:

1. At the top of the SMF input file concatenation. CICS PA will read and use the dictionary record until another is read in the SMF File.
2. In the CPADICTR DD statement. CICS PA will only read and use the dictionary record if one is not found in the SMF File.

If you are unsure about the SMF data validity, analyze the CMF data using DFH\$MOLS.

CPA0332W xxxxxxxxxx Data length may be incorrect

Explanation: CICS PA does an internal calculation of the length of the CMF record. The calculated length does not match the record length field in the record itself.

System action: Processing continues, however data from that record might be invalid.

User response: None required.

CPA0333E Connector ID X'xxxx' not mapped by xxxxxxxxxx Dictionary for APPLID xxxxxxxx

Explanation: A field in the data record is not mapped by the performance record dictionary data. There is either an error in the CICS Monitoring Facility (CMF) data, or the dictionary record that you created in the CICS PA dialog or via DFHMNDUP is not compatible with the data records.

System action: The remainder of the data record is ignored and processing continues.

User response: If CICS PA read and used a dictionary record that you created, then ensure that the CICS SDFHLOAD library and MCT specification were valid. If CICS PA read and used a dictionary record from the SMF File, then analyze the CMF data using DFH\$MOLS for assistance in determining the source of the error. Contact your IBM representative for help.

CPA0334E A type "A" field (Counter) requested but length not 4 or 8

Explanation: The CMF record indicated an incorrect length for a counter field. Length must be 4 or 8

System action: The return code is set and control is returned to the module that requested the data. A nonzero return code tells the requesting module the data is either invalid or can't be found.

User response: There is an error in the CICS Monitoring Facility (CMF) data. Analyze the CMF data using DFH\$MOLS for assistance in analyzing the source of error. Contact your IBM representative for help.

CPA0335E An unknown type of field was requested: "xxxxxxxxxxxx"

Explanation: The CICS 12-byte ID requested by a report processor and found by the dictionary processor is invalid. The field type (for example, A=COUNTER, S=CLOCK/COUNT) is unrecognizable and can't be processed by the dictionary processor.

System action: The return code is set and control is returned to the module that requested the data. A nonzero return code tells the requesting module the data is either invalid or can't be found.

User response: This was most likely a user error caused by incorrect definition of user fields. The data type (ninth character position in the CICS 12-byte ID) must be a valid CICS data type. Review the *CICS Customization Guide* for the valid data types in the CICS Monitoring Facility. Verify that all user fields are defined correctly before contacting your IBM representative for help.

CPA0336W Dictionary called by Report Processor with unknown record type

Explanation: The record encountered was not a performance class record.

System action: The record is ignored and processing continues.

User response: This is a CMF data error. Obtain a dump of the records and contact your IBM representative for help.

CPA0338E STOP time earlier than START time

Explanation: The transaction stop appeared to happen before the transaction start.

System action: The record is ignored and processing continues.

User response: This is probably due to merging data improperly or to multi-volume data sets processed in the wrong order. Analyze the CMF data using DFH\$MOLS for assistance in correcting the error.

CPA0340E Dictionary unable to find required CMF data for xxxxxxxxxxxx Graph

Explanation: While processing the indicated graph, the Dictionary Processor was unable to find any of the required fields in the CMF data.

System action: The graph requested is ignored and processing continues normally.

User response: Verify that the necessary CMF data is being collected in the records before requesting the graph. Also, verify that there are records being processed. If no records are selected or the input file

does not contain performance class records, the graph cannot be processed.

CPA0341E Dictionary flagged required Graph data missing on nnnnnnnnn accesses

Explanation: While processing the graph preceding this message, the dictionary processor was unable to find the required CMF data the number of times indicated.

System action: Zeros are used where actual data cannot be found. The graph is printed but it is inaccurate due to the zeroed data.

User response: Analyze the CMF records using DFH\$MOLS and verify that the required data is collected on all records. If it appears that the data is all there, there is an internal logic error. Contact your IBM representative for help.

CPA0342W No Performance records found. Number of tasks set to 1.

Explanation: If no performance records were found by the Performance Totals report processor, the number of tasks is set to 1.

System action: Processing continues normally.

User response: None required.

CPA0346E No records were selected from input for processing

Explanation: The issuing report processor had no input records to process. Either the input data set did not contain any of the necessary type of records or the user's SELECT specification caused no records to be included.

System action: The report header is printed along with the error message. Processing continues.

User response: Determine that the necessary record types are present on the input data set. If using the SELECT operand, correct the operands to eliminate the exclusion of all records.

CPA0347I Cross-System Data Set successfully generated, record count=nnnnnnnn

Explanation: The Cross-System Work Extract data set was successfully generated. The record count shows how many records were written to the data set.

System action: Processing continues normally.

User response: None required.

CPA0348W Unsupported CMF records encountered – records ignored

Explanation: CICS SMF 110 records were encountered in the input data set, but they were from a version not supported by this release of CICS PA.

System action: The record is ignored and processing continues.

User response: None, or remove the input data set containing unsupported CMF records.

CPA0351E GETMAIN failed – Report terminated

Explanation: A GETMAIN request for storage failed.

System action: The report processor terminates.

User response: Specify a larger REGION parameter in the JCL.

CPA0352I Cross-System Data Set was not generated

Explanation: The Cross-System Work Extract failed to generate the extract data set. A preceding error message details the reason why the extract has failed.

System action: Processing continues normally.

User response: Refer to the preceding error message to determine the cause of the problem.

CPA0355I Exported Data Set successfully generated

Explanation: The Performance Extract successfully generated the extract data set.

System action: Processing continues normally.

User response: None required.

CPA0356W Export record is missing data – missing fields contain blanks

Explanation: The Performance Extract records contain fields that were not available in the performance data records. The missing fields contain blank values. The Performance Extract record contains all CICS Transaction Server VRM 680 performance clock fields, but you might be running an earlier release of CICS or excluded some fields in the MCT.

System action: Processing continues normally.

User response: Verify that the missing (blank) field values are not being collected in the CMF Performance records. Otherwise, contact your IBM representative.

CPA0357I LIST reports share output file xxxxxxxx, report lines may be interleaved

Explanation: Multiple Performance List Reports were requested with the same OUTPUT file name. This can cause the report lines to be interleaved if the reports process the same APPLIDs or the CMF data is not sorted by APPLID.

System action: Processing continues normally.

User response: It is recommended that:

1. Each Performance List report specify a unique OUTPUT DDname. This will ensure that each LIST report has contiguous output, and not interleaved with other LIST reports.
 2. Each Performance List report specify a single APPLID in the APPLID operand, or specify APPLID in the FIELDS list, or the CMF data is sorted by APPLID. This will ensure that the report does not page break too often. The LIST report performs a page break each time the APPLID changes in the data, except when APPLID is specified in the FIELDS list.
-

CPA0359W Connector ID X'xxxx' not mapped by Performance Dictionary record

Explanation: There is an incompatibility between the CMF Performance records and their associated Dictionary record for the specified CICS APPLID. The CMF Performance records contain data for the specified Connector ID, however their Dictionary record did not include a CMF field definition for this Connector ID. When the Field ID in error is a "CMF field", then this might be a serious problem. It might be caused by the Dictionary and Performance records being generated by different versions of CICS. When the Field ID in error is a "User Field", then this might indicate that the Dictionary record does not contain the User Fields defined in the MCT for this CICS APPLID.

System action: Processing continues for this CICS APPLID, however only CMF fields with Connector IDs resolved before the problem occurred are available for reporting.

User response: Your response will depend on the source of the Dictionary record. There are three possible sources from where CICS PA can obtain the Dictionary record:

1. CICS PA found the Dictionary record in the SMF File. Message CPA0221I was issued previously to indicate this. If the Dictionary record was written by CICS when the Monitor started, then a serious problem has occurred. Use the CICS DFH\$MOLS utility to analyze your CMF data. This will help you determine the source of the error. In this case, you might need to contact your IBM representative for help.

If you created the Dictionary record (using the CICS DFHMNDUP utility) and concatenated it ahead of

your SMF File DD specification, then verify that the Dictionary record is for the correct version of CICS, or that your MCT specification matches the one used by CICS.

2. The Dictionary record was created from the CICS PA dialog and CICS PA read it from the CPADICTR File. Message CPA0228I was issued previously to indicate this. If the Field ID in error is a "user field", then you probably created your Dictionary record with an incorrect MCT specification. Return to the dialog and ensure that your MCT specification matches the one used by CICS.
3. CICS PA used the default Dictionary record for your version of CICS. Message CPA0230I was issued previously to indicate this. If the Field ID in error is a "user field", then your CICS APPLID probably uses an MCT with user fields defined. If you want to report against the user fields, then create a Dictionary record using the CICS PA dialog.

CPA0360E System Logger report initialization failed

Explanation: This is an internal system error.

System action: System Logger report processing is terminated.

User response: Contact your IBM representative for help.

**CPA0361I Logger reports share output file
xxxxxxx, reports may be interleaved**

Explanation: Multiple System Logger reports were requested with the same OUTPUT file name. This can cause the reports to be interleaved.

System action: Processing continues normally.

User response: It is recommended that every CICS PA report specifies a unique OUTPUT DDname. This will ensure that reports are not interleaved with other reports.

**CPA0362I Invalid data in Type 88 SMF record,
reason code=x**

Explanation: The SMF Type 88 record was bypassed because it had missing or incomplete data.

System action: Processing continues, but this record is bypassed. The record is dumped for analysis.

User response: Determine the cause of the invalid record(s).

**CPA0363I Additional sections in Type 88 SMF
record, reason code=xx**

Explanation: CICS PA SMF Type 88 record processing assumes that only one section of each type is present.

System action: Processing continues, but this record is bypassed. The record is dumped for analysis.

User response: Contact your IBM representative for help.

**CPA0364I Non-CICS logstream logstreamname
bypassed**

Explanation: CICS PA processes only CICS-related System Logger records.

System action: Processing continues.

User response: None required.

**CPA0365W Logger SMF recording interval
specification may be invalid**

Explanation: Message CPA0366W is a continuation of this message.

The specified interval, or system interval if one is not specified, is compared with the calculated interval, based on the SMF records, and was found to be different. This might result in invalid data in the System Logger Summary report.

System action: Processing continues.

User response: Verify that the specified interval, or system interval, is correct for the SMF records being processed.

**CPA0366W INTERVAL Calculated=xxmins,
Specified=xxmins, Output=xxxxxxx**

Explanation: This message is a continuation of message CPA0365W.

**CPA0370E Logic Error - DB2 Report Processor
routine xxxxxxxx, Reason=xxx**

Explanation: This is an internal system error.

System action: DB2 report processing is terminated.

User response: Contact your IBM representative for help.

**CPA0371W DB2 Version x Release x record
encountered - records ignored**

Explanation: A DB2 Accounting record for a DB2 release that is not supported by CICS PA has been encountered. All records for this DB2 release are ignored.

System action: Processing continues.

User response: None required.

CPA0372W Invalid DB2 record encountered - records ignored

Explanation: Message CPA0373I is a continuation of this message.

At least one DB2 Accounting record with an invalid format has been encountered. All DB2 Accounting records with invalid format are ignored.

System action: Processing continues.

User response: Check that the input SMF file contains valid SMF Type 101 (X'65') records.

**CPA0373I DB2 release *v.r* Reason=*xxx*
Info=*xxxxxxxx***

Explanation: This message is a continuation of message CPA0372W.

CPA0374W DB2 Report Processor missing required field - records ignored

Explanation: At least one CMF Performance record selected by the DB2 Report Processor was found to be missing a required field.

System action: The record is ignored and processing continues.

User response: Verify that the specified Field ID is in the CMF record. You might have excluded this field in your MCT. If the necessary Field IDs are present in the records, contact your IBM representative for help.

CPA0375W Transaction *xxxx* has used additional object and exceeded the object Limit of *nn*

Explanation: A resource limit has been exceeded for one of two object types: Files or TSQueues.

System action: Processing continues.

User response: For Files:

Ensure that the File Resource Limit specified in the DFHMCT TYPE=INITIAL macro via the FILE= keyword is high enough to support your transactions' File Usage.

For TSQueues:

Ensure that the TSQueue Resource Limit specified in the DFHMCT TYPE=INITIAL macro via the TSQUEUE= keyword is high enough to support your transactions' Temporary Storage Usage.

For more information, see Transaction Resource Class data.

CPA0380E Logic Error - MQ Report Processor routine *xxxxxxxx*, Reason=*xxx*

Explanation: This is an internal system error.

System action: WebSphere MQ Reporting processing is terminated.

User response: Contact your IBM support representative for assistance.

CPA0381W MQ Version *v* Release *r* record encountered - records ignored

Explanation: A WebSphere MQ Accounting record for a WebSphere MQ release that is not supported by CICS PA has been encountered. All records for this WebSphere MQ release are ignored.

System action: The record is ignored and processing continues.

User response: None required.

CPA0382W Invalid MQ record encountered - records ignored

Explanation: Message CPA0383I is a continuation of this message.

At least one WebSphere MQ Accounting record with an invalid format has been encountered. All WebSphere MQ Accounting records with an invalid format are ignored.

System action: The record is ignored and processing continues.

User response: This message can be ignored if it was displayed during Systems Take-up as it does not affect the take-up processing. Otherwise, check that the input SMF file contains valid SMF Type 116 (X'74') records.

**CPA0383I MQ release *v.r* Reason=*xxx*
Info=*xxxxxxxx***

Explanation: This message is a continuation of message CPA0382W.

**CPA0386I Field ID=*xxxxxxxx*, SYSID=*xxxx*,
Release=*v.r.m***

Explanation: This error message is issued from the selection module when the field specified in the selection is not valid for the z/OS release of the system that created the Logger record.

System action: The record is ignored and control returns for further processing.

User response: Selection has been specified using a field that is not applicable for the z/OS release of the system that created the Logger record. Check the field selections in the command input stream against the Logger fields valid for the z/OS release. If the selected

field is valid, contact your IBM representative for help.

CPA0387E Stats HDB cannot be used in Profiling request. HDB Name=xxxxxxx

Explanation: A Statistics HDB has been requested for a Transaction Profiling report. You can only use Performance HDBs for a Transaction Profiling report.

System action: Request is terminated.

User response: None.

CPA0388E Summary Key error - Field xxxxxxxx invalid as key field.

Explanation: This field cannot be used as a key field to summarize data.

System action: Field is ignored.

User response: Exclude this field from the requested form.

CPA0389E Application Group xxxxxxxx not defined.

Explanation: Either the Application Group specified in the FIELDS operand is not defined in the Repository, or the resource field specified in the Application Group is not defined in the Dictionary record.

System action: Field is ignored or reported as Missing.

User response: Do one of the following:

- Ensure that the Application Group is defined in the specified Repository
- Specify the Repository that contains the Application Group definition
- Delete the Application Group from the Form
- Ensure the correct Dictionary record is used

CPA0390E Alert Definition xxxxxxxx not defined in Repository

Explanation: The Alert Definition suboperand specifies an Alert Definition name that is either invalid, does not exist in the repository, or has no Performance Alert Values defined.

System action: The report processing is terminated.

User response: Take whichever of the following actions is appropriate:

- Specify a valid Alert Definition name
- Specify the Repository that contains the Alert Definition
- If it is a Performance Alert Definition, ensure that associated Alert Values have been defined

CPA0391E Alert Definition xxxxxxxx contains nonexistent Resource List(s)

Explanation: One or more Resource Lists specified in the Statistics Alert Definition do not exist.

System action: The report processing is terminated.

User response: Specify valid Resource List names in the Alert Definition, and then rerun the report.

CPA0392E Alert Definition xxxxxxxx contains invalid threshold

Explanation: The Alert Definition contains an invalid threshold.

System action: The report processing is terminated.

User response: Correct the invalid threshold value in the specified Alert Definition, and then rerun the report.

CPA0393E Logic Error - Alert Definition xxxxxxxx

Explanation: This is an internal error, possibly caused by Repository access problems.

System action: The report processing is terminated.

User response: Contact your IBM support representative for assistance.

CPA0394E Alert Definition xxxxxxxx contains an invalid Formula

Explanation: A Formula in the Alert Definition contains an invalid expression.

System action: The report processing is terminated.

User response: Correct the Formula in the specified Alert Definition, and then rerun the report.

CPA0395E Alert Definition xxxxxxxx contains no active conditions

Explanation: There are no active conditions in the specified Alert Definition.

System action: The report processing is terminated.

User response: Activate one or more conditions in the specified Alert Definition, and then rerun the report.

CPA0396E Manifest Build failed. Reason=No HDBs match the specified Qualifier

Explanation: No HDBs in the Repository have this Qualifier value and also have the Explorer option selected.

System action: No HDBs are added to the manifest.

User response: Ensure that the Qualifier field is specified correctly. Ensure that any HDBs that are

intended to be included in this manifest have the same qualifier and have the Explorer option selected.

CPA0397E Transaction Tracking Summary report required fields missing

Explanation: The FIELDS operand of the TRACKINGSUMMARY command is missing one or more of the required fields PHAPPLID, PHTRAN, or PHCOUNT. At least one of PHAPPLID and PHTRAN must be specified. PHCOUNT is required.

System action: The report processing is terminated.

User response: Ensure that the first fields specified in the TRACKINGSUMMARY FIELDS operand are PHAPPLID or PHTRAN or both, followed by PHCOUNT.

CPA0400E Field ID xxxxxxxx xxxxxxxxxxxx not defined in HDB, field ignored

Explanation: The specified field was requested for reporting but is not a defined field for this HDB. The Template whose name is specified in the HDB Definition defines fields in an HDB.

System action: The field is not reported. Character fields are printed as blank whilst numeric fields are printed as **missing**.

User response: Ensure that your Report Form only requests fields that are defined to the HDB Template.

CPA0401E Field name xxxxxxxx is not supported, reporting is stopped

Explanation: The specified field was requested for reporting but is not a field that is known to CICS PA.

System action: HDB report processing is terminated.

User response: Ensure that your FIELDS operand only specifies fields that are supported by CICS PA.

CPA0402E Key field xxxxxxxx is not supported, HDB load processing is stopped

Explanation: The specified field was requested for load processing but is not a field that is known to CICS PA.

System action: HDB load processing is terminated.

User response: Ensure that your FIELDS operand only specifies fields that are supported by CICS PA.

CPA0403W Template Field xxxxxxxx (xxxxxxxxxxxx) is not defined to Dictionary – ignored

Explanation: The named field was specified in the Template associated with the container data set being LOADED, but the field is not defined to the Dictionary.

System action: The field is not loaded into the container data set.

User response: None required.

**CPA0404E Internal Processing Error. RC=xx
INFO=xxxxxx ID=xxxxxxxx**

Explanation: Whilst LOADING an HDB, an internal processing request returned an unacceptable return code.

System action: The LOAD request is terminated.

User response: Contact your IBM representative for help.

**CPA0405E Duplicate HDB LOAD request aborted.
HDB=xxxxxxxx**

Explanation: LOAD requests are serialized to ensure the integrity of the Repository. That request failed.

System action: The LOAD request is terminated.

User response: Ensure that no more than one LOAD is concurrently active for a specific Repository.

CPA0406E No Containers in HDB xxxxxxxx eligible for processing

Explanation: An HDB REPORT request was issued against the specified HDB. However, no Containers were available for processing. Either no Containers have been created for the HDB, or the time stamp criteria specified via the SMFSTART/SMFSTOP keyword(s) exclude all available Containers.

System action: The REPORT request is terminated.

User response: Either create Containers for the HDB or specify a time span that matches those of the Containers in the HDB.

CPA0407W Field xxxxxxxx (xxxxxxxxxxxx) not present in HDB Container Data Set – ignored

Explanation: The specified field was specified in a FORMDEF (or a FIELDS statement) but the field was not present in the HDB Container data set.

System action: The field is not included in the Report.

User response: None required.

CPA0408E Unable to serialize HDB Housekeeping

Explanation: HDB Housekeeping can make large changes to the repository and therefore only one Housekeeping job might be active against a repository data set at any one time. In this case, another Housekeeping job was already active against the repository.

System action: The Housekeeping job is terminated.

User response: Ensure that no more than one Housekeeping job is concurrently active for a specific Repository.

CPA0409E HDB is unusable - Control Record Missing

Explanation: During the running of HDB Housekeeping, it was determined that a mandatory Control Record was missing from the Repository data set.

System action: The Housekeeping job is terminated.

User response: Recreate the Repository or recover it from a Backup. If the problem reoccurs, contact your IBM representative for help.

CPA0410W User-specified Selection Criteria ignored

Explanation: The User has specified Selection Criteria when LOADING an HDB. HDB Selection Criteria are specified when defining an HDB or defining the associated Template and only those Selection Criteria are honored during the LOAD (all Selection Criteria specified by the user via JCL are ignored).

System action: The user-specified Selection Criteria are ignored.

User response: None required.

CPA0411W Statistics HDB Load request issued warning/error messages; Recap=xxxxxxxx

Explanation: CICS PA statistics processing has issued warning or error messages. DDname xxxxxxxx contains the messages.

System action: Processing continues.

User response: Review the CICS PA statistics messages in DDname xxxxxxxx and take action as advised.

CPA0412E FILEIMAGE and FILESYSTEM have both been specified, only one can be specified

Explanation: The FILEIMAGE and FILESYSTEM parameters are mutually exclusive, only one of them can be specified.

System action: The report is ignored and command processing continues.

User response: Specify one parameter, either FILEIMAGE or FILESYSTEM, but not both.

CPA0501E Invalid Command Error Code

Explanation: A CICS PA module attempted to issue an error message using a message ID that is not defined. This is an internal logic error.

System action: Command processing continues. Processing is terminated after all commands are validated.

User response: Contact your IBM representative for help.

CPA0502E No delimiters in date – Julian format assumed (YYDDD)

Explanation: A date specified in the command input had no delimiters and CICS PA could not determine the format.

System action: Julian format is assumed and processing continues.

User response: If the Julian format produces unsatisfactory results, correct the command input and resubmit the job.

CPA0503E Time field has invalid format, digit, or value

Explanation: A time field specified in the command input cannot be processed by CICS PA.

System action: The time field is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Correct the command input and resubmit the job.

CPA0504E Number invalid – too many digits or contains non-numeric value

Explanation: A number specified in the command input cannot be processed by CICS PA.

System action: The operand is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Correct the command input and resubmit the job.

CPA0505E FROM-TO range is invalid – TO not later than FROM

Explanation: A FROM-TO range was specified such that the FROM value was greater than the TO value.

System action: The operand is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Correct the range specification and resubmit the job.

CPA0506E FORMAT operand requires a single character per value

Explanation: The FORMAT operand specifies the characters to be used for delimiters when formatting date and time fields. Each delimiter must be a single character.

System action: The operand is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See FORMAT for the correct usage of the FORMAT operand. Correct the command input using a single character for each delimiter, and resubmit the job.

CPA0507E INPUT operand requires a 1-8 character name

Explanation: A valid DDname was not specified with the INPUT operand.

System action: The operand is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See INput for the correct usage of the INPUT operand. Correct the command input and resubmit the job.

CPA0508E APPLID operand requires an 8 character name

Explanation: A valid CICS generic APPLID was not specified with the APPLID operand.

System action: The operand is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See APPLID for the correct usage of the APPLID operand. Correct the command input and resubmit the job.

CPA0509E SUMMARY(BY fields not specified in FIELDS suboperand or out of sequence

Explanation: The field names specified in the BY operand were not properly specified in the FIELDS operand. Whenever the BY operand is specified, the FIELDS operand must be specified and it must contain the field names, in the same sequence as specified on the BY operand.

System action: The operand is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Ensure that the FIELDS operand is specified and that it contains the field names specified on the BY operand. See SUMMARY - Performance Summary report for the correct usage of the

SUMMARY operands. Correct the command input and resubmit the job.

CPA0511E DELIMIT operand requires a single character value

Explanation: The DELIMIT operand did not specify a single character value. The field delimiter for the EXPORT file must be a single character.

System action: The operand is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See EXTRACTPERFORMANCE - Performance data extract for the correct usage of the DELIMIT operand. Correct the command input using a single character for the delimiter, and resubmit the job.

CPA0513E Only one Graph can be requested per GRAPH operand

Explanation: Only one graph (RESPONSE or TRANRATE) can be requested for each GRAPH report request. If you want to produce two graphs, specify the GRAPH operand twice with the required graph type (for example, GRAPH(RESPONSE),GRAPH(TRANRATE)).

System action: The operand is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Correct the command input and resubmit job.

CPA0518E UOWID Select Field must specify 12 hexadecimal digits

Explanation: The UOWID Field in the Selection Criteria did not specify 12 hexadecimal digits. CICS PA checks this specification against the first 6 bytes of the NETUOWSX CMF field, as this is the Network UOW ID. The last 2 bytes are not checked, as they are the period or syncpoint count within a Network UOW.

System action: The field value is ignored and command processing continues.

User response: Correct the command input and resubmit the job.

CPA0521E START/STOP field format is not TIMET, TIMES, TIMEM, DATE, DATEISO, DATEM or DATEYR

Explanation: The START/STOP field format in the FIELDS operand is invalid. Allowed values are TIMET, TIMES, TIMEM, DATE, DATEISO, DATEM and DATEYR.

System action: The field is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See Suboperands for Time Stamp fields. Correct the command input and resubmit the job.

CPA0522E User field specification is invalid. Field is ignored

Explanation: The user field was incorrectly specified.

System action: The user field is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See Suboperands for User fields for operand format and usage when specifying user fields. Correct the command input and resubmit the job.

CPA0523E Clock field format is not TIME or COUNT. Field is ignored

Explanation: The Clock field format in the FIELDS operand is invalid. Allowed values are TIME and COUNT.

System action: The field is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See Suboperands for Clock type fields. Correct the command input and resubmit the job.

CPA0524E *** Run terminated by errors listed above *******

Explanation: The job was terminated due to severe command error conditions.

System action: Processing is terminated.

User response: Correct the command input errors, which are indicated by command error messages that precede this message, and resubmit the job.

CPA0525E LISTX(BY field UOWID must be specified on its own

Explanation: The LISTX report BY operand can only specify field UOWID on its own. For example, LISTX(BY(UOWID),FIELDS(...)).

System action: The field is ignored and command processing continues.

User response: Correct the command input and resubmit the job.

CPA0526E LISTX(BY fields not specified in FIELDS operand or out of sequence

Explanation: The field names specified in the BY operand were not properly specified in the FIELDS operand. Whenever the BY operand is specified, the FIELDS operand must be specified and it must contain

the field names, in the same sequence as specified on the BY operand.

System action: The LISTX report is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Ensure that the FIELDS operand is specified and that it contains the field names specified on the BY operand. See LISTX - Performance List Extended report for the correct usage of the LISTX operands. Correct the command input and resubmit the job.

CPA0527E LIMIT field not specified in LISTX(BY fields

Explanation: The field name specified in the LIMIT operand was not properly specified in LISTX(BY). Whenever LIMIT is specified, the field must be the same as one of the field names specified in the LISTX(BY operand).

System action: The LISTX report is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Ensure that the LIMIT operand contains the same field name as one of the field names specified in the LISTX(BY operand. See LISTX(BY(field1,field2,field3) for the list of fields.

CPA0528E Only one field can be requested per LIMIT operand

Explanation: Only one LIMIT operand (for example, RESPONSE or FCAMCT) can be specified with the LISTX operand. If you want two reports, specify the LIMIT operand separately with each LISTX operand.

System action: The LISTX report is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See LISTX(LIMIT for the LIMIT operand and its usage. Correct the command input and resubmit the job.

CPA0529E LISTX(BY sort sequence is not ASCEND or DESCEND

Explanation: The sorting sequence specified in the BY operand is invalid. If specified, it must be ASCEND or DESCEND. If not specified, the default is ASCEND.

System action: The field is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See LISTX - Performance List Extended report for the format of the LISTX operand. Correct the command input and resubmit the job.

CPA0530E **SELECT operand has too many field values specified**

Explanation: The SELECT operand specified too many field values. The restrictions are:

1. Maximum of 14 START/STOP/ACTIVE time ranges.
2. Maximum of 28 time/count values or ranges.
3. Maximum of 56 four (4) character values. For example, Transaction IDs.
4. Maximum of 28 eight (8) character values. For example, User IDs.

System action: Field values specified after the maximum number is reached are ignored and not used in selection processing.

User response: See Using SELECT statements. Correct the command input and resubmit the job.

CPA0531E **SELECT given without correct Selection Criteria**

Explanation: Selection criteria were not specified, or were incorrectly specified for the selected field name.

System action: The SELECT statement is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: See Using SELECT statements for the SELECT operand and its usage. Correct the command input and resubmit the job.

CPA0537E **Date field has invalid format, digit, or value**

Explanation: CICS PA was unable to recognize a date field because of an invalid format, digit, or value.

System action: Processing is terminated.

User response: See Suboperands for Time Stamp fields for the correct date formats. Correct the command input and resubmit the job.

CPA0539E **A maximum of two chain names are allowed, this one ignored**

Explanation: This is an internal logic error.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0540E **Value previously used in another sublist**

Explanation: This is an internal logic error.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0542E ***** Routines specified exceed maximum of 511**

Explanation: Internal capacity exceeded. The cumulative number of routines specified for execution exceeds capacity. This might occur if an unusually large amount of command input is specified in one CICS PA batch job.

System action: Processing is terminated.

User response: Split the command input into two or more batch jobs.

CPA0543E **cannot be found as chained DISPLIST**

Explanation: This is an internal logic error.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0544E **No input DDnames found from names on EXECUTE commands**

Explanation: This is an internal logic error.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0545E **Error on BLDL**

Explanation: A BLDL SVC completed unsuccessfully. This can be caused by a load module that is in error, or not enough virtual storage was available to complete the request.

System action: Processing is terminated.

User response: Ensure that the load module library does not have a problem. If necessary, contact your IBM representative for help.

CPA0546E **BLDL failed for Exit Routine module**

Explanation: A BLDL SVC completed unsuccessfully for an Exit Routine module. This can be caused by a load module that is in error, or not enough virtual storage was available to complete the request.

System action: Processing is terminated.

User response: Ensure that the load module library does not have a problem. If necessary, contact your IBM representative for help.

CPA0547E **Header name invalid or not specified**

Explanation: This is an internal logic error.

System action: Processing is terminated.

CPA0548E • CPA0560E

User response: Contact your IBM representative for help.

CPA0548E TO-time prior to FROM-time

Explanation: The TO date/time specification is before the FROM date/time specification.

System action: No records are selected for processing.

User response: Correct the command input and resubmit the job.

CPA0549E Parms should not be enclosed in parentheses

Explanation: Parameters specified under the PARM command should not be enclosed in parentheses.

System action: Processing is terminated.

User response: Remove the parentheses from the PARM command input and resubmit the job.

CPA0553E STAE request ignored. Once STAE is turned off, it will not be reinstated

Explanation: PARM NOSTAE was specified in the command input cancelling the effective environment. After NOSTAE is specified, the affected environment cannot be restored. The subsequent PARM command specifying STAE is ignored, and processing continues.

System action: Processing continues without a STAE environment.

User response: Delete the PARM NOSTAE command from the command input and resubmit the job.

CPA0554E End of command stream encountered when not expected

Explanation: The CICS PA scan routine reached the end of the command stream in the middle of processing a command.

System action: Processing is terminated.

User response: Verify that all necessary parts of the last command (for example, closing parentheses and commas) are present and that the format is correct. Correct the command input and resubmit the job.

CPA0555E DCB has already been processed – will ABEND to prevent loop

Explanation: Internal logic error.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0556E Invalid syntax – cannot find command

Explanation: The CICS PA scan routine was unable to process the command input.

System action: Processing is terminated.

User response: Correct the command input and resubmit the job.

CPA0557E Unmatched quotes detected in data string

Explanation: The CICS PA scan routine found that a quotation mark was missing in a data string.

System action: The string is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Check the command input to ensure that all quotation marks are matched. Correct the command input and resubmit the job.

CPA0558E Too much data to process – Work Buffer full

Explanation: CICS PA had too much command input data to process. The CICS PA scan routine can handle only 8192 bytes of input per command.

System action: Processing is terminated.

User response: Reduce the command input size. You might have to break the command stream into two separate commands.

CPA0559E Input ends in a range indicator – dummy field generated

Explanation: The CICS PA scan routine found that the command input ended in the middle of a range indicator. For example, in ID(90-., the upper range value and closing parenthesis are missing.

System action: The range is treated as a single value and command processing continues.

User response: Correct the command input and resubmit the job.

CPA0560E Invalid character after quote string – not " " or "(" or ")"

Explanation: The three listed characters are the only allowable characters that can follow a data string in quotes.

System action: Command processing continues at the next operand. Processing is terminated after all commands are validated.

User response: Correct the command input and resubmit the job.

CPA0561E Syntax error or unrecognizable format in field

Explanation: CICS PA was unable to recognize the input indicated in the error message.

System action: Processing is terminated.

User response: See General command format for the command formats and check the syntax rules. Correct the command input and resubmit the job.

CPA0562E Unpaired parentheses detected

Explanation: CICS PA found an unpaired parenthesis. Either one parenthesis is missing or there is an extra parenthesis.

System action: CICS PA ignores the unpaired parenthesis and command processing continues. Processing is terminated after all commands are validated.

User response: Check the command input for unmatched parentheses. Correct the command input and resubmit the job.

CPA0563E Exceeded maximum depth of parentheses nesting – 254

Explanation: When specifying operands and sub-operands, the maximum number of parenthesis nesting levels is 254.

System action: Command processing continues at the next operand. Processing is terminated after all commands are validated.

User response: Correct the command input to eliminate extra parenthesis nesting and resubmit the job.

CPA0564E Data string processed – unpaired quote detected

Explanation: CICS PA found a data string with unpaired quotation marks.

System action: Command processing continues at the next operand. Processing is terminated after all commands are validated.

User response: Check the command input for unmatched quotation marks. Insert the missing quotation mark or remove the extra one, and resubmit the job.

CPA0566E Right parenthesis inserted at end of string

Explanation: An ending right parenthesis is missing in the command input.

System action: CICS PA inserts the missing parenthesis and command processing continues.

User response: Correct the command input to avoid getting this message, then resubmit the job.

CPA0567E Exceeded maximum number of fields – 1022

Explanation: Only 1022 fields and operands are allowed in the command input.

System action: Extra fields are ignored and command processing continues.

User response: Correct the command input to eliminate the extra fields and resubmit the job.

CPA0568E Command not found in command list – ignored

Explanation: CICS PA did not recognize the command indicated in the error message.

System action: The command is ignored and command processing continues. Processing is terminated after all commands are validated.

User response: Correct the command input and resubmit the job.

CPA0580E CMDLIB DD card is missing or DD DUMMY – unable to process command

Explanation: A COPY or INCLUDE instruction is specified with one or more member names to be copied in the command input. These members must reside on a PDS defined by the CMDLIB DD statement.

System action: Processing is terminated.

User response: Check the JCL for proper specification of the CMDLIB DD statement and resubmit the job.

CPA0581E No member name specified – command ignored

Explanation: A COPY or INCLUDE instruction was encountered with no operands specifying member names to be copied.

System action: Processing is terminated.

User response: Add the PDS or library member names, or delete the COPY/INCLUDE instruction from the command input and resubmit the job.

CPA0582E Operand must be a single list of names

Explanation: The COPY or INCLUDE instruction did not specify a list of valid member names.

System action: Processing is terminated.

User response: Correct the COPY or INCLUDE instruction to make the operand a member name or a list of member names and resubmit the job.

CPA0583E is a member already copied – this entry skipped

Explanation: A second copy request for the member named in this error message has been encountered. It was copied from a previous member or specified twice under the COPY or INCLUDE instruction. To prevent any possible loops, the second copy is ignored.

System action: Processing is terminated.

User response: Correct the command input and resubmit the job.

CPA0584E not found in Command Library

Explanation: A member name specified on the COPY or INCLUDE instruction does not reside in the library defined by the CMDLIB DD statement.

System action: Processing is terminated.

User response: Correct the command input and resubmit the job.

CPA0587E PEAK percentile must be in the range 50% to 100%

Explanation: The PEAK operand was outside the range of 50 to 100 percent.

System action: The operand is ignored and command processing continues.

User response: Correct the PEAK specification and resubmit the job.

CPA0593E EXTERNAL operand is missing and External Work File not specified in JCL

Explanation: The specified report did not specify an EXTERNAL operand and no External Work File is available in the JCL to satisfy the request. This report requires an External Work File to sort its records.

System action: The report is ignored and command processing continues.

User response: Specify an External Work File in the JCL with a DDname prefixed by CPAXW. Optionally specify this DDname in the EXTERNAL operand to associate the report with this file. If the EXTERNAL operand is not specified, CICS PA will assign the next available External Work File in the pool until they are exhausted. See External sorting for information on the DD statements for External Work Files.

CPA0594E GRAPH type not specified – default RESPONSE used

Explanation: The GRAPH report did not specify a type. Valid GRAPH types are RESPONSE and TRANRATE.

System action: The default RESPONSE is used and processing continues.

User response: See GRAPH - Graph reports for information on the command format. Correct the GRAPH operand and resubmit the job.

CPA0595E SUBSTR specification invalid – must be SUBSTR(Start,Length)

Explanation: Character User Field SUBSTR operand is not specified correctly.

- The first suboperand is the starting position and must have a value in the range 1 to 256.
- The second suboperand is the length.
- The length must be in the range 1 to 256 for the LIST report, or in the range 1 to 8 for the SUMMARY report.
- The length when added to the starting position should not exceed the length of the Character User Field.

System action: SUBSTR is ignored and command processing continues.

User response: Correct the SUBSTR specification and resubmit the job.

CPA0596E INTERVAL specification invalid – must be HH:MM:SS (00:00:01 to 24:00:00)

Explanation: The Performance Summary report time interval is not specified correctly. INTERVAL must specify a time interval between 1 second and 24 hours in the format *hh:mm:ss* where hh is the number of hours, mm is the number of minutes and ss is the number of seconds.

INTERVAL represents the time interval when the Summary report or extract is sorted by transaction Start or Stop time.

System action: INTERVAL is ignored and command processing continues.

User response: Correct the INTERVAL specification and resubmit the job.

CPA0597E SYSID specification invalid – must be SYSID(applid,mvsid)

Explanation: The Cross-System Extract SYSID operand is not specified correctly. The first suboperand is the APPLID that is set in the SMFMNPRN, SMFMNSPN and SMFMNJBK fields of the CMF records written to the Extract data set. The second suboperand is the MVS ID that is set in the SMFSID field of the CMF records written to the Extract data set.

System action: SYSID is ignored and command processing continues.

User response: Correct the SYSID specification and resubmit the job.

CPA0598E SSID operand requires a 4 character name

Explanation: A valid DB2 Subsystem ID was not specified with the SSID operand.

System action: The operand is ignored and command processing continues.

User response: Correct the SSID specification and resubmit the job.

CPA0599E LOGGER INTERVAL must be in the range 1 to 60 minutes

Explanation: The System Logger report INTERVAL operand was not in the range 1 to 60 minutes. The INTERVAL operand specifies the SMF Global Reporting Interval as defined in the SMFPRMnn PARMLIB member.

System action: The operand is ignored and command processing continues.

User response: Correct the INTERVAL specification and resubmit the job.

CPA0601E Field exceeds maximum, value set to mmmmmmm

Explanation: A value was specified in the command input that exceeded the allowable maximum.

System action: Processing is terminated.

User response: The value is set as indicated in the error message. If this default value produces unsatisfactory results, correct the command and resubmit the job.

CPA0604E BLDL failed for Prescan module xxxxxxxx in Dispatch Set xxxxxxxx

Explanation: The CICS PA Prescan module cannot be found in the load library. This message should not occur and indicates a problem with the CICS PA load library.

System action: Processing is terminated.

User response: Ensure that the CICS PA Prescan module name is CPAPRSMF and that it resides in the CICS PA load library. Otherwise, contact your IBM representative for help.

CPA0605E BLDL failed for program module xxxxxxxx

Explanation: The specified CICS PA module cannot be found in the load library. This message should not

occur and indicates a problem with the CICS PA load library.

System action: Processing is terminated.

User response: Ensure that the CICS PA module resides in the CICS PA load library. Otherwise, contact your IBM representative for help.

CPA0606E xxxxxxxx program in Dispatch Set xxxxxxxx has no record codes to process

Explanation: The specified CICS PA record processing module does not have a list of record codes to process. This message should not occur and indicates a problem with CICS PA.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0607E Dispatch Set xxxxxxxx has no routines to execute

Explanation: The command input for the specified Dispatch Set (INPUT DDname) does not have any reports to process. This message should not occur and indicates a problem with CICS PA.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA0608E First command module to signal an error was xxxxxxxx

Explanation: This error message is issued at the completion of command processing when errors have been encountered. It identifies the CICS PA module that issued the first error message.

System action: Processing is terminated.

User response: Look for error messages before this message that might indicate a command error. Correct the command input and resubmit the job.

CPA0609E Field is longer than maximum (nnnn chars) – possibly misplaced quote

Explanation: A field in the command input, indicated in the error message, is longer than the maximum *nnnn* characters.

System action: Processing is terminated.

User response: Correct the command input so that the field is within the maximum, and resubmit the job.

CPA0611E INPUT DDname xxxxxxxx is missing from JCL

Explanation: The INPUT operand specified a DDname that is not defined in the JCL.

System action: The reports that use this input file cannot run. Command processing continues.

User response: See INput for more information on this operand. Specify the Input File in the JCL and resubmit the job.

CPA0612E EXTERNAL DDname xxxxxxxx can only be used by a single report

Explanation: The EXTERNAL operand specified a DDname that is used by a previously requested report. An External Work File can only be used by a single report.

System action: The report is ignored and command processing continues.

User response: Ensure that each report requiring an External Work File has either a unique EXTERNAL specification, or enough External Work Files files are defined in the pool. The External Work File pool consists of all DD statements in the JCL prefixed by CPAXW. See External sorting for information on the DD statements for External Work Files.

CPA0613E

Explanation: The EXTERNAL operand specified a DDname that is not defined in the JCL.

System action: The report is ignored and command processing continues.

User response: Specify the missing External Work File in the JCL. See External sorting for information on the DD statements for External Work Files.

CPA0614E EXTERNAL DDname xxxxxxxx is not a DASD or Tape file

Explanation: The EXTERNAL operand specified a DDname that does not have a device type of DASD or Tape.

System action: The report is ignored and command processing continues.

User response: Correct the External Work File DD statement to specify a DASD or Tape data set. See External sorting for information on the DD statements for External Work Files.

CPA0615E Extract DDname xxxxxxxx is missing from JCL

Explanation: The DDNAME operand specified a DDname that is not defined in the JCL.

System action: The extract is ignored and command processing continues.

User response: Specify the missing Extract data set in the JCL. For more information on the command format and JCL for CICS PA extracts, see:

- CROSSsystem - Cross-System Work report and extract
- EXTRACTPERFORMANCE - Performance data extract

CPA0620E HDB name is missing or invalid

Explanation: The REPORT or LOAD operand does not specify a valid HDB name sub-operand.

System action: The report is request is ignored and command processing continues.

User response: Specify a valid HDB name with the REPORT or LOAD operand. For example: REPORT(MYHDB) or LOAD(MYHDB)

CPA0621E BY Field name xxxxxxxx is invalid

Explanation: The WAITANALYSIS BY operand specified an invalid CMF Field name. Only character and time stamp fields can be specified.

System action: The report request is ignored and command processing continues.

User response: Specify correct field name(s) in the BY operand.

CPA0622E Field name xxxxxxxx is invalid

Explanation: The FIELDS operand for an HDB REPORT request specified an invalid field name.

System action: The REPORT request is terminated and command processing continues.

User response: Correct the FIELD names specification.

CPA0623E First Field name xxxxxxxx is not a valid Sort Field

Explanation: The FIELDS operand for an HDB REPORT request did not specify a valid Sort field as the first field. Only Character (for example, TRAN) and Time Stamp (for example, START) fields can be Sort fields.

System action: The report request is ignored and command processing continues.

User response: Specify a valid Sort Field as the first field in the FIELDS operand.

CPA0624E Field *xxxxxxx* specified an invalid Type or Function *xxxxxxx*

Explanation: The specified Field requested an invalid Field Type or Function. Allowed Field Types are: TIME, COUNT, TIMET, TIMEM, TIMES, DATE, DATEISO, DATEM, DATEYR. Allowed Field Functions are: AVE, TOTAL, DEV.

System action: The report request is ignored and command processing continues.

User response: Correct the FIELD Type or Function.

CPA0625E Field *xxxxxxx* is not a valid CMF Field name

Explanation: The specified Field is not a known CMF Performance Class Field name.

System action: The report request is ignored and command processing continues.

User response: Correct or remove the Field name.

CPA0626E Field ignored due to invalid Format. Valid Formats are K, KB, M, and MB

Explanation: The specified COUNT field format is invalid.

System action: The field is ignored and command processing continues.

User response: Specify a valid COUNT field format.

CPA0627W Field ignored due to invalid Format 12. Valid Formats are K, KB, M, and MB

Explanation: The COUNT field format specified is invalid.

System action: The field is ignored and command processing continues.

User response: Specify a valid COUNT field format.

CPA0628E Invalid combination of BASELINE and REPORT parameters for ID(*nnnn*).

Explanation: Either both or neither BASELINE and REPORT operands have been specified on a PROFILING request.

System action: The report is ignored and command processing continues.

User response: Specify either BASELINE or REPORT on each PROFILING request.

CPA0629E Duplicate BASELINE/REPORT have been specified for ID(*nnnn*)

Explanation: Two commands for the same ID have been specified for a PROFILING report.

System action: The report is ignored and command processing continues.

User response: Specify only one BASELINE and one REPORT command for each ID.

CPA0630E ID zero or too large. *nnnnnnnnnnnnnnnnnn*

Explanation: Value given for ID is zero or too large.

System action: The report is ignored and command processing continues.

User response: Specify correct ID.

CPA0631W More than one Statistics report requested. Extra reports ignored.

Explanation: The STATSALERT operand contained more than one report type. Only one report per STATSALERT operand is allowed.

System action: The second and subsequent reports are ignored and command processing continues.

User response: Create a separate STATSALERT operand for each required report, and then rerun.

CPA0632E Suboperand STALTDEF missing or invalid.

Explanation: The STATSALERT operand does not specify a valid STALTDEF suboperand.

System action: The request is terminated.

User response: Specify a STALTDEF suboperand.

CPA0633E Statistics Alerts Definition name missing or invalid

Explanation: The STATSALERT operand does not specify a valid Statistics Alert Definition MEMBER name.

System action: The request is terminated.

User response: Specify a valid Statistics Alerts Definition MEMBER name operand, for example: MEMBER(MYALERTS).

CPA0634E Statistics ID not specified.

Explanation: The command requires a Statistics ID.

System action: The request is terminated.

User response: Correct the command by specifying a valid Statistics ID.

CPA0635E Command name ambiguous.

Explanation: The specified command name is ambiguous and could not be uniquely identified.

System action: The request is terminated.

User response: Specify the full command name.

CPA0636E Log Stream requires SMFSTART.

Explanation: Log Stream input must have an SMFSTART to reduce the number of Log Stream records that are processed.

System action: The request is terminated.

User response: Add the SMFSTART operand and run the request again.

CPA0637E MVSID operand requires a 4 character name

Explanation: A valid MVS ID was not specified with the MVSID operand.

System action: The report is ignored and command processing continues.

User response: Specify a valid MVS ID.

CPA0638E Operand specified invalid value

Explanation: An invalid value is specified in the named operand.

System action: The request is terminated.

User response: Correct the operand value and run the request again.

1000–1099 Dialog messages

These messages are issued by the CICS PA dialog during JCL generation, or when creating Report Sets, Report Forms, Object Lists, and so on. For other CICS PA dialog messages, refer to the Online Help.

CPA1001E Parameter list error; Module=xxxxxxx

Explanation: A CICS PA dialog module was passed an invalid parameter.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA1002E File not allocated; DDname=xxxxxxx

Explanation: A CICS PA dialog module has detected that the specified DDname was not allocated.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA1003E DFHMNDUP has abended; Abend Code=xxxxxxx, Reason Code=xxxxxxx, APPLID=xxxxxxx

Explanation: CICS PA could not create a new Report Form because the CICS Monitoring utility DFHMNDUP has abended.

System action: Processing is terminated.

User response: If the abend code is S806-04, then verify that either the SDFHAUTH and SDFHLINK data sets contain the DFHMNDUP module and the Monitoring Control Table (MCT) module, if the MCT suffix was specified. The SDFHAUTH and SDFHLINK data sets and the MCT suffix are specified in the CICS

system definition. Otherwise, contact your IBM representative for help.

CPA1004E DFHMNDUP failed to generate CMF Performance Dictionary record; Reason=EOD

Explanation: CICS PA could not create a new Report Form because the CICS Monitoring utility DFHMNDUP failed to create a CMF Dictionary record.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA1005E ATTACH macro error; Ret=xx

Explanation: CICS PA could not create a new Report Form because the ATTACH macro failed.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA1006E DFHMNDUP has failed; RC=xx

Explanation: CICS PA could not create a new Report Form because the CICS Monitoring utility DFHMNDUP completed with a non-zero return code.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

**CPA1020E Table Library not available;
DDname=xxxxxxx**

Explanation: A CICS PA dialog module has detected that the specified DDname for the Table library was not allocated.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

**CPA1021E System Definition Table for CICS PA
xxxx has a format error**

Explanation: CICS PA determined that the Table containing your CICS System and SMF File definitions is not in the correct format.

- If the CICS PA version is V1R1, then CICS PA was attempting to upgrade your CICS PA V1R1 definitions to V1R2 or later, but failed to do so.
- If the CICS PA version is V1R2 or later, then CICS PA failed to read your saved System Definitions.

The System Definitions Table is a member in your Permanent ISPF Table Library, which is specified in your CICS PA Settings.

- For CICS PA V1R1, the member name is CPASMF1N.
- For CICS PA V1R2 or later, the member name is CPASMF12.

System action: Processing is terminated.

User response: Try one of the following:

- If the problem occurred during an upgrade from CICS PA V1R1 to V1R2 or later, then you can retry you request. When prompted to upgrade your CICS PA V1R1 System Definitions, reply Exit or Cancel.
- For CICS PA V1R2 or later, delete member CPASMF12 from your Permanent ISPF Table Library, then retry your request.

Note: In both cases, you will lose your saved System Definitions and you will not be able to recover them. If this problem is occurring regularly, or you do not want to delete your saved System Definitions, then contact your IBM representative for help.

CPA1022E Member xxxxxxxx is not a Report Form

Explanation: CICS PA determined that the specified member is not in the correct format for a Report Form.

System action: Processing is terminated.

User response: Verify that the specified member in the Report Form library is a Report Form. Otherwise, contact your IBM representative for help.

**CPA1023E Report Form data set not available;
DDname=xxxxxxx**

Explanation: A CICS PA dialog module has detected that the specified DDname for the Report Form library was not allocated.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA1024E Member xxxxxxxx is not a Report Set

Explanation: CICS PA determined that the specified member is not in the correct format for a Report Set.

System action: Processing is terminated.

User response: Verify that the specified member in the Report Set library is a Report Set. Otherwise, contact your IBM representative for help.

**CPA1025E Report Set data set not available;
DDname=xxxxxxx**

Explanation: A CICS PA dialog module has detected that the specified DDname for the Report Set library was not allocated.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA1026E No systems are defined

Explanation: No systems have been defined in System Definitions.

System action: Processing is terminated.

User response: From **System Definitions**, define the CICS systems, DB2 subsystems and System Loggers that you want to report against.

**CPA1027E Report Set JCL generation failed.
System or Group is not defined**

Explanation: CICS PA has detected that your System Definitions do not contain the System or Group of systems that were requested for report processing. Message CPA1030E is issued in conjunction with this message to identify the offending System or Group, as well as the report that is causing the failure.

System action: Processing is terminated.

User response: Either from **System Definitions**, define the System or Group that you want to report against, or alter the report to specify a System or Group that is eligible for report processing.

**CPA1028E Report Set JCL generation failed.
System or Group not specified**

Explanation: You have not specified the System or Group of systems to be reported. System or Group can be specified at the following System Definition points:

1. In the individual reports or extracts of the Report Set
2. At submission time in the Run Report Set panel
3. In the Global Options of the Report Set

The order of this list also reflects the precedence of selecting systems for reporting.

System action: Processing is terminated.

User response: Specify the System or Group that you want to report against.

**CPA1029E Report Set JCL generation failed.
System or Group has no SMF files**

Explanation: CICS PA has detected that the System or Group requested for report processing has no SMF Files specified. Message CPA1030E is issued in conjunction with this message to identify the offending System or Group, as well as the report that is causing the failure.

System action: Processing is terminated.

User response: From **System Definitions**, define SMF Files for the offending System or Group.

**CPA1030E *aaaaaa=system, Report=report,*
*Output=output***

Explanation: This message details failure information and is issued in conjunction with a previous error message (1027-1029).

- *aaaaaa=system* is the offending System or Group name.
- *report* is the Report that specified the offending System or Group name.
- *output* is the Report Output DDname or Extract Data Set name that further identifies the report or extract.

System action: Action is determined by the previously issued error message.

User response: Response is determined from the previously issued error message. Use this message to determine which report or extract is causing the failure.

**CPA1031E Report Set JCL generation failed. No
reports are active**

Explanation: CICS PA has detected that no reports are active in the Report Set.

System action: Processing is terminated.

User response: Activate the required reports in the Report Set.

**CPA1032E Report Set JCL generation failed. Report
Form is not defined**

Explanation: CICS PA has detected that a Report Form specified in a report is not in the Report Form library. Message CPA1034E is issued in conjunction with this message to identify the offending Report Form, as well as the report that is causing the failure.

System action: Processing is terminated.

User response: From **Report Forms**, define the required Report Form, or alter the report to specify a Report Form that is defined.

**CPA1033E Report Set JCL generation failed. Report
Form not in correct format**

Explanation: CICS PA determined that the specified member is not in the correct format for a Report Form. Message CPA1034E is issued in conjunction with this message to identify the offending Report Form, as well as the report that is causing the failure.

System action: Processing is terminated.

User response: Verify that the specified member in the Report Form library is a Report Form. Otherwise, contact your IBM representative for help.

**CPA1034E *Form=formname Report=report,*
*Output=output***

Explanation: This message details failure information, and is issued in conjunction with a previous error message.

- *formname* is the offending Report Form.
- *report* is the Report that specified the offending Report Form.
- *output* is the Report Output DDname that further identifies the report.

System action: Action is determined by the previously issued error message.

User response: Response is determined from the previously issued error message. Use this message to determine which report is causing the failure.

**CPA1035E Object List data set not available;
DDname=xxxxxxx**

Explanation: A CICS PA dialog module has detected that the specified DDname for the Object List library was not allocated.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA1036E Report Set JCL generation failed. Object List is not defined

Explanation: CICS PA has detected that an Object List specified in a report is not in the Object List library. Message CPA1038E is issued in conjunction with this message to identify the offending Object List, as well as the report that is causing the failure.

System action: Processing is terminated.

User response: Either:

- From the CICS PA Primary Option Menu, select **Object Lists** a define the required Object List or
- Alter the report to specify an Object List that is defined.

CPA1037E Report Set JCL generation failed. Object List not in correct format

Explanation: CICS PA determined that the specified member is not in the correct format for an Object List. Message CPA1038E is issued in conjunction with this message to identify the offending Object List, as well as the report that is causing the failure.

System action: Processing is terminated.

User response: Verify that the specified member in the Object List library is an Object List. Otherwise, contact your IBM representative for help.

CPA1038E Object List=*objlist*, Report=*report*, Output=*output*

Explanation: This message details failure information, and is issued in conjunction with a previous error message.

- *objlist* is the offending Object List.
- *report* is the report or extract that specified the offending Object List.
- *output* is the Report Output DDname or Extract Data Set name that further identifies the report or extract.

System action: Action is determined for the previously issued error message.

User response: Response is determined from the previously issued error message. Use this message to determine which report or extract is causing the failure.

CPA1039E System Definitions are corrupted

Explanation: CICS PA has detected that your System Definitions are corrupted. The System Definitions are stored in your CICS PA Table Library, member CPASMF1 for V1R1 and CPASMF12 for V1R2 or later.

System action: System validation processing is terminated.

User response: Contact your IBM representative for help.

CPA1040E Report Set JCL generation failed. Systems to be reported have no SMF Files specified

Explanation: CICS PA has detected that all Systems and Groups to be reported do not have any SMF Files specified.

System action: Processing is terminated.

User response: From **System Definitions**, define SMF Files for the Systems or Groups that you want to report against. Alternatively, change the Missing SMF File option on the Run Report Set panel from 3 (Disregard offending reports) to either:

1. Issue error message. CICS PA will inform you which System or Group does not have SMF Files specified, or
2. Leave DSN unresolved in JCL. CICS PA will generate the report JCL, but leave the SMF File data set name(s) unresolved in the JCL.

CPA1041E Reason=*reason* Member=*membername* DSN=*datasetname*

Explanation: CICS PA could not SAVE your currently active EDIT session. The reasons why your SAVE request might have failed are:

- **ABEND** - Save request has abended
- **PDS Directory Full** - The PDS directory is full
- **BLDL or STOW error** - Unsupported return code from BLDL/STOW SVC

System action: The SAVE request is aborted.

User response: For ABENDSx37 conditions, compress the data set or re-allocate the data set with a larger primary/secondary space allocation.

For Directory Full or ABENDSB14-0000000C conditions, re-allocate the data set with a larger directory block allocation.

For all other conditions, contact your IBM representative for help.

CPA1042E Dictionary data set is not RECFM=V

Explanation: The specified data set cannot be used as a Dictionary data set because the record format is not Variable (RECFM=V).

System action: Processing is terminated.

User response: Ensure that the Dictionary data set is allocated with a variable record format. Alternatively, specify a new Dictionary data set name. CICS PA will allocate it with the correct attributes.

CPA1043E Dictionary data set is a PDS but member name is not specified

Explanation: The specified Dictionary data set is Partitioned (PDS) but a member name is not specified.

System action: Processing is terminated.

User response: Specify a member name and retry your request.

CPA1044E Report Set JCL generation failed. HDB has no data within specified time range.

Explanation: CICS PA has detected that the HDB is empty or has no container data sets in the specified time range. Message CPA1045E, issued after this message, identifies the HDB and report that are causing the failure.

System action: Processing is terminated.

User response: See the message CPA1045E following this message to identify the HDB and report. Either specify a different HDB or a different time range, and then retry your request.

CPA1045E HDB=*hdb-name*, Report=*report-name*, Output=*ddname*, From=*yyyy/mm/dd hh:mm:ss*, To=*yyyy/mm/dd*

Explanation: This message provides additional details for the previous message. The From value only contains *hh:mm:ss* if the From and To dates are the same. The Output value identifies the ddname of the report output or extract data set.

System action: See the action for the previous message.

User response: Use this message to identify the report that caused the failure described by the previous message. For more information, see the response for the previous message.

CPA1046E Report Set JCL generation failed. condition Report=*report-name*, Output=*ddname*

Explanation: CICS PA has detected one of the following conditions:

HDB not specified.

The required HDB was not specified in the indicated report.

Unable to access Repository.

The required repository could not be accessed either because it was not specified or it was not allocated.

This message identifies the report that caused the failure and the output ddname.

System action: Processing is terminated.

User response: Specify the required HDB in the failing report or ensure that the repository is specified in the Historical Database function and has been allocated.

CPA1047E Report Set JCL generation failed. Form=*form-type* type is invalid for Report=*report-name*

Explanation: CICS PA has detected that the Report Form specified in a report is not the right type of form for this report.

System action: Processing is terminated.

User response: Specify a compatible form type:

- For the Transaction Tracking List Report: specify a List Form.
- For Transaction Tracking Summary Report: specify a Summary Form.

CPA1048E Report Set JCL generation failed. No Statistics reports selected for Statistics Extracts.

Explanation: CICS PA has detected that no Statistics reports have been selected for processing.

System action: Processing is terminated.

User response: Specify one or more Statistics reports for processing.

CPA1049E Transaction Profiling JCL generation failed. Log Stream is not valid for Baseline reporting.

Explanation: The data source corresponding to the specified APPLIDs includes a log stream. Baseline data for transaction profiling can only be sourced from SMF files or performance HDBs, not log streams.

System action: Processing is terminated.

User response: Ensure that a log stream is not selected for Baseline processing by making one of the following updates:

- Change the report interval.
- Remove the log stream from the selected system definition.
- Select a different system.
- Clear the **Use Log Streams when available** setting in the File Selection profile options.

CPA1050E Report Set JCL generation failed. Group contains more than one Log Stream for the same System type.

Explanation: The group requested for report processing has more than one log stream for the same type of system. Message CPA1030E is issued with this message to identify the group and the report that caused the failure.

System action: Processing is terminated.

User response: In the system definition, ensure the group contains systems with no more than one distinct log stream for each type.

CPA1051E Report Set JCL generation failed. No Image in the System for DASD-only Log Stream.

Explanation: The system requested for report processing has no image specified. The DASDONLY Log stream option is selected in your profile options, indicating that all log streams will be treated as DASD-only and require an image name to execute.

Message CPA1030E is issued with this message to identify the system and the report that caused the failure.

System action: Processing is terminated.

User response: In the system definition, define an image for this system.

CPA1052E Report Set JCL generation failed. Report Interval must be specified when using a Log Stream.

Explanation: A log stream was selected for report

processing but no report interval or an incomplete report interval was specified. The log stream retention period (RETPD) specified in the system definition is used to indicate the period of data it covers. You must provide a complete report interval so that CICS PA can both determine whether the log stream has all the data required for reporting and limit the amount of data that needs to be processed.

System action: Processing is terminated.

User response: Define a complete report interval with From and To dates and times.

CPA1053E Report Set JCL generation failed. More than one Log stream found in report request using DASDONLY.

Explanation: The group requested for report processing has more than one log stream for the same type of system. Message CPA1030E is issued with this message to identify the group and the report that caused the failure.

System action: Processing is terminated.

User response: In the system definition, ensure the group contains systems with no more than one distinct log stream for each type.

2000–2099 Data Take-up messages

These messages are issued during take-up processing. See “Personal Take-Up from SMF File” on page 106.

CPA2000I Take-up processing has completed, RC=*nn*

Explanation: Take-up processing completed with the specified return code. If the return code is not zero, then Take-up processing encountered a problem.

System action: Take-up terminates.

User response: None required.

CPA2001E SYSPRINT IS MISSING FROM THE JCL - RUN ABORTED

Explanation: The required SYSPRINT DD card is missing from the JCL.

System action: Processing is terminated, RC=16.

User response: Correct the JCL and resubmit.

CPA2002E Take-up aborted due to an unrecoverable error - RSN=*nnnn* INFO=*xxxxxxxx*

Explanation: CICS PA could not complete take-up due to an unrecoverable error. RSN is the reason code. For some reason codes, INFO provides additional information.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA2003E Dialog table DD CPATABL is missing from the JCL

Explanation: No CPATABL DD card is present in the JCL but it is required.

System action: Processing is terminated.

User response: Correct the JCL and resubmit.

CPA2004E Dialog table data set (CPATABL) is unavailable

Explanation: The data set associated with the CPATABL DD was unavailable when Take-up attempted to save. This is likely to be due to a conflict with a CICS PA Dialog user, or another Take-up job running concurrently.

System action: Processing is terminated.

User response: Resubmit the job.

CPA2005W Dialog Take-up member is invalid and will be replaced

Explanation: The existing dialog Take-up member (CPASMFU) was found to be in error and is replaced, correcting the member.

System action: Processing continues.

User response: None required.

CPA2006E Concatenated data sets are not supported, ignored DD SMFINxxx

Explanation: An SMFIN DD was found to contain concatenated data sets, which are not supported by Take-up. The Dialog associates Systems with SMF Files. Take-up must be able to identify the Systems present within each SMF data set.

System action: Processing continues, however the SMFIN DD(s) with concatenated data sets is ignored.

User response: If the ignored SMFIN DD's data sets are required, then modify the JCL for the given SMF files so that each of the concatenated data sets is assigned a unique SMF file name (SMFIN) and resubmit.

CPA2007E SMF input files (SMFIN) missing from the JCL

Explanation: No SMF input files were found in the JCL. SMF input files have a DDname prefix of SMFIN.

System action: Processing is terminated.

User response: Correct the JCL and resubmit.

CPA2008W Unable to determine Unit Name for SMF file SMFINxxx

Explanation: Take-up processing is unable to determine the Unit Name associated with the given SMF file's data set.

System action: Processing continues but the SMF file will not be assigned a Unit Name.

User response: After Take-up has been applied, manually specify the Unit Name for this SMF file in **System Definitions**.

CPA2009E Unsupported device type for SMF file SMFINxxx

Explanation: The given SMF file's data set has a device type that is not supported. Only DASD or Tape devices are supported by CICS PA.

System action: Processing is terminated.

User response: Ensure that the SMF file resides on a DASD or Tape volume then resubmit the job.

CPA2010E Unable to obtain information for SMF file SMFINxxx - RC=nn RSN=nnn INFO=xxxxxxxx

Explanation: Take-up processing is unable to obtain some required information for the given SMF file. RC is the return code, RSN is the reason code, and INFO is either UNIT or DSN indicating the type of information that could not be obtained.

System action: Processing is terminated.

User response: Contact your IBM representative for help.

CPA2011E Dialog limit of 16 VOLSERs exceeded for SMF file SMFINxxx

Explanation: The given SMF file has specified an uncataloged data set of more than 16 volumes, which is the Dialog limit. The CICS PA Dialog only supports data sets with more than 16 volumes if they are cataloged.

System action: Processing is terminated.

User response: Specify cataloged data sets, or uncataloged data sets with no more than 16 volumes.

CPA2012I Processing started for SMF file SMFINxxx

Explanation: Take-up processing has begun for the specified SMF file.

System action: Processing continues.

User response: None required.

CPA2013I Processing ended for SMF file SMFINxxx - nnn system(s) found

Explanation: Take-up processing has ended for the specified SMF file, and the number of systems identified by Take-up is given.

System action: Processing continues.

User response: None required.

CPA2014I CMF record for CICS system found, APPLID=xxxxxxxx Release=v.r.m

Explanation: Take-up processing has encountered a new CICS system, or a higher release level for a CICS system already listed.

System action: Processing continues.

User response: None required.

CPA3001E • CPA3010W

Key VSAM key in error

System action: CICS PA terminates the function.

User response: Contact your system administrator.

CPA3001E **Repository is corrupted, Reason=xx. Run Housekeeping to diagnose and repair**

Explanation: Your Repository is corrupted, or an update action cannot be performed against it. The reason codes are:

- 01 Repository is empty on a non-Initialization call. CICS PA automatically initializes the Repository when you first use it.
- 02 Repository does not contain a Control record.
- 11 Selection Criteria record missing.
- 21 PC Segment Code not set.
- 22 PS/PI Segment Code not set.
- 23 PI Segment Code has invalid Date/Time.
- 24 PS Object List is missing.
- 25 Unsupported PS Field Type.
- 31 Template contains too many fields.

System action: CICS PA immediately stops processing.

User response: Contact your IBM representative for help.

CPA3002W **HDB Object in use, try later, Name=xxxxxxxx**

Explanation: Your request to edit a Repository object cannot be honored because another user is already editing it. The object can be an HDB Definition, a Template, or a Resource List.

System action: CICS PA immediately stops processing.

User response: Retry your request when the object becomes available.

CPA3003W *object not found, Name=name*

Explanation: The specified object could not be found in the repository. The object can be an HDB definition, a Template, a Data Set Container, or a Resource List.

System action: CICS PA immediately stops processing.

User response: Refresh the list of objects by exiting the current panel, and then retry your request. If the object still appears in the list but cannot be selected, then contact IBM.

CPA3004W **Repository not available, try later**

Explanation: Your request to update the Repository could not be honored because another user is already updating it.

System action: CICS PA immediately stops processing.

User response: Updates should complete very quickly, so retry your save request.

CPA3005E **ENQ macro failed, RC=xx**

Explanation: The ENQ macro has failed with an unsupported Return Code.

System action: CICS PA immediately stops processing.

User response: Exit ISPF to free the ENQ and then retry your request. If the problem reoccurs, contact IBM.

CPA3007W *object already exists, Name=name*

Explanation: The specified object already exists in the Repository. You cannot create a new object with the same name. The object can be an HDB Definition, a Template, or a Resource List.

System action: CICS PA immediately stops processing.

User response: Select another name for the object and retry your request.

CPA3008W *object is required, Name=name*

Explanation: The specified object cannot be deleted from the Repository because another object references it.

System action: CICS PA immediately stops processing.

User response: None required. The object cannot be deleted at present. In some cases, running a Housekeeping job will resolve this issue because Housekeeping deletes objects from the Repository that are no longer needed.

CPA3009C **HDB - failing component and action**

Explanation: CICS PA has suffered a catastrophic failure in the specified component.

System action: CICS PA immediately stops processing.

User response: If the problem reoccurs, contact your IBM representative.

CPA3010W **HDB Definition is using an undefined Template, HDB=xxxxxxxx, Template=xxxxxxxx**

Explanation: There was an attempt to save an HDB definition that references an undefined Template Name.

System action: The request is rejected.

User response: Create the Template and retry the request, or change the name of the Template to one that exists in the Repository and retry the request.

CPA3011E HDB Template/System/Group not found, Name/Token=xxxxxxxx

Explanation: The required template, system definition, or group could not be found, possible due to an integrity problem in the repository.

System action: CICS PA immediately stops processing.

User response: Contact your IBM representative for help.

CPA3012E HDB has already been loaded for the current SMF input, Name=xxxxxxxx

Explanation: The HDB load failed due to the same SMF file being used to load the HDB for the same time interval. This restriction is applied to prevent duplicate data being loaded into the same HDB by multiple loads.

System action: CICS PA immediately stops processing.

User response: Rerun the HDB load either with a different SMF input file or specify a time interval that does not overlap previous loads.

CPA3013E Repository is not allocated in JCL, missing DDname=xxxxxxxx

Explanation: The Repository DD was not specified in the JCL.

System action: CICS PA immediately stops processing.

User response: Add the Repository DD card for the associated HDB in the JCL and then rerun.

CPA3014E HDB Template Name=xxxxxxxx is reserved.

Explanation: The specified HDB Template name is a CICS PA internal Template name that cannot be specified by the user.

System action: CICS PA immediately stops processing.

User response: Select another template name and retry your request.

CPA3015E HDB Template Name=xxxxxxxx is restricted. This change is not permitted.

Explanation: The specified HDB Template is a CICS PA internal template. The only fields that can be updated are the Interval and Selection Criteria.

System action: The template cannot be saved with the changes you have made.

User response: Cancel the changes to any fields other than Interval and Selection Criteria, or create a new template under another name that has the attributes you want.

4000–4099 HDB SMF Statistics messages

These messages are issued during HDB SMF Statistics processing. See Chapter 18, "Using the Statistics reporting dialog," on page 543.

CPA4001E PDS Member does not exist; Name=xxxxxxxx, BLDL RC=xxxx-xxxx

Explanation: The SMF input file is a PDS but the specified member name does not exist. The BLDL return and reason codes indicate the failure reason.

System action: SMF file processing stops.

User response: Verify that the member exists in the SMF file PDS:

- If it does not exist, then specify a member name that exists and retry your request.
 - If it does exist, then check the BLDL return and reason codes to determine the failure reason.
-

CPA4002E CICS Statistics not found in SMF File filename

Explanation: CICS PA did not find any CICS Statistics records in the SMF File.

System action: CICS PA stops processing the specified SMF File.

User response: If CICS Statistics records were expected for this file, review your CICS Statistics

settings and SMF Dump options.

CPA4003E CICS Version xxx is not supported

Explanation: CICS PA cannot process the CICS statistics because they were generated by an unsupported version of CICS Transaction Server. CICS PA supports CICS TS V3R1 (640) and later versions.

System action: CICS PA stops processing the specified SMF File.

User response: You cannot use CICS PA to report Statistics for this version of CICS Transaction Server.

CPA4004W Attention Interrupt has stopped SMF File processing

Explanation: CICS PA has stopped reading the SMF Input file because an Attention Interrupt was received.

System action: CICS PA stops reading the SMF file and displays only data read to this point.

User response: Press Enter to resume SMF Input file processing.

CPA4005E SMF input file is not available.
DDname *ddname* allocation error;
RDJFCB RC=*rc*

Explanation: The RDJFCB system service determined that the SMF input file is not allocated to the specified DDname.

System action: SMF file processing stops.

User response: Verify that the SMF file data set name is specified correctly. The data set must reside on an online DASD volume. If the data set is cataloged, it must reside on the cataloged VOLSER. If the data set is not cataloged, it must reside on the specified VOLSER.

CPA4006E SMF input file does not reside on the specified volume; VOLSER=*volser*,
OBTAIN RC=*rc*

Explanation: The DADSM OBTAIN system service determined that the SMF input file does not reside on the required volume, as indicated in the Catalog or the specified VOLSER.

System action: SMF file processing stops.

User response: Verify that the SMF file data set name is specified correctly. The data set must reside on an online DASD volume. If the data set is cataloged, it must reside on the cataloged VOLSER. If the data set is not cataloged, it must reside on the specified VOLSER.

CPA4007E CICS Statistics ID is not supported;
STID=*stid*, Domain=*xx*, VRM=*yyy*,
BlkID=*zz*

Explanation: The specified CICS Statistics ID (STID as defined in macro DFHSTIDS) is not supported by CICS PA. CICS PA supports all types of CICS statistics records and this error should not occur.

System action: The CICS Statistics record is ignored by CICS PA and SMF file processing continues.

User response: If the specified Stats ID is a valid ID defined in DFHSTIDS, then contact IBM. Support for this ID might need to be added via the service process.

If the specified ID is not a valid Stats ID, then contact IBM. CICS PA might have incorrectly interpreted the statistics record.

CPA4008E SMF File Open request failed;
ABEND=*xxxxxxxx-yyyzyyyy*

Explanation: The requested SMF File could not be opened. The OPEN request failed with the specified ABEND Code. The most common reason is ABENDS913 because access was denied due to an authorization failure.

System action: CICS PA processing stops.

User response: Check the OPEN SVC messages for

the failure reason. Correct the problem and retry your request.

CPA4009E SMF input file is not DSORG=PS;
DS1DSORG=*xxxx*

Explanation: The SMF input file does not have a Data Set Organization (DSORG) of PS. CICS PA only supports SMF files with DSORG=PS. DS1DSORG is the unsupported DSORG from the DSCB.

System action: SMF file processing stops.

User response: Ensure that the specified SMF input file is a valid SMF data set with DSORG=PS.

CPA4010E CICS Statistics for the selected interval are no longer available

Explanation: The CICS statistics interval that you selected is no longer available in the SMF File. The SMF File must have been updated after CICS PA first identified all the statistics intervals.

System action: SMF file processing stops.

User response: Refresh the statistics intervals. Exit from processing this data set then reprocess it to rebuild the statistics intervals.

CPA4011E CICS Domain is not supported;
Domain=*xx*, VRM=*yyy*

Explanation: The specified Statistics Domain ID (SMFSTDID in macro DFHSMFDS) is not supported by CICS PA. CICS PA supports all types of CICS statistics records and this error should not occur.

System action: The CICS Statistics record is ignored by CICS PA. SMF file processing continues.

User response: If the Domain ID is a valid Domain for the specified release of CICS Transaction Server, then contact IBM. Support for this Domain ID might need to be added via the service process.

If the specified Domain ID is not a valid Domain, then contact IBM. CICS PA might have incorrectly interpreted the statistics record.

CPA4012E CICS Statistics record processing failed;
Domain=*xx*, VRM=*yyy*

Explanation: CICS PA could not interpret a Statistics record because its format is not supported.

System action: The CICS Statistics record is ignored by CICS PA. SMF file processing continues.

User response: Verify that the record can be reported by the CICS Statistics utility program (DFHSTUP). If DFHSTUP processes the record successfully, then contact IBM. CICS PA might have incorrectly interpreted the statistics record.

CPA4013E SMF input file is not RECFM=VB or VBS; DS1RECFM=*xx*

Explanation: The SMF input file format is not valid.

System action: SMF file processing stops.

User response: Ensure that the specified SMF input file is a valid SMF data set.

CPA4014W CICS *xx* Version *yyy* is not supported

Explanation: CICS PA cannot process the CICS statistics because they were generated by an unsupported version of CICS Transaction Server or CICS Transaction Gateway.

System action: CICS PA continues processing the specified SMF File.

User response: You cannot use CICS PA to report Statistics for this version of CICS Transaction Server or CICS Transaction Gateway.

Chapter 26. Problem determination

This chapter contains information about CICS PA problem determination.

- “Eliminating user errors”

This section gives you a general idea of how to do CICS PA problem determination. It describes the preliminary steps you can take to be sure that the problem you are experiencing is a CICS PA problem and discusses some common user errors that you might be able to resolve without IBM assistance.

- “Diagnosis” on page 743

This section describes the steps you need to follow to gather the information needed to work with IBM support.

For the list and explanation of CICS PA messages, see Chapter 25, “Messages,” on page 697.

Eliminating user errors

This section explains how to diagnose problems or failures quickly by identifying the failing program component – a CICS PA error, an error in other components of the system on which CICS PA is running, or a user error. The following information is discussed:

- How to collect diagnostic information
- How to identify types of CICS PA problems
- Common causes of CICS PA problems.

Collecting helpful diagnostic information

Perform the following steps to determine the source of a problem:

1. Describe the symptoms.
2. List the following items:
 - Error message data
 - Program termination message data.
3. Analyze the failure as described in the following section.

Identifying types of problems

After collecting the information described in the preceding paragraph, determine the type of problem you have found. Problems might be caused by:

- The way you are using CICS PA
 - CICS PA command language or Job Control language (JCL) errors
 - Data-related errors
 - Improper installation.
- Failure with other software components, such as CICS or DFSORT
- CICS PA program errors.

The first step toward solving your problem might be to ask yourself and others in your area if this is the first time that this function or request has been made, or if this function or request worked in the past and has started failing recently. If the function worked before, find out as much as possible about what has changed in your system. There is a good chance that the change has directly or indirectly

caused your problem. If this is the first time the function has been attempted, the problem is most likely the way you are using the function, or that the function is in error.

With CICS PA, problems might be caused either by the way you are using the product, by another component of your operating system, or by a combination of these factors. The next section tells you how to identify common causes of these types of problems.

For information on program errors that are caused by the CICS PA program product, see “Diagnosis” on page 743.

Common causes of CICS PA problems

JCL and batch command errors

When CICS PA detects a JCL error or batch command coding error, it issues messages to help you determine the cause. Many of these messages contain all the information you need to find and fix the problem. See Chapter 25, “Messages,” on page 697 for a complete listing of CICS PA messages. The text of each entry explains the message and tells you the following:

- What action CICS PA takes when it issues the message, and
- What action you should take to eliminate the error condition.

Data-related problems

Before assuming that an error is caused by a defect in CICS PA, ensure that the input data CICS PA is trying to process is valid. Three types of data problems might occur that prevent CICS PA from accurately processing data collected by the CICS Monitoring Facility (CMF). These data problems are:

1. Absence of data dictionaries
2. Absence of data within a particular record type
3. Invalid data values

Absence of data dictionaries

Two symptoms occur when data dictionaries are absent.

The first, and most common, symptom is a message indicating that data records were encountered before dictionary records. This might be due either to an error in the CMF data or a user-related error. You can cause this error when copying CMF records from one data set to another. When copying CMF records, make sure that the dictionary records are copied along with the data records and appear *before* their associated data records. If the data set was not copied, the missing or misplaced dictionaries might be caused by an error in CMF.

Note: When CICS writes to an MVS SMF data set, CICS does not get notified that a data set switch has occurred and cannot write the dictionaries at the beginning of the new data set. It is necessary that SMF data sets be processed in the same order in which they were created.

The second symptom is the occurrence of numerous error messages. These messages tell you that CICS PA was unable to find the indicated data field. This happens when the dictionaries are lost and is due to improper link edit of the dictionary processor, ECPDICMF.

Missing fields

The second problem, absence of data within a particular record type, might be a CMF data error or a user interpretation error. Because many of the fields collected by CMF are optional, you can exclude the data from a particular record. CICS PA issues a message indicating that the field is **Missing** from the record. Although this is not a severe error, the report might not provide an accurate account of the data. This is especially true on Summary reports. If a data field in the summation is missing for any part of the summarization interval, then the field is marked Missing.

Invalid data values

The final data-related problem concerns invalid data values. If CICS PA is having trouble processing some of the CMF data fields, check for errors by validating the data in the following way:

- Run the CICS batch program DFH\$MOLS. For information on using DFH\$MOLS, see the *CICS Operation and Utilities Guide*. DFH\$MOLS can print every field in each of the CMF record types and if it cannot process the data correctly, then the problem is with the data.

Note: DFH\$MOLS generates a page or more of output for each CMF record that you select for processing. Be very careful when specifying how much data you want printed.

Absence of data records

A good way to determine whether or not you are processing proper data is to examine the Dispatcher Tables Summary (see Figure 419) and End of File Record Counts (see Figure 420 on page 742).

These two summaries are automatically produced at the end of report and extract processing. They provide a good starting point for problem determination when it is expected that some or all of the input data is missing.

| V5R1M0 08:48:05 10/22/2012 | | CICS Performance Analyzer Dispatcher Tables Summary | | | | | |
|----------------------------|-----|--|-----------|-----------|-----|----------|-------|
| SMF DD or Log Stream name | Off | PreScan | Routine | Output | EOF | ParmName | Codes |
| SMFIN001+ | 4 | CPAPRSMF | CPALSTMF | LIST0001 | Y | LIST0001 | 31 |
| | | | CPALSXMF | LSTX0001 | Y | LSTX0001 | 31 |
| | | | CPASUMMF | SUMM0001 | Y | SUMM0001 | 31 |
| | | | CPAFNLMF | TOTL0001 | Y | TOTL0001 | 31 |
| | | | CPATRUMF | RESU0001 | Y | RESU0001 | 31,35 |
| SMFIN002 | 4 | CPAPRSMF* | CPALOGMF* | LOGR0002 | Y | LOGR0002 | 58 |
| SMFIN003 | 4 | CPAPRSMF | CPADB2MF | DB2R0003 | Y | DB2R0001 | 31,65 |
| SMFIN004+ | 4 | CPAPRSMF* | CPAMROMF* | CROS0001* | Y | CROS0003 | 31 |
| | | | CPAMROMF* | CROS000M* | Y | CROS0004 | 31 |
| | | | CPAMROMF* | CROS0001* | Y | CROS0005 | 31 |
| | | | CPAMROMF* | CROS000M* | Y | CROS0006 | 31 |
| | | | CPAMROMF* | CROS0001* | Y | CROS0007 | 31 |
| | | | CPAMROMF* | CROS000M* | Y | CROS0008 | 31 |

Figure 419. Example of the Dispatcher Tables Summary report

| DD or Log Stream name | RecID | Record Type | Count | Pct of Total |
|-----------------------|-------|------------------------|--------|--------------|
| SMFIN001+ | X'30' | Performance Dictionary | 18 | 0.06% |
| | X'31' | Performance Class | 1,277 | 4.29% |
| | X'35' | Resource Usage | 306 | 1.02% |
| | X'51' | CICS Statistics | 26,829 | 90.13% |
| | X'58' | MVS System Logger | 733 | 2.46% |
| | X'65' | DB2 Accounting | 304 | 1.02% |
| | X'74' | MQ Accounting | 305 | 1.02% |
| SMFIN001+ | Total | | 29,772 | 100.00% |
| SMFIN002 | Total | SMF Records | 2,092 | |
| | X'30' | Performance Dictionary | 3 | 0.04% |
| | X'31' | Performance Class | 250 | 3.18% |
| | X'51' | CICS Statistics | 7,596 | 96.73% |
| | X'54' | CICS Server Statistics | 4 | 0.05% |
| SMFIN002 | Total | | 7,853 | 100.00% |
| SMFIN003 | Total | SMF Records | 3,419 | |
| | X'30' | Performance Dictionary | 3 | 0.01% |
| | X'31' | Performance Class | 126 | 0.22% |
| | X'41' | Exception Class | 8 | 0.01% |
| | X'51' | CICS Statistics | 57,294 | 99.76% |
| SMFIN003 | Total | | 57,431 | 100.00% |
| | Total | SMF Records | 2,462 | |

Figure 420. Example of the End of File Record Counts report

Batch Abends U1000, U1001, U1002

When the batch report processor encounters a severe error condition in STAE environments, it issues user abends 1000, 1001, or 1002. Analyzing the problem with the following factors in mind might help you identify the cause of the problem and its solution.

- User 1000 abend indicates that CICS PA encountered an error after command processing and before reading any data.
- User 1001 abend indicates that CICS PA encountered an error after reading in all the data and reaching end-of-file on the input file.
- User 1002 abend indicates that CICS PA encountered an error while reading and processing data.

CICS PA also issues a message indicating that a STAE exit was invoked.

Note: The STAE environment allows you to signal a logical end-of-file to record processors when an unexpected error occurs. The data accumulated up to the point of the error is then available for reports. Without logical end-of-file, the data would be lost.

User abends issued by the STAE exit processing frequently mask the real problem. When CICS PA encounters an error condition, such as a protection exception, it tries to recover and produce as many reports as possible, without reading any more data. It then abnormally terminates with one of these user abends.

Logic errors are generally easier to diagnose if processing stops immediately. When a STAE exit runs, memory and register values change, making the cause of the abend harder to identify. If you need a dump for analysis by IBM support, be sure to specify **PARM=NOSTAE** on the EXEC statement of your JCL.

If you specify NOSTAE and still get user abends, check the error messages. Some severe CICS PA messages cause user abends 1000, 1001, or 1002 after they are issued. NOSTAE does not affect these user abends. If you need to call IBM support, make sure you know which message causes you to stop processing.

Diagnosis

If you are experiencing difficulty using CICS PA, your first step should be to make sure the problem is not due to the way you are using the product. Before going through the procedures described here, you should eliminate user error as a cause of your problem. If you have turned to this section without reviewing “Eliminating user errors” on page 739, you might save yourself some time and trouble by making sure that your problem is not discussed there.

If you have determined that CICS PA is the cause of your problem, you need to gather information to help isolate the problem and find a solution. The information required is:

- Type of failure
- Function that failed
- Release level
- Maintenance level

Some of the information (for example, program number or service level), is independent of the particular problem and does not require you to make a judgement. For other information, you must choose one of several possibilities. Your choice depends on the specific symptoms of the problem.

For reporting the problem to IBM, you need to be prepared to provide supporting materials and evidence such as sample inputs and outputs, and a description of the circumstances in which the problem occurred.

Types of failure

The following descriptions should help you determine which condition best describes the type of failure that has occurred. If you do not know which condition to select, choose one that best describes the failure. You should consult the *CICS Problem Determination Guide* for additional information on abends, waits, loops, and incorrect output.

Abend

This type of failure occurs when a program terminates prematurely. This condition almost always produces a dump. When an abend occurs, collect the following information before calling IBM:

- The abend code of the dump
- A brief description of what was entered to cause the abend to occur
- If the abend was a program interrupt,
 - The program that abended
 - The displacement within the program where the abend occurred
 - The data which was being referenced when the abend occurred.

Documentation

This problem involves online and hardcopy documentation. Report a documentation problem if it falls into one of the following categories:

- Documented descriptions of the CICS PA organization or operation do not match the actual organization or operation.
- Information that is essential to the installation, operation, or service of CICS PA is missing from or incorrect in the documentation.
- Information in the documentation is unclear and prevents the effective use of CICS PA.

Note: If you have suggestions, comments, or questions concerning a CICS PA book, use the appropriate Reader's Comment Form at the back of the book.

IBM requires the following information to resolve a documentation problem:

- The complete document number, including the revision number, or the message number or function in error, if the error is in the online help text
- The section and page number of the error
- The sentence or sentences in error
- A brief description of what you think is correct.

Error

An error condition is normally detected by the presence of an error message. Information required to resolve this type of problem is:

- The message number
- The program that issued the message, if known
- The data that caused the message to appear.

Incorrect output

This type of problem involves missing, extra and unnecessary, or incorrect data. CICS PA is not likely to recognize that a problem exists; therefore, an error message might not appear. IBM needs the following information to resolve this type of problem:

- The report in error
- The field or fields in error
- Some indication of why you feel the information is incorrect, unnecessary, or needed.

Loop

A loop condition generally causes an abend to occur. MVS has specific abend codes to indicate loop conditions. These codes can be found in the appropriate books. When a loop occurs, the following information is required:

- The program causing the loop
- As many instructions as can be reasonably determined within the loop
- A brief description of what caused the loop to occur.

Message

A message error occurs when a message:

- Contains incorrect data
- Is not documented, or is not documented correctly
- Is generated when it shouldn't be
- Is not generated when it should be
- Is not the message which should occur.

The information required to resolve this type of error is:

- The message number
- A brief description of what is wrong with the message
- A brief description of what the message should be.

Performance

A performance problem is generally one of the hardest problems to resolve. Typically, it does not occur in a batch job. If you feel you are having a performance problem with CICS PA, supply IBM with the following information:

- Your operating environment, that is, the processor, the operating system, and any other factor which you feel might be contributing to the problem.
- The CICS PA function
- The CICS PA module(s), if it can be reasonably determined
- Whether or not the problem always occurs, or only occurs at certain times

- If the problem occurs occasionally, a description of what else was running in the system when the problem occurred.

Wait

This type of error normally occurs under the following conditions:

- CICS PA is waiting for some condition to be satisfied.
- CICS PA appears to be waiting for some event that is unlikely to occur.
- CICS PA has not recognized the occurrence of an event for which it has suspended processing.

Sometimes a wait error condition generates a dump. You should refer to the appropriate operating system reference books to determine the abend code associated with this type of error condition. The information necessary to resolve this type of problem is:

- The online function or report involved
- A dump, if one was generated.

Release level (VRM)

The release level (Version, Release, Modification) of CICS PA should be stated in all communications with IBM. In addition, you should know the release level of any of the following products that are relevant to the problem:

- z/OS
- CICS (this should be at least CICS Transaction Server for z/OS Version 3.1)
- DFSORT

Maintenance level

The maintenance level of CICS PA corresponds to the latest PTF tape installed on CICS PA, plus any Authorized Program Analysis Reports (APARs) installed on top of the Program Temporary Fix (PTF) tape. If no maintenance has been installed on CICS PA, tell the IBM support representative the date when CICS PA was installed on your system. It is also necessary to know the maintenance level of the products described in the previous section "Release level (VRM)."

Problem materials and evidence

If a problem occurs while using CICS PA, the following information is required:

1. A copy of the input file used for the job
2. A copy of the job stream used for the job, including the Job Control Language (JCL) and commands
3. A listing of the output generated, including:
 - The report listing
 - The messages issued.
4. A written scenario describing what information the user was trying to achieve from the CICS PA report at the time of the error (also state whether the sample jobs were run at the time CICS PA was installed).

Chapter 27. CMF Field IDs by CICS version

The following cross-reference table relates the CICS monitoring facility (CMF) field IDs for performance class and transaction resource class data with the CICS versions to which they apply.

Some columns in the table require explanation:

CICS PA field name

The name used in report forms, HDB templates, and selection criteria (and the corresponding batch command operands FIELDS and SELECT):

- A blank value in this column indicates that the CICS PA field name is the same as the CMF field name.
- "N/A" indicates that the field is not available, typically because it is a very long field, or it is an unprintable field such as a unit-of-work or a flag.

Column heading

The heading used to identify the field in CICS PA reports and extract data sets.

CICS version

The CICS versions to which a field applies:

- Yes, the field applies to this CICS version
- No, the field does not apply to this CICS version

The table is sorted by CMF group and CMF field ID.

Note:

1. DBCTL fields can only be specified if the MCT contains the DBCTL EMP defined in SDFHSAMP member DFH\$MCTD.
2. Some special fields, such as APPLID and RESPONSE, are not defined in the CMF Dictionary and are given a group name of "CICSPA". These fields are either derived from the fixed section of the CMF record (for example, APPLID), or calculated from two or more other CMF fields (for example, RESPONSE).
3. The FILENAME, TSQNAME, and DPLNAME fields are only available when CMF transaction resource class data is being collected.
4. The DFHAPPL fields are only available when application programs invoke the application naming event monitoring points. See the APPLNAME parameter on the DFHMCT TYPE=INITIAL macro in the *CICS Resource Definition Guide*.

Table 17. Cross-reference: CMF field ID × CICS version

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|----------|--------------------|----------------|--------------|-------------|-------------|-------------|-------------|--|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 4 0 | 6 5 0 | 6 6 0 | 6 7 0 | 6 8 0 | |
| CICSPA | A | 001 | TOTRECS | | TotlRecs | • | • | • | • | • | Cross-System Total record count |
| CICSPA | A | 002 | APPLRECS | | APPLRecs | • | • | • | • | • | Cross-System Application records |
| CICSPA | A | 003 | TRANROUT | | TranRout | • | • | • | • | • | Cross-System Transaction Routing records |
| CICSPA | A | 004 | FUNCSHIP | | FuncShip | • | • | • | • | • | Cross-System Function Shipping records |
| CICSPA | A | 005 | DPLRECS | | DPL Recs | • | • | • | • | • | Cross-System DPL records |
| CICSPA | D | 901 | RESP | RESPONSE | Response | • | • | • | • | • | Transaction response time |
| CICSPA | X | 902 | TASKCNT | | #Tasks | • | • | • | • | • | Total Task count |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|-----------|--------------------|----------------|--------------|---|---|---|---|---|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| CICSPA | C | 903 | APPLID | | APPLID | • | • | • | • | • | CICS Generic APPLID |
| CICSPA | C | 904 | MVSID | | MVS ID | • | • | • | • | • | MVS SMF ID |
| CICSPA | C | 905 | JOBNAME | | Jobname | • | • | • | • | • | Job Name |
| CICSPA | D | 906 | COMMWAIT | | CommWait | • | • | • | • | • | Communications wait time |
| CICSPA | D | 907 | IOWAIT | | I/O Wait | • | • | • | • | • | Total IO wait time |
| CICSPA | D | 908 | IRESP | | Int Resp | • | • | • | • | • | Transaction internal response time |
| CICSPA | C | 909 | RELEASE | | Rlse | • | • | • | • | • | CICS release |
| CICSPA | D | 910 | JVMMTIME | | JVM Meth | • | • | • | • | • | JVM Method time |
| CICSPA | D | 911 | RMIOTIME | | RMIOTime | • | • | • | • | • | Resource Manager Interface (RMI) other time |
| CICSPA | C | 912 | UOWID | | UOW ID | • | • | • | • | • | Network UOW ID |
| CICSPA | C | 913 | UOWSEQ | | UOW Seq | • | • | • | • | • | Network UOW Sequence Number |
| CICSPA | X | 914 | TASKTCNT | | #TTasks | • | • | • | • | • | Total Task Termination count |
| CICSPA | A | 915 | ALERT | | ALERT | • | • | • | • | • | Total Alert count or percentage |
| CICSPA | C | 916 | FILENAME | | FileName | • | • | • | • | • | File name |
| CICSPA | C | 917 | TSQNAME | | TSQ Name | • | • | • | • | • | Temporary Storage Queue Name |
| CICSPA | D | 918 | TOTCPU | | Tot CPU | • | • | • | • | • | Total Task CPU Time |
| CICSPA | C | 919 | DPLNAME | | DPL Name | • | • | • | • | • | Distributed program link name |
| CICSPA | D | 920 | OSLATNCY | | OSLatncy | – | • | • | • | • | Task start latency since Origin task start |
| CICSPA | D | 921 | PHLATNCY | | PHLatncy | – | – | – | • | • | Previous Hop latency time |
| CICSPA | D | 922 | LOCKWAIT | | LockWait | – | – | – | – | • | Total Lock wait time |
| CICSPA | D | 923 | LOCKSPLY | | LocksDly | – | – | – | – | • | Total Lock wait time and Enqueue delay time |
| CICSPA | D | 924 | ENQSDLY | | ENQsDlay | • | • | • | • | • | Total ENQ wait time |
| CICSPA | D | 925 | QRDSPRTO | | QRDspRto | • | • | • | • | • | QR TCB Dispatch to CPU ratio |
| CICSPA | D | 926 | RATEMIN | | RateMin | • | • | • | • | • | Transaction rate per minute |
| CICSPA | D | 927 | RATESEC | | RateSec | • | • | • | • | • | Transaction rate per second |
| CICSPA | D | 928 | OMODDLY | | OtModDly | – | – | – | – | • | Other CICS TCB Mode redispach wait time |
| CICSPA | D | 929 | CPUISPE | | CPUisSPe | – | – | – | – | • | CPU time that is offload eligible |
| CICSPA | D | 930 | CPUONSP | | CPUonSP | – | – | – | – | • | CPU time on Specialty Processor |
| CICSPA | D | 931 | CPUONCPN | | CPUonCPn | – | – | – | – | • | CPU time on standard CP not offload eligible |
| CICSPA | C | 932 | CECMYTYPE | | CECMType | – | – | – | – | • | CEC machine type and model number |
| CICSPA | C | 933 | ACAPPLVR | | ACAppIvr | – | – | – | – | • | Application context application version |
| CICSPA | D | 934 | SPEPCT | | SpePct | – | – | – | – | • | % specialty processor CPU time |
| CICSPA | D | 935 | STCPPCT | | StCPPct | – | – | – | – | • | % standard CP CPU time not offload eligible |
| CICSPA | D | 936 | OFLDPCT | | OfldPct | – | – | – | – | • | % offload eligible CPU time |
| CICSPA | D | 937 | CPUIPCT | | CPUIPct | – | – | – | – | • | % CPU time based on interval |
| CICSPA | D | 938 | SPEIPCT | | SpeIPct | – | – | – | – | • | % specialty processor CPU based on interval |
| CICSPA | D | 939 | STCPIPCT | | StCPIPct | – | – | – | – | • | % std CP not offld eligible based on interval |
| CICSPA | D | 940 | OFLDIPCT | | OfldIPct | – | – | – | – | • | % offload eligible CPU time based on interval |
| CICSPA | D | 941 | OFFLPCT | | OfflIPct | – | – | – | – | • | % offload eligible CPU time on standard CP |
| CICSPA | D | 942 | OFFLIPCT | | OfflIPct | – | – | – | – | • | % offld elig CPU time on std CP based on intrvl |
| CICSPA | D | 943 | CPUSU | | SrvcUnit | • | • | • | • | • | CPU Service Units |
| DBCTL | C | 001 | PSBNAME | | PSB Name | • | • | • | • | • | PSB Name |
| DBCTL | S | 002 | POOLWAIT | | PoolWait | • | • | • | • | • | Elapsed wait time for Pool Space |
| DBCTL | S | 003 | INTCWAIT | | IntCWait | • | • | • | • | • | Elapsed wait time for Intent Conflict |
| DBCTL | S | 004 | SCHTELAP | | SchTElap | • | • | • | • | • | Elapsed time for Schedule Process |
| DBCTL | S | 005 | DBIOELAP | | DBIOElap | • | • | • | • | • | Elapsed time for Database I/O |
| DBCTL | S | 006 | PILOCKEL | | PILockEl | • | • | • | • | • | Elapsed time for PI Locking |
| DBCTL | A | 007 | DBIOCALL | | DBIOCall | • | • | • | • | • | Number of Database I/Os |
| DBCTL | A | 008 | GUCALL | | GUcall | • | • | • | • | • | Number of Database GU calls issued |
| DBCTL | A | 009 | GNCALL | | GNcall | • | • | • | • | • | Number of Database GN calls issued |
| DBCTL | A | 010 | GNPCALL | | GNPcall | • | • | • | • | • | Number of Database GNP calls issued |
| DBCTL | A | 011 | GHUCALL | | GHUcall | • | • | • | • | • | Number of Database GHU calls issued |
| DBCTL | A | 012 | GHNCALL | | GHNcall | • | • | • | • | • | Number of Database GHN calls issued |
| DBCTL | A | 013 | GHNPCALL | | GHNPCall | • | • | • | • | • | Number of Database GHNP calls issued |
| DBCTL | A | 014 | ISRTCALL | | ISRTcall | • | • | • | • | • | Number of Database ISRT calls issued |
| DBCTL | A | 015 | DLETCALL | | DLETcall | • | • | • | • | • | Number of Database DLET calls issued |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|----------|--------------------|----------------|--------------|---|---|---|---|--|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| DBCTL | A | 016 | REPLCALL | | REPLcall | • | • | • | • | • | Number of Database REPL calls issued |
| DBCTL | A | 017 | DLICALLS | | DLIcalls | • | • | • | • | • | Total DL/I Database calls |
| DBCTL | A | 018 | TESTENQS | | TestENQs | • | • | • | • | • | Number of Test Enqueues |
| DBCTL | A | 019 | TESTENQW | | TestENQW | • | • | • | • | • | Number of waits on Test Enqueues |
| DBCTL | A | 020 | TESTDEQS | | TestDEQs | • | • | • | • | • | Number of Test Dequeues |
| DBCTL | A | 021 | UPDTENQS | | UpdtENQs | • | • | • | • | • | Number of Update Enqueues |
| DBCTL | A | 022 | UPDTENQW | | UpdtENQW | • | • | • | • | • | Number of waits on Update Enqueues |
| DBCTL | A | 023 | UPDTDEQS | | UpdtDEQs | • | • | • | • | • | Number of Update Dequeues |
| DBCTL | A | 024 | EXCLENQS | | ExclENQs | • | • | • | • | • | Number of Exclusive Enqueues |
| DBCTL | A | 025 | EXCLENQW | | ExclENQW | • | • | • | • | • | Number of waits on Exclusive Enqueues |
| DBCTL | A | 026 | EXCLDEQS | | ExclDEQs | • | • | • | • | • | Number of Exclusive Dequeues |
| DBCTL | A | 027 | DEDBCALL | | DEDBcall | • | • | • | • | • | Number of DEDB calls |
| DBCTL | A | 028 | DEDBRDOP | | DEDBRdOp | • | • | • | • | • | Number of DEDB read operations |
| DBCTL | A | 029 | OVFLBFRU | | OvflBfrU | • | • | • | • | • | Number of Overflow Buffers used |
| DBCTL | A | 030 | UOWCONTS | | UowConts | • | • | • | • | • | Number of UOW Contentions |
| DBCTL | A | 031 | DEDBBFRW | | DEDBBfrW | • | • | • | • | • | Number of waits for DEDB buffers |
| DBCTL | S | 032 | THREDCPU | | ThredCPU | • | • | • | • | • | Thread TCB CPU time |
| DBCTL | T | 033 | SCHEDSTA | | SchedSta | • | • | • | • | • | IMS Schedule start time |
| DBCTL | T | 034 | SCHEDEND | | SchedEnd | • | • | • | • | • | IMS Schedule end time |
| DBCTL | A | 035 | DBGETS | | DBget | • | • | • | • | • | Number of Database Get calls issued |
| DBCTL | A | 036 | DBUPDATE | | DBupdate | • | • | • | • | • | Number of Database Update calls issued |
| DBCTL | A | 037 | DBWAITS | | DBwait | • | • | • | • | • | Number of Database waits |
| DFHAPPL | C | 001 | APPLNAME | APPLPROG | Program | • | • | • | • | • | Application naming Program |
| DFHAPPL | C | 001 | APPLNAME | APPLTRAN | Tran | • | • | • | • | • | Application naming Tran ID |
| DFHCBTS | C | 200 | PRCSNAME | | BTS Proc | • | • | • | • | • | BTS Process name |
| DFHCBTS | C | 201 | PRCSTYPE | | BTS PTyp | • | • | • | • | • | BTS Process type |
| DFHCBTS | C | 202 | PRCSID | N/A | BTS Root | • | • | • | • | • | BTS Root Activity identifier |
| DFHCBTS | C | 203 | ACTVTYID | N/A | BTSActID | • | • | • | • | • | BTS Activity identifier |
| DFHCBTS | C | 204 | ACTVTYNM | | BTSActNm | • | • | • | • | • | BTS Activity name |
| DFHCBTS | A | 205 | BARSYNCT | | BTS Sync | • | • | • | • | • | BTS synchronous Process/Activity count |
| DFHCBTS | A | 206 | BARASYCT | | BTS Asyn | • | • | • | • | • | BTS asynchronous Process/Activity count |
| DFHCBTS | A | 207 | BALKPACT | | BTS Link | • | • | • | • | • | BTS Link Process/Activity count |
| DFHCBTS | A | 208 | BADPROCT | | BTS DefP | • | • | • | • | • | BTS Define Process requests |
| DFHCBTS | A | 209 | BADACTCT | | BTS DefA | • | • | • | • | • | BTS Define Activity requests |
| DFHCBTS | A | 210 | BARSPACT | | BTSReset | • | • | • | • | • | BTS Reset Process/Activity requests |
| DFHCBTS | A | 211 | BASUPACT | | BTS Susp | • | • | • | • | • | BTS Suspend Process/Activity requests |
| DFHCBTS | A | 212 | BARMPACT | | BTSResum | • | • | • | • | • | BTS Resume Process/Activity requests |
| DFHCBTS | A | 213 | BADCPACT | | BTSCancel | • | • | • | • | • | BTS Cancel Process/Activity requests |
| DFHCBTS | A | 214 | BAACQPCT | | BTSAcqui | • | • | • | • | • | BTS Acquire Process/Activity requests |
| DFHCBTS | A | 215 | BATOTPCT | | BTSTotal | • | • | • | • | • | BTS Total Process/Activity requests |
| DFHCBTS | A | 216 | BAPRDCCT | | BTSPCRq | • | • | • | • | • | BTS Process Data Containers requests |
| DFHCBTS | A | 217 | BAACDCCT | | BTSADCRq | • | • | • | • | • | BTS Activity Data Containers requests |
| DFHCBTS | A | 218 | BATOTCCT | | BTSIDCRq | • | • | • | • | • | BTS Process/Activity Data Container requests |
| DFHCBTS | A | 219 | BARATECT | | BTSRtvEv | • | • | • | • | • | BTS Retrieve-Reattach Event requests |
| DFHCBTS | A | 220 | BADFIECT | | BTSDefEv | • | • | • | • | • | BTS Define-Input Event requests |
| DFHCBTS | A | 221 | BATIAECT | | BSTimEv | • | • | • | • | • | BTS TIMER Event requests |
| DFHCBTS | A | 222 | BATOTECT | | BSTotEv | • | • | • | • | • | BTS Event-related requests |
| DFHCHNL | A | 321 | PGTOTCCT | | PGTOTCCT | • | • | • | • | • | Total number of CHANNEL CONTAINER requests |
| DFHCHNL | A | 322 | PGBRWCCT | | PGBRWCCT | • | • | • | • | • | BROWSE CHANNEL CONTAINER requests |
| DFHCHNL | A | 323 | PGGETCCT | | PGGETCCT | • | • | • | • | • | GET CHANNEL CONTAINER requests |
| DFHCHNL | A | 324 | PGPUTCCT | | PGPUTCCT | • | • | • | • | • | PUT CHANNEL CONTAINER requests |
| DFHCHNL | A | 325 | PGMOVCCT | | PGMOVCCT | • | • | • | • | • | MOVE CHANNEL CONTAINER requests |
| DFHCHNL | A | 326 | PGGETCDL | | PGGETCDL | • | • | • | • | • | GET CHANNEL CONTAINER data length |
| DFHCHNL | A | 327 | PGPUTCDL | | PGPUTCDL | • | • | • | • | • | PUT CHANNEL CONTAINER data length |
| DFHCHNL | A | 328 | PGCRECCT | | PGCRECCT | • | • | • | • | • | Number of Containers created |
| DFHCHNL | A | 329 | PGCSTHWM | | PGCSTHWM | – | • | • | • | • | Maximum Container Storage allocated to task |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|----------|--------------------|----------------|--------------|---|---|---|---|---|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| | | | | | | 0 | 0 | 0 | 0 | 0 | |
| DFHCICS | T | 005 | START | | Start | • | • | • | • | • | Task start time |
| DFHCICS | T | 006 | STOP | | Stop | • | • | • | • | • | Task stop time |
| DFHCICS | A | 025 | CFCAPICT | | CFCIsAPI | • | • | • | • | • | OO Foundation Class requests |
| DFHCICS | C | 089 | USERID | | Userid | • | • | • | • | • | User ID |
| DFHCICS | S | 103 | EXWTTIME | EXWAIT | Exc Wait | • | • | • | • | • | Exception Conditions wait time |
| DFHCICS | C | 112 | RTYPE | | RTyp | • | • | • | • | • | Performance record type |
| DFHCICS | C | 130 | RSYSID | | RSID | • | • | • | • | • | Remote System ID |
| DFHCICS | A | 131 | PERRECNT | RECCOUNT | RecCount | • | • | • | • | • | Task Performance record count |
| DFHCICS | C | 167 | SRVCLASS | | SrvClass | • | • | • | • | • | WLM Service Class |
| DFHCICS | C | 168 | RPTCLASS | | RptClass | • | • | • | • | • | WLM Report Class |
| DFHCICS | C | 351 | OADID | | OADID | - | - | - | • | • | Originating Adapter Identifier |
| DFHCICS | C | 352 | OADATA1 | | OADData1 | - | - | - | • | • | Originating Adapter data 1 |
| DFHCICS | C | 353 | OADATA2 | | OADData2 | - | - | - | • | • | Originating Adapter data 2 |
| DFHCICS | C | 354 | OADATA3 | | OADData3 | - | - | - | • | • | Originating Adapter data 3 |
| DFHCICS | C | 359 | ONETWKID | | ONETWKID | - | • | • | • | • | Originating Network ID |
| DFHCICS | C | 360 | OAPPLID | | OAPPLID | - | • | • | • | • | Originating CICS APPLID |
| DFHCICS | T | 361 | OSTART | | OStart | - | • | • | • | • | Originating Task start time |
| DFHCICS | P | 362 | OTRANNUM | OTASKNO | OTaskNo | - | • | • | • | • | Originating Transaction number |
| DFHCICS | C | 363 | OTRAN | | OTran | - | • | • | • | • | Originating Transaction identifier |
| DFHCICS | C | 364 | OUSERID | | OUserid | - | • | • | • | • | Originating User ID |
| DFHCICS | C | 365 | OUSERCOR | | OUserCor | - | • | • | • | • | Originating User Correlator |
| DFHCICS | C | 366 | OTCPSVCE | OTCPSRVC | OTCPIPSr | - | • | • | • | • | Originating TCP/IP Service Name |
| DFHCICS | A | 367 | OPORTNUM | OPORT | OPORT | - | • | • | • | • | Originating TCP/IP Port Number |
| DFHCICS | C | 368 | OCLIPADR | OCLINTIP | OCLintIP | - | • | - | - | - | Originating Client or Telnet IP address |
| DFHCICS | A | 369 | OCLIPORT | | OCLIPORT | - | • | • | • | • | Originating Client IP Port Number |
| DFHCICS | A | 370 | OTRANFLG | | OTranFlg | - | • | • | • | • | Originating Transaction flags |
| DFHCICS | C | 370 | OTRANFLG | OFCTYTYP | OFctyTyp | - | • | • | • | • | Originating Transaction Facility Type |
| DFHCICS | C | 370 | OTRANFLG | OORIGIN | OOrigin | - | • | • | • | • | Originating Transaction Origin type |
| DFHCICS | C | 370 | OTRANFLG | OTRANTYP | OTranTyp | - | • | • | • | • | Originating Transaction type |
| DFHCICS | C | 371 | OFCTYNME | OFCTY | OFcty | - | • | • | • | • | Originating Transaction Facility name |
| DFHCICS | C | 372 | OCLIPADR | OCLI6ADR | OCLI6Adr | - | - | • | • | • | Originating Client or Telnet IP address |
| DFHCICS | C | 373 | PHNTWKID | | PHNTWKID | - | - | - | • | • | Previous Hop Data Network ID |
| DFHCICS | C | 374 | PHAPPLID | | PHAPPLID | - | - | - | • | • | Previous Hop Data APPLID |
| DFHCICS | T | 375 | PHSTART | | PHStart | - | - | - | • | • | Previous Hop Data Task Start |
| DFHCICS | P | 376 | PHTRANNO | PHTASKNO | PHTaskNo | - | - | - | • | • | Previous Hop Data Transaction Number |
| DFHCICS | C | 377 | PHTRAN | | PHTran | - | - | - | • | • | Previous Hop Data Transaction ID |
| DFHCICS | A | 378 | PHCOUNT | | PHCount | - | - | - | • | • | Previous Hop Data Count |
| DFHCICS | A | 402 | EICTOTCT | | EICTotCt | - | - | • | • | • | EXEC CICS requests |
| DFHCICS | A | 405 | TIASKTCT | | ASKTimCt | - | - | • | • | • | ASKTIME requests |
| DFHCICS | A | 406 | TITOTCT | | TITOTcT | - | - | • | • | • | ASKTIME |
| DFHCICS | A | 408 | BFDGSTCT | | BFDGSTcT | - | - | • | • | • | Built-in function BIF DIGEST requests |
| DFHCICS | A | 409 | BFTOTCT | | BFTotCt | - | - | • | • | • | Total Built-in (BIF) function requests |
| DFHCICS | A | 415 | ECSIGECT | | ECSIGECT | - | - | • | • | • | SIGNAL EVENT requests |
| DFHCICS | A | 416 | ECEFOPCT | | ECEFOPCT | - | - | • | • | • | Event Filter operations |
| DFHCICS | A | 417 | ECEVNTCT | | ECEVNTCT | - | - | • | • | • | Events captured |
| DFHCICS | A | 418 | ECSEVCCT | | ECSEVCCT | - | - | - | • | • | Synchronous Emission Events captured |
| DFHCICS | A | 449 | MPPRTXCD | | PolRulXc | - | - | - | - | • | Number of policy rule thresholds exceeded |
| DFHDATA | A | 179 | IMSREQCT | | IMS Reqs | • | • | • | • | • | IMS (DBCTL) requests |
| DFHDATA | A | 180 | DB2REQCT | | DB2 Reqs | • | • | • | • | • | DB2 requests |
| DFHDATA | S | 186 | IMSWAIT | | IMS Wait | • | • | • | • | • | IMS (DBCTL) wait time |
| DFHDATA | S | 187 | DB2RDYQW | | DB2ThdWt | • | • | • | • | • | DB2 Thread wait time |
| DFHDATA | S | 188 | DB2CONWT | | DB2ConWt | • | • | • | • | • | DB2 Connection wait time |
| DFHDATA | S | 189 | DB2WAIT | | DB2SQLWt | • | • | • | • | - | DB2 SQL/IFI wait time |
| DFHDATA | A | 395 | WMQREQCT | | WMQ Reqs | - | • | • | • | • | Number of WebSphere MQ requests |
| DFHDATA | S | 396 | WMQGETWT | | WMQGetWt | - | • | • | • | • | WebSphere MQ GETWAIT wait time |
| DFHDATA | S | 397 | WMQASRBT | | WMQSRBtm | - | - | • | • | • | WebSphere MQ API SRB CPU time |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description | |
|-----------|-------|------|-----------|----------|--------------------|----------------|---|---|---|---|-------------|--|
| | Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | | 6 |
| | | | | | | | 4 | 5 | 6 | 7 | | 8 |
| DFHDEST | A | 041 | TDGETCT | TDGET | TDGET | TDGET | • | • | • | • | • | Transient data GET requests |
| DFHDEST | A | 042 | TDPURCT | TDPURCT | TDPURCT | TDPURCT | • | • | • | • | • | Transient data PUT requests |
| DFHDEST | A | 043 | TDPURCT | TDPURGE | TDPURGE | TDPURGE | • | • | • | • | • | Transient data PURGE requests |
| DFHDEST | A | 091 | TDTOTCT | TDTOTAL | TD Total | TD Total | • | • | • | • | • | Transient data Total requests |
| DFHDEST | S | 101 | TDIOWTT | TDWAIT | TD Wait | TD Wait | • | • | • | • | • | VSAM transient data I/O wait time |
| DFHDEST | S | 403 | TDILWTT | | TDILWait | TDILWait | – | – | – | – | • | Intrapartition transient data lock wait time |
| DFHDEST | S | 404 | TDELWTT | | TDELWait | TDELWait | – | – | – | – | • | Extrapartition transient data lock wait time |
| DFHDOCH | A | 223 | DHDELCT | DHDELETE | DHDELETE | DHDELETE | – | • | • | • | • | Document Handler DELETE requests |
| DFHDOCH | A | 226 | DHCRECT | DHCREATE | DHCREATE | DHCREATE | • | • | • | • | • | Document Handler CREATE requests |
| DFHDOCH | A | 227 | DHINSCT | DHINSERT | DHINSERT | DHINSERT | • | • | • | • | • | Document Handler INSERT requests |
| DFHDOCH | A | 228 | DHSETCT | DHSET | DHSET | DHSET | • | • | • | • | • | Document Handler SET requests |
| DFHDOCH | A | 229 | DHRETCT | DHRETRVE | DHRETRVE | DHRETRVE | • | • | • | • | • | Document Handler RETRIEVE requests |
| DFHDOCH | A | 230 | DHTOTCT | DHTOTAL | DH Total | DH Total | • | • | • | • | • | Document Handler Total requests |
| DFHDOCH | A | 240 | DHTOTDCL | | DHDDocLen | DHDDocLen | • | • | • | • | • | Total length of all documents created |
| DFHEJBS | C | 311 | CBSRVNRM | | Corb | Corb | • | • | • | • | – | CorbaServer name |
| DFHEJBS | A | 312 | EJBSACCT | EJBACTIV | EJBActiv | EJBActiv | • | • | • | • | – | Number of Bean State Activation requests |
| DFHEJBS | A | 313 | EJBSPACT | EJBPASIV | EJBPasiv | EJBPasiv | • | • | • | • | – | Number of Bean State Passivation requests |
| DFHEJBS | A | 314 | EJBCRECT | EJBCREAT | EJBCreat | EJBCreat | • | • | • | • | – | Number of Bean Creation requests |
| DFHEJBS | A | 315 | EJBREMCT | EJBREMOV | EJBRemov | EJBRemov | • | • | • | • | – | Number of Bean Removal requests |
| DFHEJBS | A | 316 | EJBMTHCT | EJBMETHD | EJBMethd | EJBMethd | • | • | • | • | – | Number of EJB Method Calls |
| DFHEJBS | A | 317 | EJBTOTCT | EJBTOTAL | EJBTotal | EJBTotal | • | • | • | • | – | Total Number of EJB requests |
| DFHFEPI | A | 150 | SZALLOCT | SZALLOC | SZALLOC | SZALLOC | • | • | • | • | • | Conversations allocated count |
| DFHFEPI | A | 151 | SZRCVCT | SZRCV | SZRCV | SZRCV | • | • | • | • | • | FEPI RECEIVE requests |
| DFHFEPI | A | 152 | SZSENDCT | SZSEND | SZSEND | SZSEND | • | • | • | • | • | FEPI SEND requests |
| DFHFEPI | A | 153 | SZSTRCT | SZSTART | SZSTART | SZSTART | • | • | • | • | • | FEPI START requests |
| DFHFEPI | A | 154 | SZCHROUT | | SZChrOut | SZChrOut | • | • | • | • | • | FEPI characters sent count |
| DFHFEPI | A | 155 | SZCHRIN | | SZChrIn | SZChrIn | • | • | • | • | • | FEPI characters received count |
| DFHFEPI | S | 156 | SZWAIT | | SZ Wait | SZ Wait | • | • | • | • | • | FEPI services wait time |
| DFHFEPI | A | 157 | SZALLCTO | | SZALocTO | SZALocTO | • | • | • | • | • | Allocate conversation time-out count |
| DFHFEPI | A | 158 | SZRCVTO | | SZRecvTO | SZRecvTO | • | • | • | • | • | Receive Data time-out count |
| DFHFEPI | A | 159 | SZTOTCT | SZTOTAL | SZ Total | SZ Total | • | • | • | • | • | FEPI API and SPI requests |
| DFHFILE | A | 036 | FCGETCT | FCGET | FCGET | FCGET | • | • | • | • | • | File GET requests |
| DFHFILE | A | 037 | FCPUTCT | FCPUT | FCPUT | FCPUT | • | • | • | • | • | File PUT requests |
| DFHFILE | A | 038 | FCBRWCT | FCBROWSE | FCBROWSE | FCBROWSE | • | • | • | • | • | File Browse requests |
| DFHFILE | A | 039 | FCADDCT | FCADD | FCADD | FCADD | • | • | • | • | • | File ADD requests |
| DFHFILE | A | 040 | FCDELCT | FCDELETE | FCDELETE | FCDELETE | • | • | • | • | • | File DELETE requests |
| DFHFILE | S | 063 | FCIOWTT | FCWAIT | FC Wait | FC Wait | • | • | • | • | • | File I/O wait time |
| DFHFILE | A | 070 | FCAMCT | | FCAMRq | FCAMRq | • | • | • | • | • | File access-method requests |
| DFHFILE | A | 093 | FCTOTCT | FCTOTAL | FC Total | FC Total | • | • | • | • | • | File Control requests |
| DFHFILE | S | 174 | RLSWAIT | | RLS Wait | RLS Wait | • | • | • | • | • | RLS File I/O wait time |
| DFHFILE | S | 175 | RLSCTPUT | RLSCPU | RLS CPU | RLS CPU | • | • | • | • | • | RLS File Request CPU (SRB) time |
| DFHFILE | S | 176 | CFDWTWAIT | | CFDWTWait | CFDWTWait | • | • | • | • | • | CF Data Table access requests wait time |
| DFHFILE | S | 426 | FCXCWTT | | FCVXWait | FCVXWait | – | – | – | – | • | VSAM exclusive control wait time |
| DFHFILE | S | 427 | FCVSWTT | | FCVSWait | FCVSWait | – | – | – | – | • | VSAM string wait time |
| DFHJOUR | S | 010 | JCIOWTT | JCWAIT | JC Wait | JC Wait | • | • | • | • | • | Journal I/O wait time |
| DFHJOUR | A | 058 | JNLWRTCT | JNLPUT | JnlWrite | JnlWrite | • | • | • | • | • | Journal write requests |
| DFHJOUR | A | 172 | LOGWRTCT | LOGWRITE | LogWrite | LogWrite | • | • | • | • | • | Log Stream write requests |
| DFHMAPP | A | 050 | BMSMAPCT | BMSMAP | BMSMAP | BMSMAP | • | • | • | • | • | BMS MAP requests |
| DFHMAPP | A | 051 | BMSINCT | BMSIN | BMSIN | BMSIN | • | • | • | • | • | BMS IN requests |
| DFHMAPP | A | 052 | BMSOUTCT | BMSOUT | BMSOUT | BMSOUT | • | • | • | • | • | BMS OUT requests |
| DFHMAPP | A | 090 | BMSTOTCT | BMSTOTAL | BMSTotal | BMSTotal | • | • | • | • | • | BMS Total requests |
| DFHPROG | A | 055 | PCLINKCT | PCLINK | PCLINK | PCLINK | • | • | • | • | • | Program LINK requests |
| DFHPROG | A | 056 | PCXCTLCT | PCXCTL | PCXCTL | PCXCTL | • | • | • | • | • | Program XCTL requests |
| DFHPROG | A | 057 | PCLOADCT | PCLOAD | PCLOAD | PCLOAD | • | • | • | • | • | Program LOAD requests |
| DFHPROG | C | 071 | PGMNAME | PROGRAM | Program | Program | • | • | • | • | • | Program name |
| DFHPROG | A | 072 | PCLURMCT | PCLURM | PCLNKURM | PCLNKURM | • | • | • | • | • | Program LINK URM requests |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|-----------|--------------------|----------------|--------------|---|---|---|---|--|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| | | | | | | 0 | 0 | 0 | 0 | 0 | |
| DFHPROG | A | 073 | PCDPLCT | PCDPL | PCDPLINK | . | . | . | . | . | Distributed Program Link (DPL) requests |
| DFHPROG | C | 113 | ABCODEO | | ABor | . | . | . | . | . | Original ABEND Code |
| DFHPROG | C | 114 | ABCODEC | | ABcu | . | . | . | . | . | Current ABEND code |
| DFHPROG | S | 115 | PCLOADTM | | PCLOADWt | . | . | . | . | . | Program Library wait time |
| DFHPROG | A | 286 | PCDLCSDL | | PCDLCSDL | . | . | . | . | . | Container data length for DPL reqs with CHANNEL |
| DFHPROG | A | 287 | PCDLCRDL | | PCDLCRDL | . | . | . | . | . | Container data length for DPL RETURN w/ CHANNEL |
| DFHPROG | A | 306 | PCLNKCCT | | PCLNKCCT | . | . | . | . | . | LINK requests with CHANNEL option |
| DFHPROG | A | 307 | PCXCLCCT | | PCXCLCCT | . | . | . | . | . | XCTL requests with CHANNEL option |
| DFHPROG | A | 308 | PCDPLCCT | | PCDPLCCT | . | . | . | . | . | DPL requests with CHANNEL option |
| DFHPROG | A | 309 | PCRTNCCT | | PCRTNCCT | . | . | . | . | . | Program RETURN requests with CHANNEL option |
| DFHPROG | A | 310 | PCRTNCDL | | PCRTNCDL | . | . | . | . | . | Container data length for RETURN with CHANNEL |
| DFHRMI | S | 001 | RMITOTAL | | RMITotal | . | . | . | . | . | RMI total elapsed time |
| DFHRMI | S | 002 | RMIOOTHER | | RMI Othr | . | . | . | . | . | RMI other elapsed time |
| DFHRMI | S | 003 | RMIDB2 | | RMI DB2 | . | . | . | . | . | RMI elapsed time for DB2 requests |
| DFHRMI | S | 004 | RMIDBCTL | | RMIDBCTL | . | . | . | . | . | RMI elapsed time for DBCTL requests |
| DFHRMI | S | 005 | RMIEXDLI | | RMIEXDLI | . | . | . | . | . | RMI elapsed time for EXEC DLI requests |
| DFHRMI | S | 006 | RMIMQM | | RMI MQ | . | . | . | . | . | RMI elapsed time for WebSphere MQ requests |
| DFHRMI | S | 007 | RMICPSM | | RMI CPSM | . | . | . | . | . | RMI elapsed time for CICSplex SM requests |
| DFHRMI | S | 008 | RMITCPIP | | RMITCPIP | . | . | . | . | . | RMI elapsed time for TCP/IP socket requests |
| DFHSOCK | S | 241 | SOIOWTT | SOWAIT | SockWait | . | . | . | . | . | Inbound Socket I/O wait time |
| DFHSOCK | A | 242 | SOBYENCT | | SockEcry | . | . | . | . | . | Secure Socket bytes encrypted count |
| DFHSOCK | A | 243 | SOBYDECT | | SockDcry | . | . | . | . | . | Secure Socket bytes decrypted count |
| DFHSOCK | C | 244 | CLIPADDR | CLIENTIP | ClientIP | . | . | - | - | - | Client or Telnet IP address |
| DFHSOCK | C | 245 | TCPSRVCE | | TCPIPsvr | . | . | . | . | . | TCP/IP Service Name |
| DFHSOCK | A | 246 | PORTNUM | PORT | PORT | . | . | . | . | . | TCP/IP Port Number |
| DFHSOCK | A | 288 | ISALLOCT | ISALLOC | ISALLOC | - | . | . | . | . | Allocate Session requests for sessions on IP |
| DFHSOCK | A | 289 | SOEXTRCT | | SOEXTRAC | . | . | . | . | . | EXTRACT TCP/IP and CERTIFICATE requests |
| DFHSOCK | A | 290 | SOCNPSCT | | SOCNPSRq | . | . | . | . | . | Create Non-Persistent Outbound Socket reqs |
| DFHSOCK | A | 291 | SOCPSCT | | SOCPSReq | . | . | . | . | . | Create Persistent Outbound Socket requests |
| DFHSOCK | A | 292 | SONPSHWM | | SONPSHWM | . | . | . | . | . | Non-Persistent Outbound Socket HWM |
| DFHSOCK | A | 293 | SOPSHWM | | SOPSHWM | . | . | . | . | . | Persistent Outbound Socket HWM |
| DFHSOCK | A | 294 | SORCVCT | SORCV | SO Recv | . | . | . | . | . | Outbound Sockets RECEIVE requests |
| DFHSOCK | A | 295 | SOCHRIN | | SOChrIn | . | . | . | . | . | Outbound Sockets characters received count |
| DFHSOCK | A | 296 | SOSENDCT | SOSEND | SO SEND | . | . | . | . | . | Outbound Sockets SEND requests |
| DFHSOCK | A | 297 | SOCHROUT | | SOChrOut | . | . | . | . | . | Outbound Sockets characters sent count |
| DFHSOCK | A | 298 | SOTOTCT | SOTOTAL | SOTotal | . | . | . | . | . | Socket Total requests |
| DFHSOCK | S | 299 | SOIOWTT | OSOWAIT | OSO Wait | . | . | . | . | . | Outbound Socket I/O Wait Time |
| DFHSOCK | S | 300 | ISIWTT | ISWAIT | IS Wait | - | . | . | . | . | IPCONN link wait time |
| DFHSOCK | A | 301 | SOMSGIN1 | | SOMsgIn1 | . | . | . | . | . | Inbound Sockets RECEIVE requests |
| DFHSOCK | A | 302 | SOCHRIN1 | | SOChrIn1 | . | . | . | . | . | Inbound Sockets characters received count |
| DFHSOCK | A | 303 | SOMSGOU1 | | SOMsgOu1 | . | . | . | . | . | Inbound Sockets SEND requests |
| DFHSOCK | A | 304 | SOCHROU1 | | SOChrOu1 | . | . | . | . | . | Inbound Sockets characters sent count |
| DFHSOCK | C | 305 | ISIPCNNM | ISIPICNM | ISIPICNM | - | . | . | . | . | Name of IPCONN definition that attached the task |
| DFHSOCK | C | 318 | CLIPADDR | CLIP6ADR | Clip6Adr | - | - | . | . | . | Client or Telnet IP address |
| DFHSOCK | S | 319 | ISALWTT | | ISAIWait | - | - | - | - | . | IPIC allocate session wait time |
| DFHSOCK | C | 320 | SOCIPHER | | SOCipher | - | - | - | - | . | Inbound SSL connection Cipher suite code |
| DFHSOCK | A | 330 | CLIPPORT | | CLIPPORT | - | . | . | . | . | Client IP Port Number |
| DFHSTOR | A | 033 | SCUSRHWM | SC24UHWM | SC24UHWM | . | . | . | . | . | UDSA HWM below 16MB |
| DFHSTOR | A | 054 | SCUGETCT | SC24UGET | SC24UGet | . | . | . | . | . | UDSA GETMAINs below 16MB |
| DFHSTOR | A | 087 | PCSTGHWM | | PCStgHWM | . | . | . | . | . | Program Storage HWM above and below 16MB |
| DFHSTOR | A | 095 | SCUSRSTG | SC24UOCC | SC24UOcc | . | . | . | . | . | UDSA Storage Occupancy below 16MB |
| DFHSTOR | A | 105 | SCUGETCT | SC31UGET | SC31UGet | . | . | . | . | . | EUDSA GETMAINs above 16MB |
| DFHSTOR | A | 106 | SCUSRHWM | SC31UHWM | SC31UHWM | . | . | . | . | . | EUDSA HWM above 16MB |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|----------|--------------------|----------------|--------------|---|---|---|---|--|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| | | | | | | 0 | 0 | 0 | 0 | 0 | |
| DFHSTOR | A | 107 | SCUCRSTG | SC31UOCC | SC31UOcc | . | . | . | . | . | EUDSA Storage Occupancy above 16MB |
| DFHSTOR | A | 108 | PC24BHWM | | PC24bHWM | . | . | . | . | . | Program Storage HWM below 16MB |
| DFHSTOR | A | 116 | SC24CHWM | | SC24CHWM | . | . | . | . | . | CDSA HWM below 16MB |
| DFHSTOR | A | 117 | SCCGETCT | SC24CGET | SC24CGet | . | . | . | . | . | CDSA GETMAINs below 16MB |
| DFHSTOR | A | 118 | SC24COCC | | SC24COcc | . | . | . | . | . | CDSA Storage Occupancy below 16MB |
| DFHSTOR | A | 119 | SC31CHWM | | SC31CHWM | . | . | . | . | . | ECDSA HWM above 16MB |
| DFHSTOR | A | 120 | SCCGETCT | SC31CGET | SC31CGet | . | . | . | . | . | ECDSA GETMAINs above 16MB |
| DFHSTOR | A | 121 | SC31COCC | | SC31COcc | . | . | . | . | . | ECDSA Storage Occupancy above 16MB |
| DFHSTOR | A | 122 | PC31RHWM | | PC31RHWM | . | . | . | . | . | Program Storage (ERDSA) HWM above 16MB |
| DFHSTOR | A | 139 | PC31AHWM | | PC31aHWM | . | . | . | . | . | Program Storage HWM above 16MB |
| DFHSTOR | A | 142 | PC31CHWM | | PC31CHWM | . | . | . | . | . | Program Storage (ECDSA) HWM above 16MB |
| DFHSTOR | A | 143 | PC24CHWM | | PC24CHWM | . | . | . | . | . | Program Storage (CDSA) HWM below 16MB |
| DFHSTOR | A | 144 | SC24SGCT | SC24SGET | SC24SGet | . | . | . | . | . | CDSA/SDSA GETMAINs below 16MB |
| DFHSTOR | A | 145 | SC24GSHR | | SC24GShr | . | . | . | . | . | CDSA/SDSA storage GETMAINED below 16MB |
| DFHSTOR | A | 146 | SC24FSHR | | SC24FShr | . | . | . | . | . | CDSA/SDSA storage FREEMAINED below 16MB |
| DFHSTOR | A | 147 | SC31SGCT | SC31SGET | SC31SGet | . | . | . | . | . | ECDSA/ESDSA GETMAINs above 16MB |
| DFHSTOR | A | 148 | SC31GSHR | | SC31GShr | . | . | . | . | . | ECDSA/ESDSA storage GETMAINED above 16MB |
| DFHSTOR | A | 149 | SC31FSHR | | SC31FShr | . | . | . | . | . | ECDSA/ESDSA storage FREEMAINED above 16MB |
| DFHSTOR | A | 160 | PC24SHWM | | PC24SHWM | . | . | . | . | . | Program Storage (SDSA) HWM below 16MB |
| DFHSTOR | A | 161 | PC31SHWM | | PC31SHWM | . | . | . | . | . | Program Storage (ESDSA) HWM above 16MB |
| DFHSTOR | A | 162 | PC24RHWM | | PC24RHWM | . | . | . | . | . | Program Storage (RDSA) HWM below 16MB |
| DFHSTOR | A | 441 | SC64CGCT | SC64CGET | SC64CGet | - | - | - | - | . | GCDSA GETMAINs above the bar |
| DFHSTOR | A | 442 | SC64CHWM | | SC64CHWM | - | - | - | - | . | GCDSA HWM above the bar |
| DFHSTOR | A | 443 | SC64UGCT | SC64UGET | SC64UGet | - | - | - | - | . | GUDSA GETMAINs above the bar |
| DFHSTOR | A | 444 | SC64UHWM | | SC64UHWM | - | - | - | - | . | GUDSA HWM above the bar |
| DFHSTOR | A | 445 | SC64SGCT | SC64SGET | SC64SGet | - | - | - | - | . | GCDSA/GSDSA GETMAINs above the bar |
| DFHSTOR | A | 446 | SC64GSHR | | SC64GShr | - | - | - | - | . | GCDSA/GSDSA storage GETMAINED above the bar |
| DFHSTOR | A | 447 | SC64FSHR | | SC64FShr | - | - | - | - | . | GCDSA/GSDSA storage FREEMAINED above the bar |
| DFHSYNC | A | 060 | SPSYNCCT | SYNCPT | SYNCPT | . | . | . | . | . | SYNCPOINT requests |
| DFHSYNC | S | 173 | SYNCTIME | | SYNCProc | . | . | . | . | . | SYNCPOINT processing time |
| DFHSYNC | S | 177 | SRVSYWTT | CFDTSYNC | CFDTSync | . | . | . | . | . | CF Data Table syncpoint wait time |
| DFHSYNC | S | 196 | SYNCDLY | | SYNC Dly | . | . | . | . | . | SYNCPOINT parent request wait time |
| DFHSYNC | S | 199 | OTSINDWT | | OTSIndWt | . | . | . | . | . | OTS Indoubt Wait time |
| DFHTASK | C | 001 | TRAN | | Tran | . | . | . | . | . | Transaction identifier |
| DFHTASK | C | 004 | TTYPE | STYPE | SC | . | . | . | . | . | Transaction start type |
| DFHTASK | S | 007 | USRDISPT | DISPATCH | Dispatch | . | . | . | . | . | Dispatch time |
| DFHTASK | S | 008 | USRCPUT | CPU | User CPU | . | . | . | . | . | CPU time |
| DFHTASK | S | 014 | SUSPTIME | SUSPEND | Suspend | . | . | . | . | . | Suspend time |
| DFHTASK | P | 031 | TRANNUM | TASKNO | TaskNo | . | . | . | . | . | Transaction identification number |
| DFHTASK | A | 059 | ICPUINCT | ICPUT | ICSTART | . | . | . | . | . | Interval Control START or INITIATE requests |
| DFHTASK | A | 064 | TASKFLAG | ERRFLAGS | Err Flag | . | . | . | . | . | Task error flags |
| DFHTASK | C | 064 | TASKFLAG | N/A | Err Flag | . | . | . | . | . | Task error flags |
| DFHTASK | A | 065 | ICSTACCT | | ICSTACCT | . | . | . | . | . | Local IC START requests with CHANNEL option |
| DFHTASK | A | 066 | ICTOTCT | ICTOTAL | IC Total | . | . | . | . | . | Interval Control requests |
| DFHTASK | C | 082 | TRNGRPID | | Group ID | . | . | . | . | . | Transaction Group ID |
| DFHTASK | C | 097 | NETUOWPX | NETNAME | NETName | . | . | . | . | . | Originating System VTAM network name |
| DFHTASK | C | 098 | NETUOWSX | | NETUOWID | . | . | . | . | . | Network UOW ID |
| DFHTASK | S | 102 | DISPWTT | DISPWAIT | DispWait | . | . | . | . | . | Redispatch wait time |
| DFHTASK | A | 109 | TRANPRI | TRANPRTY | Prtty | . | . | . | . | . | Transaction priority |
| DFHTASK | S | 123 | GNQDELAY | | GNQDelay | . | . | . | . | . | Global Enqueue wait time |
| DFHTASK | C | 124 | BRDGTRAN | | Brdg | . | . | . | . | . | Bridge Listener Transaction ID |
| DFHTASK | S | 125 | DSPDELAY | | Disp1Dly | . | . | . | . | . | First dispatch wait time |
| DFHTASK | S | 126 | TCLDELAY | | TCLDelay | . | . | . | . | . | First dispatch TCLSNAME wait time |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|-----------|--------------------|----------------|--------------|---|---|---|---|--|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| | | | | | | 0 | 0 | 0 | 0 | 0 | |
| DFHTASK | S | 127 | MXTDELAY | | MXTDelay | . | . | . | . | . | First dispatch MXT wait time |
| DFHTASK | S | 128 | LMDELAY | LOCKDLAY | LM Delay | . | . | . | . | . | Lock Manager (LM) wait time |
| DFHTASK | S | 129 | ENQDELAY | | ENQDelay | . | . | . | . | . | Local Enqueue wait time |
| DFHTASK | C | 132 | RMUOWID | | RMUOWID | . | . | . | . | . | Recovery UOW ID |
| DFHTASK | C | 163 | FCTYNAME | FCTY | Fcty | . | . | . | . | . | Transaction Facility name |
| DFHTASK | A | 164 | TRANFLAG | | TranFlag | . | . | . | . | . | Transaction flags |
| DFHTASK | C | 164 | TRANFLAG | FCTYTYPE | FctyType | . | . | . | . | . | Transaction facility type |
| DFHTASK | C | 164 | TRANFLAG | ORIGIN | Origin | . | . | . | . | . | Transaction origin type |
| DFHTASK | C | 164 | TRANFLAG | TRANTYPE | TranType | . | . | . | . | . | Transaction type |
| DFHTASK | C | 166 | TCLSNNAME | TCLASSNM | TCLSNName | . | . | . | . | . | Transaction Class name |
| DFHTASK | S | 170 | RMITIME | | RMI Elap | . | . | . | . | . | Resource Manager Interface (RMI) elapsed time |
| DFHTASK | S | 171 | RMISUSP | | RMI Susp | . | . | . | . | . | Resource Manager Interface (RMI) suspend time |
| DFHTASK | S | 181 | WTEXWAIT | WAITEXT | Ext Wait | . | . | . | . | . | External ECB wait time |
| DFHTASK | S | 182 | WTCEWAIT | WAITCICS | CICSWait | . | . | . | . | . | CICS ECB wait time |
| DFHTASK | S | 183 | ICDELAY | | IC Delay | . | . | . | . | . | Interval Control (IC) wait time |
| DFHTASK | S | 184 | GVUPWAIT | GIVEUPWT | GiveUpWt | . | . | . | . | . | Give up control wait time |
| DFHTASK | C | 190 | RRMSURID | N/A | RRMSURID | . | . | . | . | . | RRMS/MVS unit-of-recovery ID (URID) |
| DFHTASK | S | 191 | RRMSWAIT | | RRMSWait | . | . | . | . | . | Resource Recovery Services indoubt wait time |
| DFHTASK | S | 192 | RQRWAIT | | RQR Wait | . | . | . | . | . | Request Receiver Wait Time |
| DFHTASK | S | 193 | RQPWAIT | | RQP Wait | . | . | . | . | . | Request Processor Wait Time |
| DFHTASK | C | 194 | OTSTID | OTSID | OTS ID | . | . | . | . | . | OTS Transaction ID |
| DFHTASK | S | 195 | RUNTRWTT | | BTSRunWt | . | . | . | . | . | BTS run Process/Activity wait time |
| DFHTASK | S | 247 | DSCHMDLY | | DSCHMDLY | . | . | . | . | . | Redispatch wait time caused by change-TCB mode |
| DFHTASK | S | 249 | QRMODDLY | | QRModDly | . | . | . | . | . | CICS QR TCB redispatch wait time |
| DFHTASK | S | 250 | MXTOTDLY | MAXOTDLY | MaxOTDly | . | . | . | . | . | Maximum Open TCB delay time |
| DFHTASK | A | 251 | TCBATTCT | | TCBAtach | . | . | . | . | . | TCBs attached count |
| DFHTASK | A | 252 | DSTCBHWM | | DSTCBHWM | . | . | . | . | . | CICS Dispatcher TCB HWM |
| DFHTASK | S | 253 | JVMTIME | | JVM Elap | . | . | . | . | . | JVM elapsed time |
| DFHTASK | S | 254 | JVMSUSP | | JVM Susp | . | . | . | . | . | JVM suspend time |
| DFHTASK | S | 255 | QRDISPT | | QR Disp | . | . | . | . | . | CICS QR TCB dispatch time |
| DFHTASK | S | 256 | QRCPUT | QRCPU | QR CPU | . | . | . | . | . | CICS QR TCB CPU time |
| DFHTASK | S | 257 | MSDISPT | | MS Disp | . | . | . | . | . | CICS TCBs dispatch time |
| DFHTASK | S | 258 | MSCPUT | MSCPU | MS CPU | . | . | . | . | . | CICS TCBs CPU time |
| DFHTASK | S | 259 | L8CPUT | L8CPU | L8 CPU | . | . | . | . | . | CICS L8 TCB CPU time |
| DFHTASK | S | 260 | J8CPUT | J8CPU | J8 CPU | . | . | . | . | - | CICS J8 TCB CPU time |
| DFHTASK | S | 261 | S8CPUT | S8CPU | S8 CPU | . | . | . | . | . | CICS S8 TCB CPU time |
| DFHTASK | S | 262 | KY8DISPT | | KY8 Disp | . | . | . | . | . | CICS Key 8 TCB dispatch time |
| DFHTASK | S | 263 | KY8CPUT | KY8CPU | KY8 CPU | . | . | . | . | . | CICS Key 8 TCB CPU time |
| DFHTASK | S | 264 | KY9DISPT | | KY9 Disp | . | . | . | . | . | User task Key 9 Mode Dispatch time |
| DFHTASK | S | 265 | KY9CPUT | KY9CPU | KY9 CPU | . | . | . | . | . | User task Key 9 Mode CPU time |
| DFHTASK | S | 266 | L9CPUT | L9CPU | L9 CPU | . | . | . | . | . | User task L9 CPU time |
| DFHTASK | S | 267 | J9CPUT | J9CPU | J9 CPU | . | . | . | . | - | User task J9 Mode CPU time |
| DFHTASK | S | 268 | DSTCBMWT | | DSTCBMWT | . | . | . | . | . | Dispatcher TCB Mismatch wait time |
| DFHTASK | S | 269 | RODISPT | | RO Disp | . | . | . | . | . | CICS RO TCB dispatch time |
| DFHTASK | S | 270 | ROCPUT | ROCPU | RO CPU | . | . | . | . | . | CICS RO TCB CPU time |
| DFHTASK | S | 271 | X8CPUT | X8CPU | X8 CPU | . | . | . | . | . | CICS X8 TCB CPU time |
| DFHTASK | S | 272 | X9CPUT | X9CPU | X9 CPU | . | . | . | . | . | User task X9 Mode CPU time |
| DFHTASK | S | 273 | JVMITIME | | JVMITime | . | . | . | . | . | JVM initialize elapsed time |
| DFHTASK | S | 275 | JVMRTIME | | JVMRTIME | . | . | . | . | . | JVM reset elapsed time |
| DFHTASK | S | 277 | MAXJTDLY | | MaxJTDly | . | . | . | . | - | Maximum JVM TCB delay time |
| DFHTASK | S | 278 | MAXHTDLY | | MaxHTDly | - | - | - | - | - | Maximum Hot-Pooling TCB delay time |
| DFHTASK | S | 279 | DSMMSWWT | | DS Wait | . | . | . | . | . | DS storage constraint wait time |
| DFHTASK | S | 281 | MAXSTDLY | | MAXSTDLY | . | . | . | . | . | Maximum SSL TCB delay time |
| DFHTASK | S | 282 | MAXXTDLY | | MAXXTDLY | . | . | . | . | . | Maximum XPLink TCB delay time |
| DFHTASK | S | 283 | MAXTTDLY | | MAXTTDLY | - | - | . | . | . | Maximum JVM server thread TCB delay time |
| DFHTASK | S | 285 | PTPWAIT | | PTP Wait | . | . | . | . | . | 3270 Bridge Partner wait time |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|----------|--------------------|----------------|--------------|---|---|---|---|--|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| DFHTASK | A | 345 | ICSTACDL | | ICSTACDL | • | • | • | • | • | Container data len for Local IC START w/ CHANNEL |
| DFHTASK | A | 346 | ICSTRCCT | | ICSTRCCT | • | • | • | • | • | Remote IC START requests with CHANNEL option |
| DFHTASK | A | 347 | ICSTRCDL | | ICSTRCDL | • | • | • | • | • | Container data len for Remot IC START w/ CHANNEL |
| DFHTASK | S | 348 | ROMODDLY | | ROModDly | – | – | – | – | • | Other CICS TCB Mode redispach wait time |
| DFHTASK | S | 349 | SOMODDLY | | SOModDly | – | – | – | – | • | CICS SO TCB redispach wait time |
| DFHTASK | S | 400 | T8CPUT | T8CPU | T8 CPU | – | – | • | • | • | CICS T8 TCB CPU time |
| DFHTASK | S | 401 | JVMTHDWT | | JVMThdWt | – | – | • | • | • | JVM server thread wait time |
| DFHTASK | C | 430 | CECMCHTP | | CECMchTp | – | – | – | – | • | CEC machine type |
| DFHTASK | C | 431 | CECMDLID | | CECModId | – | – | – | – | • | CEC model number |
| DFHTASK | C | 433 | MAXTASKS | | MaxTasks | – | – | – | – | • | Current MAXTASKS (MXT) value at task start |
| DFHTASK | C | 434 | CURTASKS | | CurTasks | – | – | – | – | • | Current tasks value at task start |
| DFHTASK | S | 436 | CPUTONCP | CPUONCP | CPUonCP | – | – | – | – | • | CPU time on standard CP |
| DFHTASK | S | 437 | OFFLPCTT | CPUONCPE | CPUonCpe | – | – | – | – | • | Offload eligible CPU time on standard CP |
| DFHTASK | C | 451 | ACAPPLNM | | ACApplNm | – | – | – | – | • | Application context application name |
| DFHTASK | C | 452 | ACPLATNM | | ACPlatNm | – | – | – | – | • | Application context platform name |
| DFHTASK | C | 453 | ACMAJVER | | ACMajVer | – | – | – | – | • | Application context application major version |
| DFHTASK | C | 454 | ACMINVER | | ACMinVer | – | – | – | – | • | Application context application minor version |
| DFHTASK | C | 455 | ACMICVER | | ACMicVer | – | – | – | – | • | Application context application micro version |
| DFHTASK | C | 456 | ACOPERNM | | ACOperNm | – | – | – | – | • | Application context operation name |
| DFHTEMP | S | 011 | TSIOWTT | TSWAIT | TS Wait | • | • | • | • | • | VSAM TS I/O wait time |
| DFHTEMP | A | 044 | TSGETCT | TSGET | TSGET | • | • | • | • | • | Temporary Storage GET requests |
| DFHTEMP | A | 046 | TSPUTACT | TSPUTAUX | TSPUTAux | • | • | • | • | • | Auxiliary TS PUT requests |
| DFHTEMP | A | 047 | TSPUTMCT | | TSPUTMai | • | • | • | • | • | Main TS PUT requests |
| DFHTEMP | A | 092 | TSTOTCT | TSTOTAL | TS Total | • | • | • | • | • | TS Total requests |
| DFHTEMP | S | 178 | TSSHWAIT | | TSShWait | • | • | • | • | • | Asynchronous Shared TS wait time |
| DFHTERM | C | 002 | TERM | | Term | • | • | • | • | • | Terminal ID |
| DFHTERM | S | 009 | TCIOWTT | TCWAIT | TC Wait | • | • | • | • | • | Terminal wait for input time |
| DFHTERM | A | 034 | TCMSGIN1 | MSGIN1 | MsgIn1 | • | • | • | • | • | Messages received count |
| DFHTERM | A | 035 | TCMSGOU1 | MSGOUT1 | MsgOut1 | • | • | • | • | • | Messages sent count |
| DFHTERM | A | 067 | TCMSGIN2 | MSGIN2 | MsgIn2 | • | • | • | • | • | Messages received from LU6.1 |
| DFHTERM | A | 068 | TCMSGOU2 | MSGOUT2 | MsgOut2 | • | • | • | • | • | Messages sent to LU6.1 |
| DFHTERM | A | 069 | TCALLOCT | TCALLOC | TCALLOC | • | • | • | • | • | TCTTE ALLOCATE requests |
| DFHTERM | A | 083 | TCCHRIN1 | CHARIN1 | CharIn1 | • | • | • | • | • | Terminal characters received count |
| DFHTERM | A | 084 | TCCHROU1 | CHAROUT1 | CharOut1 | • | • | • | • | • | Terminal characters sent count |
| DFHTERM | A | 085 | TCCHRIN2 | CHARIN2 | CharIn2 | • | • | • | • | • | LU6.1 characters received count |
| DFHTERM | A | 086 | TCCHROU2 | CHAROUT2 | CharOut2 | • | • | • | • | • | LU6.1 characters sent count |
| DFHTERM | S | 100 | IRIOWTT | IRWAIT | IR Wait | • | • | • | • | • | MRO link wait time |
| DFHTERM | C | 111 | LUNAME | | LUName | • | • | • | • | • | VTAM logical unit name |
| DFHTERM | S | 133 | LU61WTT | LU61WAIT | LU61Wait | • | • | • | • | • | LU6.1 wait time |
| DFHTERM | S | 134 | LU62WTT | LU62WAIT | LU62Wait | • | • | • | • | • | LU6.2 wait time |
| DFHTERM | A | 135 | TCM62IN2 | | TCM62In2 | • | • | • | • | • | LU6.2 messages received count |
| DFHTERM | A | 136 | TCM62OU2 | | TCM62Ou2 | • | • | • | • | • | LU6.2 messages sent count |
| DFHTERM | A | 137 | TCC62IN2 | | TCC62In2 | • | • | • | • | • | LU6.2 characters received count |
| DFHTERM | A | 138 | TCC62OU2 | | TCC62Ou2 | • | • | • | • | • | LU6.2 characters sent count |
| DFHTERM | A | 165 | TERMINFO | | TermInfo | • | • | • | • | • | Terminal information |
| DFHTERM | A | 165 | TERMINFO | ACCMETH | Acc Meth | • | • | • | • | • | Terminal Access Method |
| DFHTERM | A | 165 | TERMINFO | TERMCODE | DevT | • | • | • | • | • | Terminal Device Type |
| DFHTERM | A | 165 | TERMINFO | NATURE | Nature | • | • | • | • | • | Transaction |
| DFHTERM | A | 165 | TERMINFO | SESSTYPE | SessType | • | • | • | • | • | Terminal session type |
| DFHTERM | C | 169 | TERMCNNM | | ConnName | • | • | • | • | • | Terminal session Connection name |
| DFHTERM | C | 197 | NETID | | NET ID | • | • | • | • | • | VTAM LUALIAS Network ID |
| DFHTERM | C | 198 | RLUNAME | | RLUNAME | • | • | • | • | • | VTAM LUALIAS Logical Unit name |
| DFHTERM | S | 343 | TCALWTT | | TCAlWait | – | – | – | – | • | MRO allocate session wait time |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|-----------|--------------------|----------------|--------------|---|---|---|---|---|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| DFHWEBB | A | 224 | WBREADCT | WBREAD | WB READ | . | . | . | . | . | Web READ requests |
| DFHWEBB | A | 225 | WBWRITCT | WBWRITE | WB WRITE | . | . | . | . | . | Web WRITE requests |
| DFHWEBB | A | 231 | WBRCVCT | WBRCV | WBRCV | . | . | . | . | . | Web RECEIVE requests |
| DFHWEBB | A | 232 | WBCHRIN | | WBChrIn | . | . | . | . | . | Web characters received count |
| DFHWEBB | A | 233 | WBSENDCT | WSEND | WSEND | . | . | . | . | . | Web SEND requests |
| DFHWEBB | A | 234 | WBCHROUT | | WBChrOut | . | . | . | . | . | Web characters sent count |
| DFHWEBB | A | 235 | WBTOTWCT | WBTOTAL | WB Total | . | . | . | . | . | Web Total requests |
| DFHWEBB | A | 236 | WBREPRCT | | WBRepoRd | . | . | . | . | . | Web Temporary Storage Repository read requests |
| DFHWEBB | A | 237 | WBREPWCT | | WBRepoWr | . | . | . | . | . | Web Temporary Storage Repository write requests |
| DFHWEBB | A | 238 | WBEXTRCT | | WBEXTRAC | . | . | . | . | . | Web EXTRACT requests |
| DFHWEBB | A | 239 | WBBRWCT | WBBROWSE | WBBROWSE | . | . | . | . | . | Web Browse requests |
| DFHWEBB | A | 331 | WBREDOCT | | WBREDOCT | . | . | . | . | . | CICS Web Support READ HTTPHEADER requests |
| DFHWEBB | A | 332 | WBWRTOCT | | WBWRTOCT | . | . | . | . | . | CICS Web Support WRITE HTTPHEADER requests |
| DFHWEBB | A | 333 | WBRCVIN1 | | WBRCVIN1 | . | . | . | . | . | CICS Web Support RECEIVE and CONVERSE requests |
| DFHWEBB | A | 334 | WBCHRIN1 | | WBCHRIN1 | . | . | . | . | . | CICS Web Support RECEIVE and CONVERSE chars |
| DFHWEBB | A | 335 | WBSNDOU1 | | WBSNDOU1 | . | . | . | . | . | CICS Web Support SEND and CONVERSE requests |
| DFHWEBB | A | 336 | WBCHROU1 | | WBCHROU1 | . | . | . | . | . | CICS Web Support SEND and CONVERSE chars |
| DFHWEBB | A | 337 | WBPARSCT | | WBPARSCT | . | . | . | . | . | CICS Web Support PARSE URL requests |
| DFHWEBB | A | 338 | WBBRWCT | | WBBRWCT | . | . | . | . | . | CICS Web Support BROWSE HTTPHEADER requests |
| DFHWEBB | A | 340 | WBIWBSCT | | WBIWBSCT | . | . | . | . | . | INVOKE SERVICE and INVOKE WEBSERVICE requests |
| DFHWEBB | A | 341 | WBREPRDL | | WBREPRDL | . | . | . | . | . | Repository Read data length |
| DFHWEBB | A | 342 | WBREPWDL | | WBREPWDL | . | . | . | . | . | Repository Write data length |
| DFHWEBB | C | 380 | WURIMNM | | URI Map | - | - | . | . | . | URIMAP resource definition name |
| DFHWEBB | C | 381 | WBIPLNM | | Pipeline | - | - | . | . | . | PIPELINE resource definition name |
| DFHWEBB | C | 382 | WBATMSNM | | ATOMSrvc | - | - | . | . | . | ATOMSERVICE resource definition name |
| DFHWEBB | C | 383 | WBSVCENM | | WebSrvc | - | - | . | . | . | WEBSERVICE resource definition name |
| DFHWEBB | C | 384 | WBSVOPNM | | WebSrvOp | - | - | . | . | . | WEBSERVICE operation name |
| DFHWEBB | C | 385 | WBPROGNM | | Web Prog | - | - | . | . | . | Program name in URIMAP resource definition |
| DFHWEBB | A | 386 | WBSFCRCT | | SOAPFtCr | - | - | . | . | . | SOAPFAULT CREATE requests |
| DFHWEBB | A | 387 | WBSFTOCT | | SOAPFalt | - | - | . | . | . | SOAPFAULT ADD |
| DFHWEBB | A | 388 | WBISSFCT | | ISSOAPFt | - | - | . | . | . | INVOKE SERVICE request SOAP faults received |
| DFHWEBB | A | 390 | WBSREQBL | | SOAPRqBL | - | - | . | . | . | SOAP request SOAP body length |
| DFHWEBB | A | 392 | WBSRSPBL | | SOAPRsBL | - | - | . | . | . | SOAP response SOAP body length |
| DFHWEBB | S | 411 | MLXSCTM | | XMLSSCPU | - | - | . | . | - | z/OS XML System Services CPU time |
| DFHWEBB | A | 412 | MLXSSTD | | XMLDocLn | - | - | . | . | . | Document length parsed - z/OS System Services |
| DFHWEBB | A | 413 | MLXMLTCT | | XMLTrans | - | - | . | . | . | Application data TRANSFORM requests |
| DFHWEBB | A | 420 | WSACBLCT | | WSACBlD | - | - | . | . | . | WSACONTEXT BUILD requests |
| DFHWEBB | A | 421 | WSACGTCT | | WSACGet | - | - | . | . | . | WSACONTEXT GET requests |
| DFHWEBB | A | 422 | WSAEPCTCT | | WSAEPcre | - | - | . | . | . | WSAEP CREATE requests |
| DFHWEBB | A | 423 | WSATOTCT | | WSAddr | - | - | . | . | . | Total Web Services Addressing requests |
| OMCICS | C | 001 | DB2WARN | | DB2WARN | . | . | . | . | . | OMEGAMON DB2 Limit Warning |
| OMCICS | C | 002 | DLIWARN | | DLIWARN | . | . | . | . | . | OMEGAMON DLI Limit Warning |
| OMCICS | C | 003 | VSAMWARN | | VSAMWARN | . | . | . | . | . | OMEGAMON VSAM Limit warning |
| OMCICS | C | 004 | MQWARN | | MQWARN | . | . | . | . | . | OMEGAMON MQ Limit Warning |
| OMCICS | C | 005 | ADABWARN | | ADABWARN | . | . | . | . | . | OMEGAMON Adabas Limit Warning |
| OMCICS | C | 006 | IDMSWARN | | IDMSWARN | . | . | . | . | . | OMEGAMON CA-IDMS Limit Warning |
| OMCICS | C | 007 | SUPRWARN | | SUPRWARN | . | . | . | . | . | OMEGAMON Supra Limit Warning |
| OMCICS | C | 008 | DCOMWARN | | DCOMWARN | . | . | . | . | . | OMEGAMON CA-Datacom Limit Warning |
| OMCICS | C | 009 | CPUWARN | | CPUWARN | . | . | . | . | . | OMEGAMON CPU Limit Warning |
| OMCICS | C | 010 | ELAPWARN | | ELAPWARN | . | . | . | . | . | OMEGAMON Elapsed Time Limit Warning |
| OMCICS | C | 011 | DSAWARN | | DSAWARN | . | . | . | . | . | OMEGAMON DSA Limit Warning |

Table 17. Cross-reference: CMF field ID × CICS version (continued)

| CMF field | | | | | | CICS version | | | | | Description |
|-----------|------|-----|----------|--------------------|----------------|--------------|---|---|---|---|--|
| Group | Type | ID | Name | CICS PA field name | Column heading | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| | | | | | | 0 | 0 | 0 | 0 | 0 | |
| OMCICS | C | 012 | EDSAWARN | | EDSAWARN | • | • | • | • | • | OMEGAMON EDSA Limit Warning |
| OMCICS | C | 013 | CALLWARN | | CALLWARN | • | • | • | • | • | OMEGAMON EXEC Calls Limit Warning |
| OMCICS | C | 014 | UE1WARN | | UE1WARN | • | • | • | • | • | OMEGAMON User Event Limit Warning |
| OMCICS | C | 015 | OMEGWORK | | OMEGWORK | • | • | • | • | • | OMEGAMON User work area |
| OMCICS | S | 016 | IDMSREQ | | IDMSREQ | • | • | • | • | • | OMEGAMON monitored CA-IDMS requests |
| OMCICS | S | 017 | ADABREQ | | ADABREQ | • | • | • | • | • | OMEGAMON monitored Adabas requests |
| OMCICS | S | 018 | SUPRREQ | | SUPRREQ | • | • | • | • | • | OMEGAMON monitored Supra requests |
| OMCICS | S | 019 | DCOMREQ | | DCOMREQ | • | • | • | • | • | OMEGAMON monitored CA-Datacom requests |
| OMCICS | S | 020 | USREVNT | | USREVNT | • | • | • | • | • | OMEGAMON User defined events |

Chapter 28. CICS PA field names by CICS version

The following cross-reference table relates the CICS PA names for CICS monitoring facility (CMF) performance class and transaction resource class data fields to the corresponding CMF field IDs and the CICS versions to which they apply.

Some columns in the table require explanation:

CICS PA field name

The name used in report forms, HDB templates, and selection criteria (and their corresponding batch command operands FIELDS and SELECT).

A blank indicates that the field is not available, typically because it is a very long field, or it is an unprintable field such as a unit-of-work or a flag.

Column heading

The heading used to identify the field in CICS PA reports and extract data sets.

CICS version

The CICS versions to which a field applies:

- Yes, the field applies to this CICS version
- No, the field does not apply to this CICS version

The table is sorted by CICS PA field name.

Note:

1. Some special fields, such as APPLID and RESPONSE, are not defined in the CMF Dictionary and are given a group name of "CICSPA". These fields are either derived from the fixed section of the CMF record (for example, APPLID), or calculated from two or more other CMF fields (for example, RESPONSE).
2. The FILENAME, TSQNAME, and DPLNAME fields are only available when CMF transaction resource class data is being collected.
3. The APPLTRAN and APPLPROG fields are only available when application programs invoke the application naming event monitoring points. See the APPLNAME parameter on the DFHMCT TYPE=INITIAL macro in the *CICS Resource Definition Guide*.

Table 18. Cross-reference: CICS PA field name × CICS version

| CICS PA field name | Column heading | CMF field | | | CICS version | | | | | Description | |
|--------------------|----------------|-----------|------|-----|--------------|---|---|---|---|-------------|---|
| | | Group | Type | ID | Name | 6 | 6 | 6 | 6 | | 6 |
| | | | | | | 4 | 5 | 6 | 7 | | 8 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | BTS Root | DFHCBTS | C | 202 | PRCSID | • | • | • | • | • | BTS Root Activity identifier |
| | BTSActID | DFHCBTS | C | 203 | ACTVTYID | • | • | • | • | • | BTS Activity identifier |
| | Err Flag | DFHTASK | C | 064 | TASKFLAG | • | • | • | • | • | Task error flags |
| | RRMSURID | DFHTASK | C | 190 | RRMSURID | • | • | • | • | • | RRMS/MVS unit-of-recovery ID (URID) |
| ABCODEC | ABcu | DFHPROG | C | 114 | ABCODEC | • | • | • | • | • | Current ABEND code |
| ABCODEO | ABor | DFHPROG | C | 113 | ABCODEO | • | • | • | • | • | Original ABEND Code |
| ACAPPLNM | ACAppNm | DFHTASK | C | 451 | ACAPPLNM | – | – | – | – | • | Application context application name |
| ACAPPLVR | ACAppVr | CICSPA | C | 933 | ACAPPLVR | – | – | – | – | • | Application context application version |
| ACCMETH | Acc Meth | DFHTERM | A | 165 | TERMINFO | • | • | • | • | • | Terminal Access Method |
| ACMAJVER | ACMajVer | DFHTASK | C | 453 | ACMAJVER | – | – | – | – | • | Application context application major version |
| ACMICVER | ACMicVer | DFHTASK | C | 455 | ACMICVER | – | – | – | – | • | Application context application micro version |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | | CICS version | | | | | Description |
|--------------------|----------------|-----------|------|-----|----------|--------------|---|---|---|---|---|
| | | Group | Type | ID | Name | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| 0 | 0 | 0 | 0 | 0 | | | | | | | |
| ACMINVER | ACMinVer | DFHTASK | C | 454 | ACMINVER | - | - | - | - | - | Application context application minor version |
| ACOPERNM | ACOperNm | DFHTASK | C | 456 | ACOPERNM | - | - | - | - | - | Application context operation name |
| ACPLATNM | ACPlatNm | DFHTASK | C | 452 | ACPLATNM | - | - | - | - | - | Application context platform name |
| ACTVTYNM | BTSActNm | DFHCBTS | C | 204 | ACTVTYNM | . | . | . | . | . | BTS Activity name |
| ADABREQ | ADABREQ | OMCICS | S | 017 | ADABREQ | . | . | . | . | . | OMEGAMON monitored Adabas requests |
| ADABWARN | ADABWARN | OMCICS | C | 005 | ADABWARN | . | . | . | . | . | OMEGAMON Adabas Limit Warning |
| ALERT | ALERT | CICSPA | A | 915 | ALERT | . | . | . | . | . | Total Alert count or percentage |
| APPLID | APPLID | CICSPA | C | 903 | APPLID | . | . | . | . | . | CICS Generic APPLID |
| APPLPROG | Program | DFHAPPL | C | 001 | APPLNAME | . | . | . | . | . | Application naming Program |
| APPLRECS | APPLRecs | CICSPA | A | 002 | APPLRECS | . | . | . | . | . | Cross-System Application records |
| APPLTRAN | Tran | DFHAPPL | C | 001 | APPLNAME | . | . | . | . | . | Application naming Tran ID |
| BAACDCCT | BTSADCRq | DFHCBTS | A | 217 | BAACDCCT | . | . | . | . | . | BTS Activity Data Containers requests |
| BAACQPCT | BTSAcqui | DFHCBTS | A | 214 | BAACQPCT | . | . | . | . | . | BTS Acquire Process/Activity requests |
| BADACTCT | BTS DefA | DFHCBTS | A | 209 | BADACTCT | . | . | . | . | . | BTS Define Activity requests |
| BADCPACT | BTSCancl | DFHCBTS | A | 213 | BADCPACT | . | . | . | . | . | BTS Cancel Process/Activity requests |
| BADFIECT | BTSDefEv | DFHCBTS | A | 220 | BADFIECT | . | . | . | . | . | BTS Define-Input Event requests |
| BADPROCT | BTS DefP | DFHCBTS | A | 208 | BADPROCT | . | . | . | . | . | BTS Define Process requests |
| BALKPACT | BTS Link | DFHCBTS | A | 207 | BALKPACT | . | . | . | . | . | BTS Link Process/Activity count |
| BAPRDCCT | BTSPDCRq | DFHCBTS | A | 216 | BAPRDCCT | . | . | . | . | . | BTS Process Data Containers requests |
| BARASYCT | BTS Asyn | DFHCBTS | A | 206 | BARASYCT | . | . | . | . | . | BTS asynchronous Process/Activity count |
| BARATECT | BTSRtvEv | DFHCBTS | A | 219 | BARATECT | . | . | . | . | . | BTS Retrieve-Reattach Event requests |
| BARMPACT | BTSResum | DFHCBTS | A | 212 | BARMPACT | . | . | . | . | . | BTS Resume Process/Activity requests |
| BARSPACT | BTSReset | DFHCBTS | A | 210 | BARSPACT | . | . | . | . | . | BTS Reset Process/Activity requests |
| BARSYNCT | BTS Sync | DFHCBTS | A | 205 | BARSYNCT | . | . | . | . | . | BTS synchronous Process/Activity count |
| BASUPACT | BTS Susp | DFHCBTS | A | 211 | BASUPACT | . | . | . | . | . | BTS Suspend Process/Activity requests |
| BATIAECT | BTSTimEv | DFHCBTS | A | 221 | BATIAECT | . | . | . | . | . | BTS TIMER Event requests |
| BATOTCCT | BTSTDCRq | DFHCBTS | A | 218 | BATOTCCT | . | . | . | . | . | BTS Process/Activity Data Container requests |
| BATOTECT | BTSTotEv | DFHCBTS | A | 222 | BATOTECT | . | . | . | . | . | BTS Event-related requests |
| BATOTPCT | BSTTotal | DFHCBTS | A | 215 | BATOTPCT | . | . | . | . | . | BTS Total Process/Activity requests |
| BFDGSTCT | BFDGSTcT | DFHCICS | A | 408 | BFDGSTCT | - | - | . | . | . | Built-in function BIF DIGEST requests |
| BFTOTCT | BFTotCt | DFHCICS | A | 409 | BFTOTCT | - | - | . | . | . | Total Built-in (BIF) function requests |
| BMSIN | BMSIN | DFHMAPP | A | 051 | BMSINCT | . | . | . | . | . | BMS IN requests |
| BMSMAP | BMSMAP | DFHMAPP | A | 050 | BMSMAPCT | . | . | . | . | . | BMS MAP requests |
| BMSOUT | BMSOUT | DFHMAPP | A | 052 | BMSOUTCT | . | . | . | . | . | BMS OUT requests |
| BMSTOTAL | BMSTotal | DFHMAPP | A | 090 | BMSTOTCT | . | . | . | . | . | BMS Total requests |
| BRDGTRAN | Brdg | DFHTASK | C | 124 | BRDGTRAN | . | . | . | . | . | Bridge Listener Transaction ID |
| CALLWARN | CALLWARN | OMCICS | C | 013 | CALLWARN | . | . | . | . | . | OMEGAMON EXEC Calls Limit Warning |
| CBSRVNRM | Corb | DFHEJBS | C | 311 | CBSRVNRM | . | . | . | . | - | CorbaServer name |
| CECMCHTP | CECMchTp | DFHTASK | C | 430 | CECMCHTP | - | - | - | - | - | CEC machine type |
| CECMDLID | CECModId | DFHTASK | C | 431 | CECMDLID | - | - | - | - | - | CEC model number |
| CECMTYPE | CECMType | CICSPA | C | 932 | CECMTYPE | - | - | - | - | - | CEC machine type and model number |
| CFCAPICT | CFCIsAPI | DFHCICS | A | 025 | CFCAPICT | . | . | . | . | . | OO Foundation Class requests |
| CFDTSYNC | CFDTSync | DFHSYNC | S | 177 | SRVSYWTT | . | . | . | . | . | CF Data Table syncpoint wait time |
| CFDTWAIT | CFDTWait | DFHFILE | S | 176 | CFDTWAIT | . | . | . | . | . | CF Data Table access requests wait time |
| CHARIN1 | CharIn1 | DFHTERM | A | 083 | TCCHRIN1 | . | . | . | . | . | Terminal characters received count |
| CHARIN2 | CharIn2 | DFHTERM | A | 085 | TCCHRIN2 | . | . | . | . | . | LU6.1 characters received count |
| CHAROUT1 | CharOut1 | DFHTERM | A | 084 | TCCHROU1 | . | . | . | . | . | Terminal characters sent count |
| CHAROUT2 | CharOut2 | DFHTERM | A | 086 | TCCHROU2 | . | . | . | . | . | LU6.1 characters sent count |
| CLIENTIP | ClientIP | DFH SOCK | C | 244 | CLIPADDR | . | . | - | - | - | Client or Telnet IP address |
| CLIP6ADR | Clip6Adr | DFH SOCK | C | 318 | CLIPADDR | - | - | . | . | . | Client or Telnet IP address |
| CLIPPORT | CLIPPORT | DFH SOCK | A | 330 | CLIPPORT | - | . | . | . | . | Client IP Port Number |
| COMMWAIT | CommWait | CICSPA | D | 906 | COMMWAIT | . | . | . | . | . | Communications wait time |
| CPU | User CPU | DFHTASK | S | 008 | USRCPUT | . | . | . | . | . | CPU time |
| CPUIPCT | CPUIPct | CICSPA | D | 937 | CPUIPCT | - | - | - | - | - | % CPU time based on interval |
| CPUISSPE | CPUIsSPe | CICSPA | D | 929 | CPUISSPE | - | - | - | - | - | CPU time that is offload eligible |
| CPUONCP | CPUonCP | DFHTASK | S | 436 | CPUTONCP | - | - | - | - | - | CPU time on standard CP |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | | CICS version | | | | | Description |
|--------------------|----------------|-----------|------|-----|----------|--------------|-------|-------|-------|-------|--|
| | | Group | Type | ID | Name | 64000 | 65000 | 66000 | 67000 | 68000 | |
| CPUONCPE | CPUonCPe | DFHTASK | S | 437 | OFFLPCCT | - | - | - | - | • | Offload eligible CPU time on standard CP |
| CPUONCPN | CPUonCPn | CICSPA | D | 931 | CPUONCPN | - | - | - | - | • | CPU time on standard CP not offload eligible |
| CPUONSP | CPUonSP | CICSPA | D | 930 | CPUONSP | - | - | - | - | • | CPU time on Specialty Processor |
| CPUSU | SrvcUnit | CICSPA | D | 943 | CPUSU | • | • | • | • | • | CPU Service Units |
| CPUWARN | CPUWARN | OMCICS | C | 009 | CPUWARN | • | • | • | • | • | OMEGAMON CPU Limit Warning |
| CURTASKS | CurTasks | DFHTASK | C | 434 | CURTASKS | - | - | - | - | • | Current tasks value at task start |
| DB2CONWT | DB2ConWt | DFHDATA | S | 188 | DB2CONWT | • | • | • | • | • | DB2 Connection wait time |
| DB2RDYQW | DB2ThdWt | DFHDATA | S | 187 | DB2RDYQW | • | • | • | • | • | DB2 Thread wait time |
| DB2REQCT | DB2 Reqs | DFHDATA | A | 180 | DB2REQCT | • | • | • | • | • | DB2 requests |
| DB2WAIT | DB2SQLWt | DFHDATA | S | 189 | DB2WAIT | • | • | • | • | - | DB2 SQL/IFI wait time |
| DB2WARN | DB2WARN | OMCICS | C | 001 | DB2WARN | • | • | • | • | • | OMEGAMON DB2 Limit Warning |
| DBGETS | DBget | DBCTL | A | 035 | DBGETS | • | • | • | • | • | Number of Database Get calls issued |
| DBIOCALL | DBIOCall | DBCTL | A | 007 | DBIOCALL | • | • | • | • | • | Number of Database I/Os |
| DBIOELAP | DBIOElap | DBCTL | S | 005 | DBIOELAP | • | • | • | • | • | Elapsed time for Database I/O |
| DBUPDATE | DBupdate | DBCTL | A | 036 | DBUPDATE | • | • | • | • | • | Number of Database Update calls issued |
| DBWAITS | DBwait | DBCTL | A | 037 | DBWAITS | • | • | • | • | • | Number of Database waits |
| DCOMREQ | DCOMREQ | OMCICS | S | 019 | DCOMREQ | • | • | • | • | • | OMEGAMON monitored CA-Datcom requests |
| DCOMWARN | DCOMWARN | OMCICS | C | 008 | DCOMWARN | • | • | • | • | • | OMEGAMON CA-Datcom Limit Warning |
| DEDBBFRW | DEDBBfrW | DBCTL | A | 031 | DEDBBFRW | • | • | • | • | • | Number of waits for DEDB buffers |
| DEDBCALL | DEDBcall | DBCTL | A | 027 | DEDBCALL | • | • | • | • | • | Number of DEDB calls |
| DEDBRDOP | DEDBRdOp | DBCTL | A | 028 | DEDBRDOP | • | • | • | • | • | Number of DEDB read operations |
| DHCREATE | DHCREATE | DFHDOCH | A | 226 | DHCRECT | • | • | • | • | • | Document Handler CREATE requests |
| DHDELETE | DHDELETE | DFHDOCH | A | 223 | DHDELCT | - | • | • | • | • | Document Handler DELETE requests |
| DHINSERT | DHINSERT | DFHDOCH | A | 227 | DHINSCT | • | • | • | • | • | Document Handler INSERT requests |
| DHRETRVE | DHRETRVE | DFHDOCH | A | 229 | DHRETTCT | • | • | • | • | • | Document Handler RETRIEVE requests |
| DHSET | DHSET | DFHDOCH | A | 228 | DHSETCT | • | • | • | • | • | Document Handler SET requests |
| DHTOTAL | DH Total | DFHDOCH | A | 230 | DHTOTCT | • | • | • | • | • | Document Handler Total requests |
| DHTOTDCL | DHDocLen | DFHDOCH | A | 240 | DHTOTDCL | • | • | • | • | • | Total length of all documents created |
| DISPATCH | Dispatch | DFHTASK | S | 007 | USRDISPT | • | • | • | • | • | Dispatch time |
| DISPWAIT | DispWait | DFHTASK | S | 102 | DISPWTT | • | • | • | • | • | Redispatch wait time |
| DLETCALL | DLETcall | DBCTL | A | 015 | DLETCALL | • | • | • | • | • | Number of Database DLET calls issued |
| DLICALLS | DLIcalls | DBCTL | A | 017 | DLICALLS | • | • | • | • | • | Total DL/I Database calls |
| DLIWARN | DLIWARN | OMCICS | C | 002 | DLIWARN | • | • | • | • | • | OMEGAMON DLI Limit Warning |
| DPLNAME | DPL Name | CICSPA | C | 919 | DPLNAME | • | • | • | • | • | Distributed program link name |
| DPLRECS | DPL Recs | CICSPA | A | 005 | DPLRECS | • | • | • | • | • | Cross-System DPL records |
| DSAWARN | DSAWARN | OMCICS | C | 011 | DSAWARN | • | • | • | • | • | OMEGAMON DSA Limit Warning |
| DSCHMDLY | DSCHMDLY | DFHTASK | S | 247 | DSCHMDLY | • | • | • | • | • | Redispatch wait time caused by change-TCB mode |
| DSMMSWWT | DS Wait | DFHTASK | S | 279 | DSMMSWWT | • | • | • | • | • | DS storage constraint wait time |
| DSPDELAY | Disp1Dly | DFHTASK | S | 125 | DSPDELAY | • | • | • | • | • | First dispatch wait time |
| DSTCBHWM | DSTCBHWM | DFHTASK | A | 252 | DSTCBHWM | • | • | • | • | • | CICS Dispatcher TCB HWM |
| DSTCBMWT | DSTCBMWT | DFHTASK | S | 268 | DSTCBMWT | • | • | • | • | • | Dispatcher TCB Mismatch wait time |
| ECEFOPT | ECEFOPT | DFHCICS | A | 416 | ECEFOPT | - | - | • | • | • | Event Filter operations |
| ECEVNTCT | ECEVNTCT | DFHCICS | A | 417 | ECEVNTCT | - | - | • | • | • | Events captured |
| ECSEVCCT | ECSEVCCT | DFHCICS | A | 418 | ECSEVCCT | - | - | - | • | • | Synchronous Emission Events captured |
| ECSIGECT | ECSIGECT | DFHCICS | A | 415 | ECSIGECT | - | - | • | • | • | SIGNAL EVENT requests |
| EDSAWARN | EDSAWARN | OMCICS | C | 012 | EDSAWARN | • | • | • | • | • | OMEGAMON EDSA Limit Warning |
| EICTOTCT | EICTotCt | DFHCICS | A | 402 | EICTOTCT | - | - | • | • | • | EXEC CICS requests |
| EJBACTIV | EJBActiv | DFHEJBS | A | 312 | EJBSACCT | • | • | • | • | - | Number of Bean State Activation requests |
| EJBCREAT | EJBCreat | DFHEJBS | A | 314 | EJBRECT | • | • | • | • | - | Number of Bean Creation requests |
| EJBMETHD | EJBMethd | DFHEJBS | A | 316 | EJBMTHCT | • | • | • | • | - | Number of EJB Method Calls |
| EJBPASIV | EJBPasiv | DFHEJBS | A | 313 | EJBSPACT | • | • | • | • | - | Number of Bean State Passivation requests |
| EJBTOTCT | EJBTotCt | DFHEJBS | A | 315 | EJBTOTCT | • | • | • | • | - | Number of Bean Removal requests |
| EJBTOTAL | EJBTotCt | DFHEJBS | A | 317 | EJBTOTCT | • | • | • | • | - | Total Number of EJB requests |
| ELAPWARN | ELAPWARN | OMCICS | C | 010 | ELAPWARN | • | • | • | • | • | OMEGAMON Elapsed Time Limit Warning |
| ENQDELAY | ENQDelay | DFHTASK | S | 129 | ENQDELAY | • | • | • | • | • | Local Enqueue wait time |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | | CICS version | | | | | Description |
|--------------------|----------------|-----------|------|-----|----------|--------------|-------|-------|-------|-------|--|
| | | Group | Type | ID | Name | 6 4 0 | 6 5 0 | 6 6 0 | 6 7 0 | 6 8 0 | |
| ENQSDLY | ENQsDlay | CICSPA | D | 924 | ENQSDLY | • | • | • | • | • | Total ENQ wait time |
| ERRFLAGS | Err Flag | DFHTASK | A | 064 | TASKFLAG | • | • | • | • | • | Task error flags |
| EXCLDEQS | ExclDEQs | DBCTL | A | 026 | EXCLDEQS | • | • | • | • | • | Number of Exclusive Dequeues |
| EXCLENQS | ExclENQs | DBCTL | A | 024 | EXCLENQS | • | • | • | • | • | Number of Exclusive Enqueues |
| EXCLENQW | ExclENQW | DBCTL | A | 025 | EXCLENQW | • | • | • | • | • | Number of waits on Exclusive Enqueues |
| EXWAIT | Exc Wait | DFHCICS | S | 103 | EXWTTIME | • | • | • | • | • | Exception Conditions wait time |
| FCADD | FCADD | DFHFILE | A | 039 | FCADDCT | • | • | • | • | • | File ADD requests |
| FCAMCT | FCAMRq | DFHFILE | A | 070 | FCAMCT | • | • | • | • | • | File access-method requests |
| FCBROWSE | FCBROWSE | DFHFILE | A | 038 | FCBRWCT | • | • | • | • | • | File Browse requests |
| FCDELETE | FCDELETE | DFHFILE | A | 040 | FCDELCT | • | • | • | • | • | File DELETE requests |
| FCGET | FCGET | DFHFILE | A | 036 | FCGETCT | • | • | • | • | • | File GET requests |
| FCPUT | FCPUT | DFHFILE | A | 037 | FCPUTCT | • | • | • | • | • | File PUT requests |
| FCTOTAL | FC Total | DFHFILE | A | 093 | FCOTCT | • | • | • | • | • | File Control requests |
| FCTY | Fcty | DFHTASK | C | 163 | FCTYNAME | • | • | • | • | • | Transaction Facility name |
| FCTYTYPE | FctyType | DFHTASK | C | 164 | TRANFLAG | • | • | • | • | • | Transaction facility type |
| FCVSWTT | FCVSWait | DFHFILE | S | 427 | FCVSWTT | – | – | – | – | • | VSAM string wait time |
| FCWAIT | FC Wait | DFHFILE | S | 063 | FCIOWTT | • | • | • | • | • | File I/O wait time |
| FCXCWTT | FCVXWait | DFHFILE | S | 426 | FCXCWTT | – | – | – | – | • | VSAM exclusive control wait time |
| FILENAME | FileName | CICSPA | C | 916 | FILENAME | • | • | • | • | • | File name |
| FUNCSHIP | FuncShip | CICSPA | A | 004 | FUNCSHIP | • | • | • | • | • | Cross-System Function Shipping records |
| GHNCALL | GHNcall | DBCTL | A | 012 | GHNCALL | • | • | • | • | • | Number of Database GHN calls issued |
| GHNPCALL | GHNPcall | DBCTL | A | 013 | GHNPCALL | • | • | • | • | • | Number of Database GHNP calls issued |
| GHUCALL | GHUcall | DBCTL | A | 011 | GHUCALL | • | • | • | • | • | Number of Database GHU calls issued |
| GIVEUPWT | GiveUpWt | DFHTASK | S | 184 | GVUPWAIT | • | • | • | • | • | Give up control wait time |
| GNCALL | Gncall | DBCTL | A | 009 | GNCALL | • | • | • | • | • | Number of Database GN calls issued |
| GNPCALL | GNPcall | DBCTL | A | 010 | GNPCALL | • | • | • | • | • | Number of Database GNP calls issued |
| GNQDELAY | GNQDelay | DFHTASK | S | 123 | GNQDELAY | • | • | • | • | • | Global Enqueue wait time |
| GUCALL | GUcall | DBCTL | A | 008 | GUCALL | • | • | • | • | • | Number of Database GU calls issued |
| ICDELAY | IC Delay | DFHTASK | S | 183 | ICDELAY | • | • | • | • | • | Interval Control (IC) wait time |
| ICPUT | ICSTART | DFHTASK | A | 059 | ICPUINCT | • | • | • | • | • | Interval Control START or INITIATE requests |
| ICSTACCT | ICSTACCT | DFHTASK | A | 065 | ICSTACCT | • | • | • | • | • | Local IC START requests with CHANNEL option |
| ICSTACDL | ICSTACDL | DFHTASK | A | 345 | ICSTACDL | • | • | • | • | • | Container data len for Local IC START w/ CHANNEL |
| ICSTRCCT | ICSTRCCT | DFHTASK | A | 346 | ICSTRCCT | • | • | • | • | • | Remote IC START requests with CHANNEL option |
| ICSTRCDL | ICSTRCDL | DFHTASK | A | 347 | ICSTRCDL | • | • | • | • | • | Container data len for Remot IC START w/ CHANNEL |
| ICTOTAL | IC Total | DFHTASK | A | 066 | ICTOTCT | • | • | • | • | • | Interval Control requests |
| IDMSREQ | IDMSREQ | OMCICS | S | 016 | IDMSREQ | • | • | • | • | • | OMEGAMON monitored CA-IDMS requests |
| IDMSWARN | IDMSWARN | OMCICS | C | 006 | IDMSWARN | • | • | • | • | • | OMEGAMON CA-IDMS Limit Warning |
| IMSREQCT | IMS Reqs | DFHDATA | A | 179 | IMSREQCT | • | • | • | • | • | IMS (DBCTL) requests |
| IMSWAIT | IMS Wait | DFHDATA | S | 186 | IMSWAIT | • | • | • | • | • | IMS (DBCTL) wait time |
| INTCWAIT | IntCWait | DBCTL | S | 003 | INTCWAIT | • | • | • | • | • | Elapsed wait time for Intent Conflict |
| IOWAIT | I/O Wait | CICSPA | D | 907 | IOWAIT | • | • | • | • | • | Total IO wait time |
| IRESP | Int Resp | CICSPA | D | 908 | IRESP | • | • | • | • | • | Transaction internal response time |
| IRWAIT | IR Wait | DFHTERM | S | 100 | IRIOWTT | • | • | • | • | • | MRO link wait time |
| ISALLOC | ISALLOC | DFH SOCK | A | 288 | ISALLOCT | – | • | • | • | • | Allocate Session requests for sessions on IP |
| ISALWTT | ISAIWait | DFH SOCK | S | 319 | ISALWTT | – | – | – | – | • | IPIC allocate session wait time |
| ISIPICNM | ISIPICNM | DFH SOCK | C | 305 | ISIPCNNM | – | • | • | • | • | Name of IPCONN definition that attached the task |
| ISRTCALL | ISRTcall | DBCTL | A | 014 | ISRTCALL | • | • | • | • | • | Number of Database ISRT calls issued |
| ISWAIT | IS Wait | DFH SOCK | S | 300 | ISIOWTT | – | • | • | • | • | IPCONN link wait time |
| J8CPU | J8 CPU | DFHTASK | S | 260 | J8CPUT | • | • | • | • | – | CICS J8 TCB CPU time |
| J9CPU | J9 CPU | DFHTASK | S | 267 | J9CPUT | • | • | • | • | – | User task J9 Mode CPU time |
| JCWAIT | JC Wait | DFHJOUR | S | 010 | JCIOWTT | • | • | • | • | • | Journal I/O wait time |
| JNLPUT | JnlWrite | DFHJOUR | A | 058 | JNLWRTCT | • | • | • | • | • | Journal write requests |
| JOBNAME | Jobname | CICSPA | C | 905 | JOBNAME | • | • | • | • | • | Job Name |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | CICS version | | | | | Description | |
|--------------------|----------------|-----------|------|-----|--------------|-------|-------|-------|-------|-------------|---|
| | | Group | Type | ID | Name | 6 4 0 | 6 5 0 | 6 6 0 | 6 7 0 | | 6 8 0 |
| JVMITIME | JVMITime | DFHTASK | S | 273 | JVMITIME | • | • | • | • | • | JVM initialize elapsed time |
| JVMMTIME | JVM Meth | CICSPA | D | 910 | JVMMTIME | • | • | • | • | • | JVM Method time |
| JVMRTIME | JVMRTIME | DFHTASK | S | 275 | JVMRTIME | • | • | • | • | • | JVM reset elapsed time |
| JVMSUSP | JVM Susp | DFHTASK | S | 254 | JVMSUSP | • | • | • | • | • | JVM suspend time |
| JVMTHDWT | JVMThdWt | DFHTASK | S | 401 | JVMTHDWT | – | – | • | • | • | JVM server thread wait time |
| JVMTIME | JVM Elap | DFHTASK | S | 253 | JVMTIME | • | • | • | • | • | JVM elapsed time |
| KY8CPU | KY8 CPU | DFHTASK | S | 263 | KY8CPUT | • | • | • | • | • | CICS Key 8 TCB CPU time |
| KY8DISPT | KY8 Disp | DFHTASK | S | 262 | KY8DISPT | • | • | • | • | • | CICS Key 8 TCB dispatch time |
| KY9CPU | KY9 CPU | DFHTASK | S | 265 | KY9CPUT | • | • | • | • | • | User task Key 9 Mode CPU time |
| KY9DISPT | KY9 Disp | DFHTASK | S | 264 | KY9DISPT | • | • | • | • | • | User task Key 9 Mode Dispatch time |
| L8CPU | L8 CPU | DFHTASK | S | 259 | L8CPUT | • | • | • | • | • | CICS L8 TCB CPU time |
| L9CPU | L9 CPU | DFHTASK | S | 266 | L9CPUT | • | • | • | • | • | User task L9 CPU time |
| LOCKDLAY | LM Delay | DFHTASK | S | 128 | LMDELAY | • | • | • | • | • | Lock Manager (LM) wait time |
| LOCKSDLY | LocksDly | CICSPA | D | 923 | LOCKSDLY | – | – | – | – | • | Total Lock wait time and Enqueue delay time |
| LOCKWAIT | LockWait | CICSPA | D | 922 | LOCKWAIT | – | – | – | – | • | Total Lock wait time |
| LOGWRITE | LogWrite | DFHJOUR | A | 172 | LOGWRTCT | • | • | • | • | • | Log Stream write requests |
| LU61WAIT | LU61Wait | DFHTERM | S | 133 | LU61WTT | • | • | • | • | • | LU6.1 wait time |
| LU62WAIT | LU62Wait | DFHTERM | S | 134 | LU62WTT | • | • | • | • | • | LU6.2 wait time |
| LUNAME | LUName | DFHTERM | C | 111 | LUNAME | • | • | • | • | • | VTAM logical unit name |
| MAXHTDLY | MaxHTDly | DFHTASK | S | 278 | MAXHTDLY | – | – | – | – | – | Maximum Hot-Pooling TCB delay time |
| MAXJTDLY | MaxJTDly | DFHTASK | S | 277 | MAXJTDLY | • | • | • | • | – | Maximum JVM TCB delay time |
| MAXOTDLY | MaxOTDly | DFHTASK | S | 250 | MXTOTDLY | • | • | • | • | • | Maximum Open TCB delay time |
| MAXSTDLY | MAXSTDLY | DFHTASK | S | 281 | MAXSTDLY | • | • | • | • | • | Maximum SSL TCB delay time |
| MAXTASKS | MaxTasks | DFHTASK | C | 433 | MAXTASKS | – | – | – | – | • | Current MAXTASKS (MXT) value at task start |
| MAXTTDLY | MAXTTDLY | DFHTASK | S | 283 | MAXTTDLY | – | – | • | • | • | Maximum JVM server thread TCB delay time |
| MAXXTDLY | MAXXTDLY | DFHTASK | S | 282 | MAXXTDLY | • | • | • | • | • | Maximum XPLink TCB delay time |
| MLXMLTCT | XMLTrans | DFHWEBB | A | 413 | MLXMLTCT | – | – | • | • | • | Application data TRANSFORM requests |
| MLXSSCTM | XMLSSCPU | DFHWEBB | S | 411 | MLXSSCTM | – | – | • | • | – | z/OS XML System Services CPU time |
| MLXSSTD | XMLDocLn | DFHWEBB | A | 412 | MLXSSTD | – | – | • | • | • | Document length parsed - z/OS System Services |
| MPRTXCDC | PolRulXc | DFHCICS | A | 449 | MPRTXCDC | – | – | – | – | • | Number of policy rule thresholds exceeded |
| MQWARN | MQWARN | OMCICS | C | 004 | MQWARN | • | • | • | • | • | OMEGAMON MQ Limit Warning |
| MSCPU | MS CPU | DFHTASK | S | 258 | MSCPCT | • | • | • | • | • | CICS TCBS CPU time |
| MSDISPT | MS Disp | DFHTASK | S | 257 | MSDISPT | • | • | • | • | • | CICS TCBS dispatch time |
| MSGIN1 | MsgIn1 | DFHTERM | A | 034 | TCMSGIN1 | • | • | • | • | • | Messages received count |
| MSGIN2 | MsgIn2 | DFHTERM | A | 067 | TCMSGIN2 | • | • | • | • | • | Messages received from LU6.1 |
| MSGOUT1 | MsgOut1 | DFHTERM | A | 035 | TCMSGOU1 | • | • | • | • | • | Messages sent count |
| MSGOUT2 | MsgOut2 | DFHTERM | A | 068 | TCMSGOU2 | • | • | • | • | • | Messages sent to LU6.1 |
| MVSID | MVS ID | CICSPA | C | 904 | MVSID | • | • | • | • | • | MVS SMF ID |
| MXTDELAY | MXTDelay | DFHTASK | S | 127 | MXTDELAY | • | • | • | • | • | First dispatch MXT wait time |
| NATURE | Nature | DFHTERM | A | 165 | TERMINFO | • | • | • | • | • | Transaction |
| NETID | NET ID | DFHTERM | C | 197 | NETID | • | • | • | • | • | VTAM LUALIAS Network ID |
| NETNAME | NETName | DFHTASK | C | 097 | NETUOWPX | • | • | • | • | • | Originating System VTAM network name |
| NETUOWSX | NETUOWID | DFHTASK | C | 098 | NETUOWSX | • | • | • | • | • | Network UOW ID |
| OADATA1 | OADData1 | DFHCICS | C | 352 | OADATA1 | – | – | – | • | • | Originating Adapter data 1 |
| OADATA2 | OADData2 | DFHCICS | C | 353 | OADATA2 | – | – | – | • | • | Originating Adapter data 2 |
| OADATA3 | OADData3 | DFHCICS | C | 354 | OADATA3 | – | – | – | • | • | Originating Adapter data 3 |
| OADID | OADID | DFHCICS | C | 351 | OADID | – | – | – | • | • | Originating Adapter Identifier |
| OAPPLID | OAPPLID | DFHCICS | C | 360 | OAPPLID | – | • | • | • | • | Originating CICS APPLID |
| OCLi6ADR | OCLi6Adr | DFHCICS | C | 372 | OCLIPADR | – | – | • | • | • | Originating Client or Telnet IP address |
| OCLINTIP | OCLintIP | DFHCICS | C | 368 | OCLIPADR | – | • | – | – | – | Originating Client or Telnet IP address |
| OCLIPORT | OCLIPORT | DFHCICS | A | 369 | OCLIPORT | – | • | • | • | • | Originating Client IP Port Number |
| OFCTY | OFcty | DFHCICS | C | 371 | OFCTYNAME | – | • | • | • | • | Originating Transaction Facility name |
| OFCTYTYP | OFctyTyp | DFHCICS | C | 370 | OFTRANFLG | – | • | • | • | • | Originating Transaction Facility Type |
| OFFLIPCT | OfflIPct | CICSPA | D | 942 | OFFLIPCT | – | – | – | – | • | % offld elig CPU time on std CP based on intrvl |
| OFFLPCT | OfflPct | CICSPA | D | 941 | OFFLPCT | – | – | – | – | • | % offload eligible CPU time on standard CP |
| OFLDIPCT | OfldIPct | CICSPA | D | 940 | OFLDIPCT | – | – | – | – | • | % offload eligible CPU time based on interval |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | | CICS version | | | | | Description |
|--------------------|----------------|-----------|------|-----|-----------|--------------|---|---|---|---|---|
| | | Group | Type | ID | Name | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| 0 | 0 | 0 | 0 | 0 | | | | | | | |
| OFLDPCT | OfldPct | CICSPA | D | 936 | OFLDPCT | - | - | - | - | • | % offload eligible CPU time |
| OMEGWORK | OMEGWORK | OMCICS | C | 015 | OMEGWORK | • | • | • | • | • | OMEGAMON User work area |
| OMODDLY | OtModDly | CICSPA | D | 928 | OMODDLY | - | - | - | - | • | Other CICS TCB Mode redispatch wait time |
| ONETWKID | ONETWKID | DFHCICS | C | 359 | ONETWKID | - | • | • | • | • | Originating Network ID |
| OORIGIN | OOrigin | DFHCICS | C | 370 | OTRANFLG | - | • | • | • | • | Originating Transaction Origin type |
| OOPORT | OPORT | DFHCICS | A | 367 | OPORTNUM | - | • | • | • | • | Originating TCP/IP Port Number |
| ORIGIN | Origin | DFHTASK | C | 164 | TRANFLAG | • | • | • | • | • | Transaction origin type |
| OSLATNCY | OSLatncy | CICSPA | D | 920 | OSLATNCY | - | • | • | • | • | Task start latency since Origin task start |
| OSOWAIT | OSO Wait | DFH SOCK | S | 299 | SOOIOWTT | • | • | • | • | • | Outbound Socket I/O Wait Time |
| OSTART | OStart | DFHCICS | T | 361 | OSTART | - | • | • | • | • | Originating Task start time |
| OTASKNO | O TaskNo | DFHCICS | P | 362 | OTRANNUM | - | • | • | • | • | Originating Transaction number |
| OTCPSRVC | OTCPIPsr | DFHCICS | C | 366 | OTCPSVCE | - | • | • | • | • | Originating TCP/IP Service Name |
| OTRAN | OTran | DFHCICS | C | 363 | OTRAN | - | • | • | • | • | Originating Transaction identifier |
| OTRANFLG | OTranFlg | DFHCICS | A | 370 | OTRANFLG | - | • | • | • | • | Originating Transaction flags |
| OTRANTYP | OTranTyp | DFHCICS | C | 370 | OTRANFLG | - | • | • | • | • | Originating Transaction type |
| OTSID | OTS ID | DFHTASK | C | 194 | OTSTID | • | • | • | • | • | OTS Transaction ID |
| OTSINDWT | OTSIndWt | DFHSYNC | S | 199 | OTSINDWT | • | • | • | • | • | OTS Indoubt Wait time |
| OUSERCOR | OUserCor | DFHCICS | C | 365 | OUSERCOR | - | • | • | • | • | Originating User Correlator |
| OUSERID | Ouserid | DFHCICS | C | 364 | OUSERID | - | • | • | • | • | Originating User ID |
| OVFLBFRU | OvflBfrU | DBCTL | A | 029 | OVFLBFRU | • | • | • | • | • | Number of Overflow Buffers used |
| PC24BHWM | PC24bHWM | DFHSTOR | A | 108 | PC24BHWM | • | • | • | • | • | Program Storage HWM below 16MB |
| PC24CHWM | PC24CHWM | DFHSTOR | A | 143 | PC24CHWM | • | • | • | • | • | Program Storage (CDSA) HWM below 16MB |
| PC24RHWM | PC24RHWM | DFHSTOR | A | 162 | PC24RHWM | • | • | • | • | • | Program Storage (RDSA) HWM below 16MB |
| PC24SHWM | PC24SHWM | DFHSTOR | A | 160 | PC24SHWM | • | • | • | • | • | Program Storage (SDSA) HWM below 16MB |
| PC31AHWM | PC31aHWM | DFHSTOR | A | 139 | PC31AHWM | • | • | • | • | • | Program Storage HWM above 16MB |
| PC31CHWM | PC31CHWM | DFHSTOR | A | 142 | PC31CHWM | • | • | • | • | • | Program Storage (ECDSA) HWM above 16MB |
| PC31RHWM | PC31RHWM | DFHSTOR | A | 122 | PC31RHWM | • | • | • | • | • | Program Storage (ERDSA) HWM above 16MB |
| PC31SHWM | PC31SHWM | DFHSTOR | A | 161 | PC31SHWM | • | • | • | • | • | Program Storage (ESDSA) HWM above 16MB |
| PCDLCRDL | PCDLCRDL | DFHPROG | A | 287 | PCDLCRDL | • | • | • | • | • | Container data length for DPL RETURN w/ CHANNEL |
| PCDLCSDL | PCDLCSDL | DFHPROG | A | 286 | PCDLCSDL | • | • | • | • | • | Container data length for DPL reqs with CHANNEL |
| PCDPL | PCDPLINK | DFHPROG | A | 073 | PCDPLCT | • | • | • | • | • | Distributed Program Link (DPL) requests |
| PCDPLCCT | PCDPLCCT | DFHPROG | A | 308 | PCDPLCCT | • | • | • | • | • | DPL requests with CHANNEL option |
| PCLINK | PCLINK | DFHPROG | A | 055 | PCLINKCT | • | • | • | • | • | Program LINK requests |
| PCLNKCCT | PCLNKCCT | DFHPROG | A | 306 | PCLNKCCT | • | • | • | • | • | LINK requests with CHANNEL option |
| PCLOAD | PCLOAD | DFHPROG | A | 057 | PCLOADCT | • | • | • | • | • | Program LOAD requests |
| PCLOADTM | PCLOADWt | DFHPROG | S | 115 | PCLOADTM | • | • | • | • | • | Program Library wait time |
| PCLURM | PCLNKURM | DFHPROG | A | 072 | PCLURMCT | • | • | • | • | • | Program LINK URM requests |
| PCRTNCCT | PCRTNCCT | DFHPROG | A | 309 | PCRTNCCT | • | • | • | • | • | Program RETURN requests with CHANNEL option |
| PCRTNCDL | PCRTNCDL | DFHPROG | A | 310 | PCRTNCDL | • | • | • | • | • | Container data length for RETURN with CHANNEL |
| PCSTGHWM | PCStgHWM | DFHSTOR | A | 087 | PCSTGHWM | • | • | • | • | • | Program Storage HWM above and below 16MB |
| PCXCLCCT | PCXCLCCT | DFHPROG | A | 307 | PCXCLCCT | • | • | • | • | • | XCTL requests with CHANNEL option |
| PCXCTL | PCXCTL | DFHPROG | A | 056 | PCXCTLCT | • | • | • | • | • | Program XCTL requests |
| PGBRWCCT | PGBRWCCT | DFHCHNL | A | 322 | PGBRWCCT | • | • | • | • | • | BROWSE CHANNEL CONTAINER requests |
| PGCRECCT | PGCRECCT | DFHCHNL | A | 328 | PGCRECCT | • | • | • | • | • | Number of Containers created |
| PGCSTHWM | PGCSTHWM | DFHCHNL | A | 329 | PGCSTHWM | - | • | • | • | • | Maximum Container Storage allocated to task |
| PGGETCCT | PGGETCCT | DFHCHNL | A | 323 | PGGETCCT | • | • | • | • | • | GET CHANNEL CONTAINER requests |
| PGGETCDL | PGGETCDL | DFHCHNL | A | 326 | PGGETCDL | • | • | • | • | • | GET CHANNEL CONTAINER data length |
| PGMOVCCCT | PGMOVCCCT | DFHCHNL | A | 325 | PGMOVCCCT | • | • | • | • | • | MOVE CHANNEL CONTAINER requests |
| PGPUTCCT | PGPUTCCT | DFHCHNL | A | 324 | PGPUTCCT | • | • | • | • | • | PUT CHANNEL CONTAINER requests |
| PGPUTCDL | PGPUTCDL | DFHCHNL | A | 327 | PGPUTCDL | • | • | • | • | • | PUT CHANNEL CONTAINER data length |
| PGTOTCCT | PGTOTCCT | DFHCHNL | A | 321 | PGTOTCCT | • | • | • | • | • | Total number of CHANNEL CONTAINER requests |
| PHAPPLID | PHAPPLID | DFHCICS | C | 374 | PHAPPLID | - | - | - | • | • | Previous Hop Data APPLID |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | CICS version | | | | | Description | |
|--------------------|----------------|-----------|------|-----|--------------|-------|-------|-------|-------|-------------|---|
| | | Group | Type | ID | Name | 6 4 0 | 6 5 0 | 6 6 0 | 6 7 0 | | 6 8 0 |
| PHCOUNT | PHCount | DFHCICS | A | 378 | PHCOUNT | - | - | - | • | • | Previous Hop Data Count |
| PHLATNCY | PHLatncy | CICSPA | D | 921 | PHLATNCY | - | - | - | • | • | Previous Hop latency time |
| PHNTWKID | PHNTWKID | DFHCICS | C | 373 | PHNTWKID | - | - | - | • | • | Previous Hop Data Network ID |
| PHSTART | PHStart | DFHCICS | T | 375 | PHSTART | - | - | - | • | • | Previous Hop Data Task Start |
| PHTASKNO | PHTaskNo | DFHCICS | P | 376 | PHTRANNO | - | - | - | • | • | Previous Hop Data Transaction Number |
| PHTRAN | PHTran | DFHCICS | C | 377 | PHTRAN | - | - | - | • | • | Previous Hop Data Transaction ID |
| PILOCKEL | PILockEl | DBCTL | S | 006 | PILOCKEL | • | • | • | • | • | Elapsed time for PI Locking |
| POOLWAIT | PoolWait | DBCTL | S | 002 | POOLWAIT | • | • | • | • | • | Elapsed wait time for Pool Space |
| PORT | PORT | DFH SOCK | A | 246 | PORTNUM | • | • | • | • | • | TCP/IP Port Number |
| PRCSNAME | BTS Proc | DFHCBTS | C | 200 | PRCSNAME | • | • | • | • | • | BTS Process name |
| PRCSTYPE | BTS PTyp | DFHCBTS | C | 201 | PRCSTYPE | • | • | • | • | • | BTS Process type |
| PROGRAM | Program | DFHPROG | C | 071 | PGMNAME | • | • | • | • | • | Program name |
| PSBNAME | PSB Name | DBCTL | C | 001 | PSBNAME | • | • | • | • | • | PSB Name |
| PTPWAIT | PTP Wait | DFHTASK | S | 285 | PTPWAIT | • | • | • | • | • | 3270 Bridge Partner wait time |
| QRCPUP | QR CPU | DFHTASK | S | 256 | QRCPUP | • | • | • | • | • | CICS QR TCB CPU time |
| QRDISPT | QR Disp | DFHTASK | S | 255 | QRDISPT | • | • | • | • | • | CICS QR TCB dispatch time |
| QRDSPRTO | QRDspRto | CICSPA | D | 925 | QRDSPRTO | • | • | • | • | • | QR TCB Dispatch to CPU ratio |
| QRMODDLY | QRModDly | DFHTASK | S | 249 | QRMODDLY | • | • | • | • | • | CICS QR TCB redispach wait time |
| RATEMIN | RateMin | CICSPA | D | 926 | RATEMIN | • | • | • | • | • | Transaction rate per minute |
| RATESEC | RateSec | CICSPA | D | 927 | RATESEC | • | • | • | • | • | Transaction rate per second |
| RECCOUNT | RecCount | DFHCICS | A | 131 | PERRECNT | • | • | • | • | • | Task Performance record count |
| RELEASE | Rlse | CICSPA | C | 909 | RELEASE | • | • | • | • | • | CICS release |
| REPLCALL | REPLcall | DBCTL | A | 016 | REPLCALL | • | • | • | • | • | Number of Database REPL calls issued |
| RESPONSE | Response | CICSPA | D | 901 | RESP | • | • | • | • | • | Transaction response time |
| RLSCPU | RLS CPU | DFHFILE | S | 175 | RLSCPUT | • | • | • | • | • | RLS File Request CPU (SRB) time |
| RLSWAIT | RLS Wait | DFHFILE | S | 174 | RLSWAIT | • | • | • | • | • | RLS File I/O wait time |
| RLUNAME | RLUNAME | DFHTERM | C | 198 | RLUNAME | • | • | • | • | • | VTAM LUALIAS Logical Unit name |
| RMICPSM | RMI CPSM | DFHRMI | S | 007 | RMICPSM | • | • | • | • | • | RMI elapsed time for CICSplex SM requests |
| RMIDB2 | RMI DB2 | DFHRMI | S | 003 | RMIDB2 | • | • | • | • | • | RMI elapsed time for DB2 requests |
| RMIDBCTL | RMIDBCTL | DFHRMI | S | 004 | RMIDBCTL | • | • | • | • | • | RMI elapsed time for DBCTL requests |
| RMIEXDLI | RMIEXDLI | DFHRMI | S | 005 | RMIEXDLI | • | • | • | • | • | RMI elapsed time for EXEC DLI requests |
| RMIMQM | RMI MQ | DFHRMI | S | 006 | RMIMQM | • | • | • | • | • | RMI elapsed time for WebSphere MQ requests |
| RMIOOTHER | RMI Othr | DFHRMI | S | 002 | RMIOOTHER | • | • | • | • | • | RMI other elapsed time |
| RMIO TIME | RMIOTime | CICSPA | D | 911 | RMIO TIME | • | • | • | • | • | Resource Manager Interface (RMI) other time |
| RMISUSP | RMI Susp | DFHTASK | S | 171 | RMISUSP | • | • | • | • | • | Resource Manager Interface (RMI) suspend time |
| RMITCPIP | RMITCPIP | DFHRMI | S | 008 | RMITCPIP | • | • | • | • | • | RMI elapsed time for TCP/IP socket requests |
| RMITIME | RMI Elap | DFHTASK | S | 170 | RMITIME | • | • | • | • | • | Resource Manager Interface (RMI) elapsed time |
| RMITOTAL | RMITotal | DFHRMI | S | 001 | RMITOTAL | • | • | • | • | • | RMI total elapsed time |
| RMUOWID | RMUOWID | DFHTASK | C | 132 | RMUOWID | • | • | • | • | • | Recovery UOW ID |
| ROCPU | RO CPU | DFHTASK | S | 270 | ROCPUP | • | • | • | • | • | CICS RO TCB CPU time |
| RODISPT | RO Disp | DFHTASK | S | 269 | RODISPT | • | • | • | • | • | CICS RO TCB dispatch time |
| ROMODDLY | ROModDly | DFHTASK | S | 348 | ROMODDLY | - | - | - | - | • | Other CICS TCB Mode redispach wait time |
| RPTCLASS | RptClass | DFHCICS | C | 168 | RPTCLASS | • | • | • | • | • | WLM Report Class |
| RQPWAIT | RQP Wait | DFHTASK | S | 193 | RQPWAIT | • | • | • | • | • | Request Processor Wait Time |
| RQRWAIT | RQR Wait | DFHTASK | S | 192 | RQRWAIT | • | • | • | • | • | Request Receiver Wait Time |
| RRMSWAIT | RRMSWait | DFHTASK | S | 191 | RRMSWAIT | • | • | • | • | • | Resource Recovery Services indoubt wait time |
| RSYSID | RSID | DFHCICS | C | 130 | RSYSID | • | • | • | • | • | Remote System ID |
| RTYPE | RTyp | DFHCICS | C | 112 | RTYPE | • | • | • | • | • | Performance record type |
| RUNTRWTT | BTSRunWt | DFHTASK | S | 195 | RUNTRWTT | • | • | • | • | • | BTS run Process/Activity wait time |
| S8CPU | S8 CPU | DFHTASK | S | 261 | S8CPUP | • | • | • | • | • | CICS S8 TCB CPU time |
| SC24CGET | SC24CGet | DFHSTOR | A | 117 | SCCGETCT | • | • | • | • | • | CDSA GETMAINs below 16MB |
| SC24CHWM | SC24CHWM | DFHSTOR | A | 116 | SC24CHWM | • | • | • | • | • | CDSA HWM below 16MB |
| SC24COCC | SC24COcc | DFHSTOR | A | 118 | SC24COCC | • | • | • | • | • | CDSA Storage Occupancy below 16MB |
| SC24FSHR | SC24FShr | DFHSTOR | A | 146 | SC24FSHR | • | • | • | • | • | CDSA/SDSA storage FREEMAINed below 16MB |
| SC24GSHR | SC24GShr | DFHSTOR | A | 145 | SC24GSHR | • | • | • | • | • | CDSA/SDSA storage GETMAINed below 16MB |
| SC24SGET | SC24SGet | DFHSTOR | A | 144 | SC24SGCT | • | • | • | • | • | CDSA/SDSA GETMAINs below 16MB |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | | CICS version | | | | | Description |
|--------------------|----------------|-----------|------|-----|----------|--------------|---|---|---|---|---|
| | | Group | Type | ID | Name | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| 0 | 0 | 0 | 0 | 0 | | | | | | | |
| SC24UGET | SC24UGet | DFHSTOR | A | 054 | SCUGETCT | • | • | • | • | • | UDSA GETMAINs below 16MB |
| SC24UHWM | SC24UHWM | DFHSTOR | A | 033 | SCUSRHWM | • | • | • | • | • | UDSA HWM below 16MB |
| SC24UOCC | SC24UOcc | DFHSTOR | A | 095 | SCUSRSTG | • | • | • | • | • | UDSA Storage Occupancy below 16MB |
| SC31CGET | SC31CGet | DFHSTOR | A | 120 | SCCGETCT | • | • | • | • | • | ECDSA GETMAINs above 16MB |
| SC31CHWM | SC31CHWM | DFHSTOR | A | 119 | SC31CHWM | • | • | • | • | • | ECDSA HWM above 16MB |
| SC31COCC | SC31COcc | DFHSTOR | A | 121 | SC31COCC | • | • | • | • | • | ECDSA Storage Occupancy above 16MB |
| SC31FSHR | SC31FShr | DFHSTOR | A | 149 | SC31FSHR | • | • | • | • | • | ECDSA/ESDSA storage FREEMAINed above 16MB |
| SC31GSHR | SC31GShr | DFHSTOR | A | 148 | SC31GSHR | • | • | • | • | • | ECDSA/ESDSA storage GETMAINed above 16MB |
| SC31SGET | SC31SGet | DFHSTOR | A | 147 | SC31SGCT | • | • | • | • | • | ECDSA/ESDSA GETMAINs above 16MB |
| SC31UGET | SC31UGet | DFHSTOR | A | 105 | SCUGETCT | • | • | • | • | • | EUDSA GETMAINs above 16MB |
| SC31UHWM | SC31UHWM | DFHSTOR | A | 106 | SCUSRHWM | • | • | • | • | • | EUDSA HWM above 16MB |
| SC31UOCC | SC31UOcc | DFHSTOR | A | 107 | SCUCRSTG | • | • | • | • | • | EUDSA Storage Occupancy above 16MB |
| SC64CGET | SC64CGet | DFHSTOR | A | 441 | SC64CGCT | – | – | – | – | • | GCDSA GETMAINs above the bar |
| SC64CHWM | SC64CHWM | DFHSTOR | A | 442 | SC64CHWM | – | – | – | – | • | GCDSA HWM above the bar |
| SC64FSHR | SC64FShr | DFHSTOR | A | 447 | SC64FSHR | – | – | – | – | • | GCDSA/GSDSA storage FREEMAINed above the bar |
| SC64GSHR | SC64GShr | DFHSTOR | A | 446 | SC64GSHR | – | – | – | – | • | GCDSA/GSDSA storage GETMAINed above the bar |
| SC64SGET | SC64SGet | DFHSTOR | A | 445 | SC64SGCT | – | – | – | – | • | GCDSA/GSDSA GETMAINs above the bar |
| SC64UGET | SC64UGet | DFHSTOR | A | 443 | SC64UGCT | – | – | – | – | • | GUDSA GETMAINs above the bar |
| SC64UHWM | SC64UHWM | DFHSTOR | A | 444 | SC64UHWM | – | – | – | – | • | GUDSA HWM above the bar |
| SCHEDEND | SchedEnd | DBCTL | T | 034 | SCHEDEND | • | • | • | • | • | IMS Schedule end time |
| SCHEDSTA | SchedSta | DBCTL | T | 033 | SCHEDSTA | • | • | • | • | • | IMS Schedule start time |
| SCHTELAP | SchTelap | DBCTL | S | 004 | SCHTELAP | • | • | • | • | • | Elapsed time for Schedule Process |
| SESSTYPE | SessType | DFHTERM | A | 165 | TERMINFO | • | • | • | • | • | Terminal session type |
| SOBYDECT | SockDcry | DFH SOCK | A | 243 | SOBYDECT | • | • | • | • | • | Secure Socket bytes decrypted count |
| SOBYENCT | SockEcry | DFH SOCK | A | 242 | SOBYENCT | • | • | • | • | • | Secure Socket bytes encrypted count |
| SOCHRIN | SOChrIn | DFH SOCK | A | 295 | SOCHRIN | • | • | • | • | • | Outbound Sockets characters received count |
| SOCHRIN1 | SOChrIn1 | DFH SOCK | A | 302 | SOCHRIN1 | • | • | • | • | • | Inbound Sockets characters received count |
| SOCHROU1 | SOChrOu1 | DFH SOCK | A | 304 | SOCHROU1 | • | • | • | • | • | Inbound Sockets characters sent count |
| SOCHROUT | SOChrOut | DFH SOCK | A | 297 | SOCHROUT | • | • | • | • | • | Outbound Sockets characters sent count |
| SOCIPHER | SOCipher | DFH SOCK | C | 320 | SOCIPHER | – | – | – | – | • | Inbound SSL connection Cipher suite code |
| SOCNPSCT | SOCNPSRq | DFH SOCK | A | 290 | SOCNPSCT | • | • | • | • | • | Create Non-Persistent Outbound Socket reqs |
| SOCPST | SOCP5Req | DFH SOCK | A | 291 | SOCPST | • | • | • | • | • | Create Persistent Outbound Socket requests |
| SOEXTRCT | SOEXTRAC | DFH SOCK | A | 289 | SOEXTRCT | • | • | • | • | • | EXTRACT TCP/IP and CERTIFICATE requests |
| SOMODDLY | SOModDly | DFHTASK | S | 349 | SOMODDLY | – | – | – | – | • | CICS SO TCB redispach wait time |
| SOMSGIN1 | SOMsgIn1 | DFH SOCK | A | 301 | SOMSGIN1 | • | • | • | • | • | Inbound Sockets RECEIVE requests |
| SOMSGOU1 | SOMsgOu1 | DFH SOCK | A | 303 | SOMSGOU1 | • | • | • | • | • | Inbound Sockets SEND requests |
| SONPSHWM | SONPSHWM | DFH SOCK | A | 292 | SONPSHWM | • | • | • | • | • | Non-Persistent Outbound Socket HWM |
| SOPSHWM | SOPSHWM | DFH SOCK | A | 293 | SOPSHWM | • | • | • | • | • | Persistent Outbound Socket HWM |
| SORCV | SO Recv | DFH SOCK | A | 294 | SORCVCT | • | • | • | • | • | Outbound Sockets RECEIVE requests |
| SOSEND | SO SEND | DFH SOCK | A | 296 | SOSENDCT | • | • | • | • | • | Outbound Sockets SEND requests |
| SOTOTAL | SOTotal | DFH SOCK | A | 298 | SOTOTCT | • | • | • | • | • | Socket Total requests |
| SOWAIT | SockWait | DFH SOCK | S | 241 | SOTOWTT | • | • | • | • | • | Inbound Socket I/O wait time |
| SPEIPCT | SpeIPct | CICSPA | D | 938 | SPEIPCT | – | – | – | – | • | % specialty processor CPU based on interval |
| SPEPCT | SpePct | CICSPA | D | 934 | SPEPCT | – | – | – | – | • | % specialty processor CPU time |
| SRVCLASS | SrvClass | DFHCICS | C | 167 | SRVCLASS | • | • | • | • | • | WLM Service Class |
| START | Start | DFHCICS | T | 005 | START | • | • | • | • | • | Task start time |
| STCPIPCT | StCPIPet | CICSPA | D | 939 | STCPIPCT | – | – | – | – | • | % std CP not offld eligible based on interval |
| STCPPCT | StCpPet | CICSPA | D | 935 | STCPPCT | – | – | – | – | • | % standard CP CPU time not offload eligible |
| STOP | Stop | DFHCICS | T | 006 | STOP | • | • | • | • | • | Task stop time |
| STYPE | SC | DFHTASK | C | 004 | TTYPER | • | • | • | • | • | Transaction start type |
| SUPRREQ | SUPRREQ | OMCICS | S | 018 | SUPRREQ | • | • | • | • | • | OMEGAMON monitored Supra requests |
| SUPRWARN | SUPRWARN | OMCICS | C | 007 | SUPRWARN | • | • | • | • | • | OMEGAMON Supra Limit Warning |
| SUSPEND | Suspend | DFHTASK | S | 014 | SUSPTIME | • | • | • | • | • | Suspend time |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | | CICS version | | | | | Description |
|--------------------|----------------|-----------|------|-----|----------|--------------|---|---|---|---|--|
| | | Group | Type | ID | Name | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| 0 | 0 | 0 | 0 | 0 | | | | | | | |
| SYNCDLY | SYNC Dly | DFHSYNC | S | 196 | SYNCDLY | . | . | . | . | . | SYNCPPOINT parent request wait time |
| SYNCPT | SYNCPT | DFHSYNC | A | 060 | SPSYNCCT | . | . | . | . | . | SYNCPPOINT requests |
| SYNCTIME | SYNCProc | DFHSYNC | S | 173 | SYNCTIME | . | . | . | . | . | SYNCPPOINT processing time |
| SZALLCTO | SZAlocTO | DFHFPEPI | A | 157 | SZALLCTO | . | . | . | . | . | Allocate conversation time-out count |
| SZALOC | SZALLOC | DFHFPEPI | A | 150 | SZALLOCT | . | . | . | . | . | Conversations allocated count |
| SZCHRIN | SZChrIn | DFHFPEPI | A | 155 | SZCHRIN | . | . | . | . | . | FEPI characters received count |
| SZCHROUT | SZChrOut | DFHFPEPI | A | 154 | SZCHROUT | . | . | . | . | . | FEPI characters sent count |
| SZRCV | SZRCV | DFHFPEPI | A | 151 | SZRCVCT | . | . | . | . | . | FEPI RECEIVE requests |
| SZRCVTO | SZRecvTO | DFHFPEPI | A | 158 | SZRCVTO | . | . | . | . | . | Receive Data time-out count |
| SZSEND | SZSEND | DFHFPEPI | A | 152 | SZSENDCT | . | . | . | . | . | FEPI SEND requests |
| SZSTART | SZSTART | DFHFPEPI | A | 153 | SZSTRCT | . | . | . | . | . | FEPI START requests |
| SZTOTAL | SZ Total | DFHFPEPI | A | 159 | SZTOTCT | . | . | . | . | . | FEPI API and SPI requests |
| SZWAIT | SZ Wait | DFHFPEPI | S | 156 | SZWAIT | . | . | . | . | . | FEPI services wait time |
| T8CPU | T8 CPU | DFHTASK | S | 400 | T8CPUT | - | - | - | - | . | CICS T8 TCB CPU time |
| TASKCNT | #Tasks | CICSPA | X | 902 | TASKCNT | . | . | . | . | . | Total Task count |
| TASKNO | TaskNo | DFHTASK | P | 031 | TRANNUM | . | . | . | . | . | Transaction identification number |
| TASKCNT | #TTasks | CICSPA | X | 914 | TASKCNT | . | . | . | . | . | Total Task Termination count |
| TCALLOC | TCALLOC | DFHTERM | A | 069 | TCALLOCT | . | . | . | . | . | TCTTE ALLOCATE requests |
| TCALWTT | TCAlWait | DFHTERM | S | 343 | TCALWTT | - | - | - | - | . | MRO allocate session wait time |
| TCBATTCT | TCBAAtch | DFHTASK | A | 251 | TCBATTCT | . | . | . | . | . | TCBs attached count |
| TCC62IN2 | TCC62In2 | DFHTERM | A | 137 | TCC62IN2 | . | . | . | . | . | LU6.2 characters received count |
| TCC62OU2 | TCC62Ou2 | DFHTERM | A | 138 | TCC62OU2 | . | . | . | . | . | LU6.2 characters sent count |
| TCLASSNM | TCLName | DFHTASK | C | 166 | TCLNAME | . | . | . | . | . | Transaction Class name |
| TCLDELAY | TCLDelay | DFHTASK | S | 126 | TCLDELAY | . | . | . | . | . | First dispatch TCLSNAME wait time |
| TCM62IN2 | TCM62In2 | DFHTERM | A | 135 | TCM62IN2 | . | . | . | . | . | LU6.2 messages received count |
| TCM62OU2 | TCM62Ou2 | DFHTERM | A | 136 | TCM62OU2 | . | . | . | . | . | LU6.2 messages sent count |
| TCPSRVCE | TCPIPSrv | DFH SOCK | C | 245 | TCPSRVCE | . | . | . | . | . | TCP/IP Service Name |
| TCWAIT | TC Wait | DFHTERM | S | 009 | TCIOWTT | . | . | . | . | . | Terminal wait for input time |
| TDELWTT | TDELWait | DFHDEST | S | 404 | TDELWTT | - | - | - | - | . | Extrapartition transient data lock wait time |
| TDGET | TDGET | DFHDEST | A | 041 | TDGETCT | . | . | . | . | . | Transient data GET requests |
| TDILWTT | TDILWait | DFHDEST | S | 403 | TDILWTT | - | - | - | - | . | Intrapartition transient data lock wait time |
| TDPURGE | TDPURGE | DFHDEST | A | 043 | TDPURCT | . | . | . | . | . | Transient data PURGE requests |
| TDPUT | TDPUT | DFHDEST | A | 042 | TDPUTCT | . | . | . | . | . | Transient data PUT requests |
| TDTOTAL | TD Total | DFHDEST | A | 091 | TDTOTCT | . | . | . | . | . | Transient data Total requests |
| TDWAIT | TD Wait | DFHDEST | S | 101 | TDIOWTT | . | . | . | . | . | VSAM transient data I/O wait time |
| TERM | Term | DFHTERM | C | 002 | TERM | . | . | . | . | . | Terminal ID |
| TERMCNNM | ConnName | DFHTERM | C | 169 | TERMCNNM | . | . | . | . | . | Terminal session Connection name |
| TERMCODE | DevT | DFHTERM | A | 165 | TERMINFO | . | . | . | . | . | Terminal Device Type |
| TERMINFO | TermInfo | DFHTERM | A | 165 | TERMINFO | . | . | . | . | . | Terminal information |
| TESTDEQS | TestDEQs | DBCTL | A | 020 | TESTDEQS | . | . | . | . | . | Number of Test Dequeues |
| TESTENQS | TestENQs | DBCTL | A | 018 | TESTENQS | . | . | . | . | . | Number of Test Enqueues |
| TESTENQW | TestENQW | DBCTL | A | 019 | TESTENQW | . | . | . | . | . | Number of waits on Test Enqueues |
| THREDCPU | ThredCPU | DBCTL | S | 032 | THREDCPU | . | . | . | . | . | Thread TCB CPU time |
| TIASKTCT | ASKTimCt | DFHCICS | A | 405 | TIASKTCT | - | - | . | . | . | ASKTIME requests |
| TITOTCT | TITOTcT | DFHCICS | A | 406 | TITOTCT | - | - | . | . | . | ASKTIME |
| TOTCPU | Tot CPU | CICSPA | D | 918 | TOTCPU | . | . | . | . | . | Total Task CPU Time |
| TOTRECS | TotlRecs | CICSPA | A | 001 | TOTRECS | . | . | . | . | . | Cross-System Total record count |
| TRAN | Tran | DFHTASK | C | 001 | TRAN | . | . | . | . | . | Transaction identifier |
| TRANFLAG | TranFlag | DFHTASK | A | 164 | TRANFLAG | . | . | . | . | . | Transaction flags |
| TRANPRTY | Prty | DFHTASK | A | 109 | TRANPRI | . | . | . | . | . | Transaction priority |
| TRANROUT | TranRout | CICSPA | A | 003 | TRANROUT | . | . | . | . | . | Cross-System Transaction Routing records |
| TRANRYPE | TranType | DFHTASK | C | 164 | TRANFLAG | . | . | . | . | . | Transaction type |
| TRNGRPID | Group ID | DFHTASK | C | 082 | TRNGRPID | . | . | . | . | . | Transaction Group ID |
| TSGET | TSGET | DFHTEMP | A | 044 | TSGETCT | . | . | . | . | . | Temporary Storage GET requests |
| TSPUTAUX | TSPUTAux | DFHTEMP | A | 046 | TSPUTACT | . | . | . | . | . | Auxiliary TS PUT requests |
| TSPUTMCT | TSPUTMai | DFHTEMP | A | 047 | TSPUTMCT | . | . | . | . | . | Main TS PUT requests |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | | CICS version | | | | | Description |
|--------------------|----------------|-----------|------|-----|-----------|--------------|-------|-------|-------|-------|---|
| | | Group | Type | ID | Name | 6 4 0 | 6 5 0 | 6 6 0 | 6 7 0 | 6 8 0 | |
| TSQNAME | TSQ Name | CICSPA | C | 917 | TSQNAME | • | • | • | • | • | Temporary Storage Queue Name |
| TSSHWAIT | TSShWait | DFHTEMP | S | 178 | TSSHWAIT | • | • | • | • | • | Asynchronous Shared TS wait time |
| TSTOTAL | TS Total | DFHTEMP | A | 092 | TSTOTCT | • | • | • | • | • | TS Total requests |
| TSWAIT | TS Wait | DFHTEMP | S | 011 | TSIOWTT | • | • | • | • | • | VSAM TS I/O wait time |
| UE1WARN | UE1WARN | OMCICS | C | 014 | UE1WARN | • | • | • | • | • | OMEGAMON User Event Limit Warning |
| UOWCONTS | UOWConts | DBCTL | A | 030 | UOWCONTS | • | • | • | • | • | Number of UOW Contentions |
| UOWID | UOW ID | CICSPA | C | 912 | UOWID | • | • | • | • | • | Network UOW ID |
| UOWSEQ | UOW Seq | CICSPA | C | 913 | UOWSEQ | • | • | • | • | • | Network UOW Sequence Number |
| UPDTDEQS | UpdtDEQs | DBCTL | A | 023 | UPDTDEQS | • | • | • | • | • | Number of Update Dequeues |
| UPDTENQS | UpdtENQs | DBCTL | A | 021 | UPDTENQS | • | • | • | • | • | Number of Update Enqueues |
| UPDTENQW | UpdtENQW | DBCTL | A | 022 | UPDTENQW | • | • | • | • | • | Number of waits on Update Enqueues |
| USERID | Userid | DFHCICS | C | 089 | USERID | • | • | • | • | • | User ID |
| USREVNT | USREVNT | OMCICS | S | 020 | USREVNT | • | • | • | • | • | OMEGAMON User defined events |
| VSAMWARN | VSAMWARN | OMCICS | C | 003 | VSAMWARN | • | • | • | • | • | OMEGAMON VSAM Limit warning |
| WAITCICS | CICSWait | DFHTASK | S | 182 | WTCEWAIT | • | • | • | • | • | CICS ECB wait time |
| WAITEXT | Ext Wait | DFHTASK | S | 181 | WTCEWAIT | • | • | • | • | • | External ECB wait time |
| WBATMSNM | ATOMSrv | DFHWEBB | C | 382 | WBATMSNM | – | – | • | • | • | ATOMSERVICE resource definition name |
| WBBROWSE | WBBROWSE | DFHWEBB | A | 239 | WBBRWCT | • | • | • | • | • | Web Browse requests |
| WBBRWCT | WBBRWCT | DFHWEBB | A | 338 | WBBRWCT | • | • | • | • | • | CICS Web Support BROWSE HTTPHEADER requests |
| WBCHRRIN | WBChrIn | DFHWEBB | A | 232 | WBCHRRIN | • | • | • | • | • | Web characters received count |
| WBCHRRIN1 | WBCHRRIN1 | DFHWEBB | A | 334 | WBCHRRIN1 | • | • | • | • | • | CICS Web Support RECEIVE and CONVERSE chars |
| WBCHROU1 | WBCHROU1 | DFHWEBB | A | 336 | WBCHROU1 | • | • | • | • | • | CICS Web Support SEND and CONVERSE chars |
| WBCHROUT | WBChrOut | DFHWEBB | A | 234 | WBCHROUT | • | • | • | • | • | Web characters sent count |
| WBEXTRCT | WBEXTRAC | DFHWEBB | A | 238 | WBEXTRCT | • | • | • | • | • | Web EXTRACT requests |
| WBISSFCT | ISSOAPFt | DFHWEBB | A | 388 | WBISSFCT | – | – | • | • | • | INVOKE SERVICE request SOAP faults received |
| WBIWBSCT | WBIWBSCT | DFHWEBB | A | 340 | WBIWBSCT | • | • | • | • | • | INVOKE SERVICE and INVOKE WEBSERVICE requests |
| WBPARSCT | WBPARSCT | DFHWEBB | A | 337 | WBPARSCT | • | • | • | • | • | CICS Web Support PARSE URL requests |
| WBPIPLNM | Pipeline | DFHWEBB | C | 381 | WBPIPLNM | – | – | • | • | • | PIPELINE resource definition name |
| WBPROGNM | Web Prog | DFHWEBB | C | 385 | WBPROGNM | – | – | • | • | • | Program name in URIMAP resource definition |
| WBRCV | WBRCV | DFHWEBB | A | 231 | WBRCVCT | • | • | • | • | • | Web RECEIVE requests |
| WBRCVIN1 | WBRCVIN1 | DFHWEBB | A | 333 | WBRCVIN1 | • | • | • | • | • | CICS Web Support RECEIVE and CONVERSE requests |
| WBREAD | WB READ | DFHWEBB | A | 224 | WBREADCT | • | • | • | • | • | Web READ requests |
| WBREDOCT | WBREDOCT | DFHWEBB | A | 331 | WBREDOCT | • | • | • | • | • | CICS Web Support READ HTTPHEADER requests |
| WBREPRCT | WBRepoRd | DFHWEBB | A | 236 | WBREPRCT | • | • | • | • | • | Web Temporary Storage Repository read requests |
| WBREPRDL | WBREPRDL | DFHWEBB | A | 341 | WBREPRDL | • | • | • | • | • | Repository Read data length |
| WBREPWCT | WBRepoWr | DFHWEBB | A | 237 | WBREPWCT | • | • | • | • | • | Web Temporary Storage Repository write requests |
| WBREPWDL | WBREPWDL | DFHWEBB | A | 342 | WBREPWDL | • | • | • | • | • | Repository Write data length |
| WBSEND | WBSSEND | DFHWEBB | A | 233 | WBSSENDCT | • | • | • | • | • | Web SEND requests |
| WBSFCRCT | SOAPFtCr | DFHWEBB | A | 386 | WBSFCRCT | – | – | • | • | • | SOAPFAULT CREATE requests |
| WBSFTOCT | SOAPFalt | DFHWEBB | A | 387 | WBSFTOCT | – | – | • | • | • | SOAPFAULT ADD |
| WBSNDOU1 | WBSNDOU1 | DFHWEBB | A | 335 | WBSNDOU1 | • | • | • | • | • | CICS Web Support SEND and CONVERSE requests |
| WBSREQBL | SOAPRqBL | DFHWEBB | A | 390 | WBSREQBL | – | – | • | • | • | SOAP request SOAP body length |
| WBSRSPBL | SOAPRsBL | DFHWEBB | A | 392 | WBSRSPBL | – | – | • | • | • | SOAP response SOAP body length |
| WBSVCENM | WebSrv | DFHWEBB | C | 383 | WBSVCENM | – | – | • | • | • | WEBSERVICE resource definition name |
| WBSVOPNM | WebSrvOp | DFHWEBB | C | 384 | WBSVOPNM | – | – | • | • | • | WEBSERVICE operation name |
| WBTOTAL | WB Total | DFHWEBB | A | 235 | WBTOTWCT | • | • | • | • | • | Web Total requests |
| WBURIMNM | URI Map | DFHWEBB | C | 380 | WBURIMNM | – | – | • | • | • | URIMAP resource definition name |
| WBWRITE | WB WRITE | DFHWEBB | A | 225 | WBWRITCT | • | • | • | • | • | Web WRITE requests |
| WBWRTOCT | WBWRTOCT | DFHWEBB | A | 332 | WBWRTOCT | • | • | • | • | • | CICS Web Support WRITE HTTPHEADER requests |
| WMQASRBT | WMQSRBtm | DFHDATA | S | 397 | WMQASRBT | – | – | • | • | • | WebSphere MQ API SRB CPU time |

Table 18. Cross-reference: CICS PA field name × CICS version (continued)

| CICS PA field name | Column heading | CMF field | | | | CICS version | | | | | Description |
|-----------------------|-------------------|-----------|------|-----|-----------|--------------|---|---|---|---|--|
| | | Group | Type | ID | Name | 6 | 6 | 6 | 6 | 6 | |
| | | | | | | 4 | 5 | 6 | 7 | 8 | |
| 0 | 0 | 0 | 0 | 0 | | | | | | | |
| WMQGETWT | WMQGetWt | DFHDATA | S | 396 | WMQGETWT | - | • | • | • | • | WebSphere MQ GETWAIT wait time |
| WMQREQCT | WMQ Reqs | DFHDATA | A | 395 | WMQREQCT | - | • | • | • | • | Number of WebSphere MQ requests |
| WSACBLCT | WSACBld | DFHWEBB | A | 420 | WSACBLCT | - | - | • | • | • | WSACONTEXT BUILD requests |
| WSACGTCT | WSACGet | DFHWEBB | A | 421 | WSACGTCT | - | - | • | • | • | WSACONTEXT GET requests |
| WSAEPCCCT | WSAEPCre | DFHWEBB | A | 422 | WSAEPCCCT | - | - | • | • | • | WSAEPRE CREATE requests |
| WSATOTCT | WSAddr | DFHWEBB | A | 423 | WSATOTCT | - | - | • | • | • | Total Web Services Addressing requests |
| X8CPU | X8 CPU | DFHTASK | S | 271 | X8CPUT | • | • | • | • | • | CICS X8 TCB CPU time |
| X9CPU | X9 CPU | DFHTASK | S | 272 | X9CPUT | • | • | • | • | • | User task X9 Mode CPU time |

Chapter 29. Fields by forms, HDB templates

The following cross-reference table lists the CICS PA field names for CICS monitoring facility (CMF) performance class and transaction resource class data and shows the report forms and HDB templates to which they apply.

Some columns in the table require explanation:

CICS PA field name

The name used in report forms, HDB templates, and selection criteria (and their corresponding batch command operands `FIELDS` and `SELECT`).

A blank indicates that the field is not available, typically because it is a very long field, or it is an unprintable field such as a unit-of-work or a flag.

Report form and HDB template

The report forms and HDB templates to which a field applies:

- Yes, the field applies
- S** Yes, the field applies and is an eligible sort field (in a report form) or key field (in an HDB template)
- No, the field does not apply

Type Indicates the data type of the field:

- A** 32-bit or 64-bit count
- C** Character string
- D** Time derived by CICS PA
- P** Packed decimal integer
- S** Clock
- T** STCK time stamp
- X** Count calculated by CICS PA

Length

The default length in the output report or data set.

Clock (S) fields have two components, each of length 8:

COUNT

Number of occurrences

TIME Elapsed time in seconds with specified precision 0.0001 - 0.000001, default format *sss.thmi*

Time Stamp (T) fields vary in length (5 - 19) depending on the specified format:

TIMET

Time in the format *hh:mm:ss.thm*

TIMEM

Time in the format *hh:mm*

TIMES

Time in the format *hh:mm:ss*

DATE Date in the format *mm/dd/yyyy*

DATEISO

Date in the format *yyyy-mm-dd*

DATEM

Date in the format *mm/dd*

DATEYR

Date in the format *mm/dd/yy*

DATETIM

Date and time in the format *yyyy-mm-dd hh:mm:ss*

Note:

1. Some special fields, such as APPLID and RESPONSE, are not defined in the CMF Dictionary and are given a group name of "CICSPA". These fields are either derived from the fixed section of the CMF record (for example, APPLID), or calculated from two or more other CMF fields (for example, RESPONSE).
2. The FILENAME, TSQNAME, and DPLNAME fields are only available when CMF transaction resource class data is being collected.
3. The APPLTRAN and APPLPROG fields are only available when application programs invoke the application naming event monitoring points.

Table 19. Cross-reference: fields × forms, HDB templates

| CICS PA field name | CMF field | | | | Report form | | | | | HDB template | | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|---|---|---|-----------------|---|---|
| | Group | Type | ID | Length | T | X | Y | T | Y | S | S | |
| | DFHCBTS | C | 202 | 52 | - | - | - | - | - | S | S | BTS Root Activity identifier |
| | DFHCBTS | C | 203 | 52 | - | - | - | - | - | U | U | BTS Activity identifier |
| | DFHTASK | C | 064 | 4 | - | - | - | - | - | L | M | Task error flags |
| | DFHTASK | C | 190 | 16 | - | - | - | - | - | L | M | RRMS/MVS unit-of-recovery ID (URID) |
| ABCODEC | DFHPROG | C | 114 | 4 | • | S | S | • | S | L | M | Current ABEND code |
| ABCODEO | DFHPROG | C | 113 | 4 | • | S | S | • | S | I | M | Original ABEND Code |
| ACAPPLNM | DFHTASK | C | 451 | 64 | • | S | S | • | S | I | M | Application context application name |
| ACAPPLVR | CICSPA | C | 933 | 14 | • | S | S | • | S | I | M | Application context application version |
| ACCMETH | DFHTERM | A | 165 | 4 | • | S | - | • | - | S | R | Terminal Access Method |
| ACMAJVER | DFHTASK | C | 453 | 8 | • | S | S | • | S | S | R | Application context application major version |
| ACMICVER | DFHTASK | C | 455 | 8 | • | S | S | • | S | S | R | Application context application micro version |
| ACMINVER | DFHTASK | C | 454 | 8 | • | S | S | • | S | S | R | Application context application minor version |
| ACOPERNM | DFHTASK | C | 456 | 64 | • | S | S | • | S | S | R | Application context operation name |
| ACPLATNM | DFHTASK | C | 452 | 64 | • | S | S | • | S | S | R | Application context platform name |
| ACTVTYNM | DFHCBTS | C | 204 | 16 | • | S | - | • | - | S | R | BTS Activity name |
| ADABREQ | OMCICS | S | 017 | 8 | • | S | • | • | • | S | R | OMEGAMON monitored Adabas requests |
| ADABWARN | OMCICS | C | 005 | 4 | • | S | S | • | S | S | R | OMEGAMON Adabas Limit Warning |
| ALERT | CICSPA | A | 915 | 8 | - | - | • | - | - | S | R | Total Alert count or percentage |
| APPLID | CICSPA | C | 903 | 8 | • | S | S | S | S | S | R | CICS Generic APPLID |
| APPLPROG | DFHAPPL | C | 001 | 8 | • | S | S | • | S | S | R | Application naming Program |
| APPLRECS | CICSPA | A | 002 | 8 | • | • | • | • | • | S | R | Cross-System Application records |
| APPLTRAN | DFHAPPL | C | 001 | 4 | • | S | S | • | S | S | R | Application naming Tran ID |
| BAACDCCT | DFHCBTS | A | 217 | 4 | • | S | • | • | • | S | R | BTS Activity Data Containers requests |
| BAACQPCT | DFHCBTS | A | 214 | 4 | • | S | • | • | • | S | R | BTS Acquire Process/Activity requests |
| BADACTCT | DFHCBTS | A | 209 | 4 | • | S | • | • | • | S | R | BTS Define Activity requests |
| BADCPACT | DFHCBTS | A | 213 | 4 | • | S | • | • | • | S | R | BTS Cancel Process/Activity requests |
| BADFIECT | DFHCBTS | A | 220 | 4 | • | S | • | • | • | S | R | BTS Define-Input Event requests |
| BADPROCT | DFHCBTS | A | 208 | 4 | • | S | • | • | • | S | R | BTS Define Process requests |
| BALKPACT | DFHCBTS | A | 207 | 4 | • | S | • | • | • | S | R | BTS Link Process/Activity count |
| BAPRDCCT | DFHCBTS | A | 216 | 4 | • | S | • | • | • | S | R | BTS Process Data Containers requests |
| BARASYCT | DFHCBTS | A | 206 | 4 | • | S | • | • | • | S | R | BTS asynchronous Process/Activity count |
| BARATECT | DFHCBTS | A | 219 | 4 | • | S | • | • | • | S | R | BTS Retrieve-Reattach Event requests |
| BARMPACT | DFHCBTS | A | 212 | 4 | • | S | • | • | • | S | R | BTS Resume Process/Activity requests |
| BARSPACT | DFHCBTS | A | 210 | 4 | • | S | • | • | • | S | R | BTS Reset Process/Activity requests |
| BARSYNCT | DFHCBTS | A | 205 | 4 | • | S | • | • | • | S | R | BTS synchronous Process/Activity count |
| BASUPACT | DFHCBTS | A | 211 | 4 | • | S | • | • | • | S | R | BTS Suspend Process/Activity requests |
| BATIAECT | DFHCBTS | A | 221 | 4 | • | S | • | • | • | S | R | BTS TIMER Event requests |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | | | | HDB template | | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|---|---|---|-----------------|---|--|
| | Group | Type | ID | Length | T | X | Y | T | Y | S | S | |
| BATOTCCT | DFHCBTS | A | 218 | 4 | • | S | • | • | • | • | • | BTS Process/Activity Data Container requests |
| BATOTECT | DFHCBTS | A | 222 | 4 | • | S | • | • | • | • | • | BTS Event-related requests |
| BATOTPCT | DFHCBTS | A | 215 | 4 | • | S | • | • | • | • | • | BTS Total Process/Activity requests |
| BFDGSTCT | DFHCICS | A | 408 | 4 | • | S | • | • | • | • | • | Built-in function BIF DIGEST requests |
| BFTOTCT | DFHCICS | A | 409 | 4 | • | S | • | • | • | • | • | Total Built-in (BIF) function requests |
| BMSIN | DFHMAPP | A | 051 | 4 | • | S | • | • | • | • | • | BMS IN requests |
| BMSMAP | DFHMAPP | A | 050 | 4 | • | S | • | • | • | • | • | BMS MAP requests |
| BMSOUT | DFHMAPP | A | 052 | 4 | • | S | • | • | • | • | • | BMS OUT requests |
| BMSTOTAL | DFHMAPP | A | 090 | 4 | • | S | • | • | • | • | • | BMS Total requests |
| BRDGTRAN | DFHTASK | C | 124 | 4 | • | S | – | • | • | • | – | Bridge Listener Transaction ID |
| CALLWARN | OMCICS | C | 013 | 4 | • | S | S | • | • | • | S | OMEGAMON EXEC Calls Limit Warning |
| CBSRVNRM | DFHEJBS | C | 311 | 4 | • | S | S | S | S | S | S | CorbaServer name |
| CECMCHTP | DFHTASK | C | 430 | 4 | • | S | S | • | • | • | S | CEC machine type |
| CECMDLID | DFHTASK | C | 431 | 16 | • | S | S | • | • | • | S | CEC model number |
| CECMTYPE | CICSPA | C | 932 | 21 | • | S | S | – | – | – | – | CEC machine type and model number |
| CFCAPICT | DFHCICS | A | 025 | 4 | • | S | • | • | • | • | • | OO Foundation Class requests |
| CFDTSYNC | DFHSYNC | S | 177 | 8 | • | S | • | • | • | • | • | CF Data Table syncpoint wait time |
| CFDTWAIT | DFHFILE | S | 176 | 8 | • | S | • | • | • | • | • | CF Data Table access requests wait time |
| CHARIN1 | DFHTERM | A | 083 | 4 | • | S | • | • | • | • | • | Terminal characters received count |
| CHARIN2 | DFHTERM | A | 085 | 4 | • | S | • | • | • | • | • | LU6.1 characters received count |
| CHAROUT1 | DFHTERM | A | 084 | 4 | • | S | • | • | • | • | • | Terminal characters sent count |
| CHAROUT2 | DFHTERM | A | 086 | 4 | • | S | • | • | • | • | • | LU6.1 characters sent count |
| CLIENTIP | DFH SOCK | C | 244 | 16 | • | S | – | • | • | • | – | Client or Telnet IP address |
| CLIP6ADR | DFH SOCK | C | 318 | 40 | • | S | – | • | • | • | – | Client or Telnet IP address |
| CLIPPORT | DFH SOCK | A | 330 | 4 | • | S | – | • | • | • | – | Client IP Port Number |
| COMMWAIT | CICSPA | D | 906 | 8 | • | S | – | • | • | • | – | Communications wait time |
| CPU | DFHTASK | S | 008 | 8 | • | S | • | • | • | • | • | CPU time |
| CPUIPCT | CICSPA | D | 937 | 8 | – | – | • | – | – | – | – | % CPU time based on interval |
| CPUISSPE | CICSPA | D | 929 | 8 | • | S | • | • | • | • | • | CPU time that is offload eligible |
| CPUONCP | DFHTASK | S | 436 | 12 | • | S | • | • | • | • | • | CPU time on standard CP |
| CPUONCPE | DFHTASK | S | 437 | 4 | • | S | • | • | • | • | • | Offload eligible CPU time on standard CP |
| CPUONCPN | CICSPA | D | 931 | 8 | • | S | • | • | • | • | • | CPU time on standard CP not offload eligible |
| CPUONSP | CICSPA | D | 930 | 8 | • | S | • | • | • | • | • | CPU time on Specialty Processor |
| CPUSU | CICSPA | D | 943 | 8 | • | S | • | • | • | • | • | CPU Service Units |
| CPUWARN | OMCICS | C | 009 | 4 | • | S | S | • | • | • | S | OMEGAMON CPU Limit Warning |
| CURTASKS | DFHTASK | C | 434 | 8 | • | S | S | • | • | • | S | Current tasks value at task start |
| DB2CONWT | DFHDATA | S | 188 | 8 | • | S | • | • | • | • | • | DB2 Connection wait time |
| DB2RDYQW | DFHDATA | S | 187 | 8 | • | S | • | • | • | • | • | DB2 Thread wait time |
| DB2REQCT | DFHDATA | A | 180 | 8 | • | S | • | • | • | • | • | DB2 requests |
| DB2WAIT | DFHDATA | S | 189 | 8 | • | S | • | • | • | • | • | DB2 SQL/IFI wait time |
| DB2WARN | OMCICS | C | 001 | 4 | • | S | S | • | • | • | S | OMEGAMON DB2 Limit Warning |
| DBGETS | DBCTL | A | 035 | 8 | • | S | • | • | • | • | • | Number of Database Get calls issued |
| DBIOCALL | DBCTL | A | 007 | 8 | • | S | • | • | • | • | • | Number of Database I/Os |
| DBIOELAP | DBCTL | S | 005 | 8 | • | S | • | • | • | • | • | Elapsed time for Database I/O |
| DBUPDATE | DBCTL | A | 036 | 8 | • | S | • | • | • | • | • | Number of Database Update calls issued |
| DBWAITS | DBCTL | A | 037 | 8 | • | S | • | • | • | • | • | Number of Database waits |
| DCOMREQ | OMCICS | S | 019 | 8 | • | S | • | • | • | • | • | OMEGAMON monitored CA-Datcom requests |
| DCOMWARN | OMCICS | C | 008 | 4 | • | S | S | • | • | • | S | OMEGAMON CA-Datcom Limit Warning |
| DEDBBFRW | DBCTL | A | 031 | 8 | • | S | • | • | • | • | • | Number of waits for DEDB buffers |
| DEDBCALL | DBCTL | A | 027 | 8 | • | S | • | • | • | • | • | Number of DEDB calls |
| DEDBRDOP | DBCTL | A | 028 | 8 | • | S | • | • | • | • | • | Number of DEDB read operations |
| DHCREATE | DFHDOCH | A | 226 | 4 | • | S | • | • | • | • | • | Document Handler CREATE requests |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | HDB template | | | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|-----------------|---|---|--|
| | Group | Type | ID | Length | T | X | Y | T | Y | |
| DHDELETE | DFHDOCH | A | 223 | 4 | • | S | • | • | • | Document Handler DELETE requests |
| DHINSERT | DFHDOCH | A | 227 | 4 | • | S | • | • | • | Document Handler INSERT requests |
| DHRETRVE | DFHDOCH | A | 229 | 4 | • | S | • | • | • | Document Handler RETRIEVE requests |
| DHSET | DFHDOCH | A | 228 | 4 | • | S | • | • | • | Document Handler SET requests |
| DHTOTAL | DFHDOCH | A | 230 | 4 | • | S | • | • | • | Document Handler Total requests |
| DHTOTDCL | DFHDOCH | A | 240 | 4 | • | S | • | • | • | Total length of all documents created |
| DISPATCH | DFHTASK | S | 007 | 8 | • | S | • | • | • | Dispatch time |
| DISPWAIT | DFHTASK | S | 102 | 8 | • | S | • | • | • | Redispatch wait time |
| DLETCALL | DBCTL | A | 015 | 8 | • | S | • | • | • | Number of Database DLET calls issued |
| DLICALLS | DBCTL | A | 017 | 8 | • | S | • | • | • | Total DL/I Database calls |
| DLIWARN | OMCICS | C | 002 | 4 | • | S | S | • | S | OMEGAMON DLI Limit Warning |
| DPLNAME | CICSPA | C | 919 | 8 | – | – | – | – | – | Distributed program link name |
| DPLRECS | CICSPA | A | 005 | 8 | • | • | • | • | • | Cross-System DPL records |
| DSAWARN | OMCICS | C | 011 | 4 | • | S | S | • | S | OMEGAMON DSA Limit Warning |
| DSCHMDLY | DFHTASK | S | 247 | 8 | • | S | • | • | • | Redispatch wait time caused by change-TCB mode |
| DSMMSCWT | DFHTASK | S | 279 | 8 | • | S | • | • | • | DS storage constraint wait time |
| DSPDELAY | DFHTASK | S | 125 | 8 | • | S | • | • | • | First dispatch wait time |
| DSTCBHWM | DFHTASK | A | 252 | 4 | • | S | • | • | • | CICS Dispatcher TCB HWM |
| DSTCBMWT | DFHTASK | S | 268 | 8 | • | S | • | • | • | Dispatcher TCB Mismatch wait time |
| ECEFOPCT | DFHCICS | A | 416 | 4 | • | S | • | • | • | Event Filter operations |
| ECEVNTCT | DFHCICS | A | 417 | 4 | • | S | • | • | • | Events captured |
| ECSEVCCT | DFHCICS | A | 418 | 4 | • | S | • | • | • | Synchronous Emission Events captured |
| ECSIGECT | DFHCICS | A | 415 | 4 | • | S | • | • | • | SIGNAL EVENT requests |
| EDSAWARN | OMCICS | C | 012 | 4 | • | S | S | • | S | OMEGAMON EDSA Limit Warning |
| EICTOTCT | DFHCICS | A | 402 | 4 | • | S | • | • | • | EXEC CICS requests |
| EJBACTIV | DFHEJBS | A | 312 | 4 | • | S | • | • | • | Number of Bean State Activation requests |
| EJBCREAT | DFHEJBS | A | 314 | 4 | • | S | • | • | • | Number of Bean Creation requests |
| EJBMETHD | DFHEJBS | A | 316 | 4 | • | S | • | • | • | Number of EJB Method Calls |
| EJBPASIV | DFHEJBS | A | 313 | 4 | • | S | • | • | • | Number of Bean State Passivation requests |
| EJBREMOV | DFHEJBS | A | 315 | 4 | • | S | • | • | • | Number of Bean Removal requests |
| EJBTOTAL | DFHEJBS | A | 317 | 4 | • | S | • | • | • | Total Number of EJB requests |
| ELAPWARN | OMCICS | C | 010 | 4 | • | S | S | • | S | OMEGAMON Elapsed Time Limit Warning |
| ENQDELAY | DFHTASK | S | 129 | 8 | • | S | • | • | • | Local Enqueue wait time |
| ENQSDLY | CICSPA | D | 924 | 8 | • | • | • | • | • | Total ENQ wait time |
| ERRFLAGS | DFHTASK | A | 064 | 4 | • | • | – | • | – | Task error flags |
| EXCLDEQS | DBCTL | A | 026 | 8 | • | S | • | • | • | Number of Exclusive Dequeues |
| EXCLENQS | DBCTL | A | 024 | 8 | • | S | • | • | • | Number of Exclusive Enqueues |
| EXCLENQW | DBCTL | A | 025 | 8 | • | S | • | • | • | Number of waits on Exclusive Enqueues |
| EXWAIT | DFHCICS | S | 103 | 8 | • | S | • | • | • | Exception Conditions wait time |
| FCADD | DFHFILE | A | 039 | 4 | • | S | • | • | • | File ADD requests |
| FCAMCT | DFHFILE | A | 070 | 4 | • | S | • | • | • | File access-method requests |
| FCBROWSE | DFHFILE | A | 038 | 4 | • | S | • | • | • | File Browse requests |
| FCDELETE | DFHFILE | A | 040 | 4 | • | S | • | • | • | File DELETE requests |
| FCGET | DFHFILE | A | 036 | 4 | • | S | • | • | • | File GET requests |
| FCPUT | DFHFILE | A | 037 | 4 | • | S | • | • | • | File PUT requests |
| FCTOTAL | DFHFILE | A | 093 | 4 | • | S | • | • | • | File Control requests |
| FCTY | DFHTASK | C | 163 | 4 | • | S | S | • | S | Transaction Facility name |
| FCTYTYPE | DFHTASK | C | 164 | 8 | • | S | – | • | – | Transaction facility type |
| FCVSWTT | DFHFILE | S | 427 | 8 | • | S | • | • | • | VSAM string wait time |
| FCWAIT | DFHFILE | S | 063 | 8 | • | S | • | • | • | File I/O wait time |
| FCXCWTT | DFHFILE | S | 426 | 8 | • | S | • | • | • | VSAM exclusive control wait time |
| FILENAME | CICSPA | C | 916 | 8 | – | – | – | – | – | File name |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | | | | HDB template | | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|---|---|---|--------------------------------------|--------------------------------------|--|
| | Group | Type | ID | Length | T | X | Y | T | Y | S U M L M I S R | S U M L M I S R | |
| FUNCSHIP | CICSPA | A | 004 | 8 | . | . | . | . | . | . | . | Cross-System Function Shipping records |
| GHNCALL | DBCTL | A | 012 | 8 | . | S | . | . | . | . | . | Number of Database GHN calls issued |
| GHNPCALL | DBCTL | A | 013 | 8 | . | S | . | . | . | . | . | Number of Database GHNP calls issued |
| GHUCALL | DBCTL | A | 011 | 8 | . | S | . | . | . | . | . | Number of Database GHU calls issued |
| GIVEUPWT | DFHTASK | S | 184 | 8 | . | S | . | . | . | . | . | Give up control wait time |
| GNCALL | DBCTL | A | 009 | 8 | . | S | . | . | . | . | . | Number of Database GN calls issued |
| GNPCALL | DBCTL | A | 010 | 8 | . | S | . | . | . | . | . | Number of Database GNP calls issued |
| GNQDELAY | DFHTASK | S | 123 | 8 | . | S | . | . | . | . | . | Global Enqueue wait time |
| GUCALL | DBCTL | A | 008 | 8 | . | S | . | . | . | . | . | Number of Database GU calls issued |
| ICDELAY | DFHTASK | S | 183 | 8 | . | S | . | . | . | . | . | Interval Control (IC) wait time |
| ICPUT | DFHTASK | A | 059 | 4 | . | S | . | . | . | . | . | Interval Control START or INITIATE requests |
| ICSTACCT | DFHTASK | A | 065 | 8 | . | S | . | . | . | . | . | Local IC START requests with CHANNEL option |
| ICSTACDL | DFHTASK | A | 345 | 8 | . | S | . | . | . | . | . | Container data len for Local IC START w/ CHANNEL |
| ICSTRCCT | DFHTASK | A | 346 | 8 | . | S | . | . | . | . | . | Remote IC START requests with CHANNEL option |
| ICSTRCDL | DFHTASK | A | 347 | 8 | . | S | . | . | . | . | . | Container data len for Remot IC START w/ CHANNEL |
| ICTOTAL | DFHTASK | A | 066 | 4 | . | S | . | . | . | . | . | Interval Control requests |
| IDMSREQ | OMCICS | S | 016 | 8 | . | S | . | . | . | . | . | OMEGAMON monitored CA-IDMS requests |
| IDMSWARN | OMCICS | C | 006 | 4 | . | S | S | . | S | . | S | OMEGAMON CA-IDMS Limit Warning |
| IMSREQCT | DFHDATA | A | 179 | 4 | . | S | . | . | . | . | . | IMS (DBCTL) requests |
| IMSWAIT | DFHDATA | S | 186 | 8 | . | S | . | . | . | . | . | IMS (DBCTL) wait time |
| INTCWAIT | DBCTL | S | 003 | 8 | . | S | . | . | . | . | . | Elapsed wait time for Intent Conflict |
| IOWAIT | CICSPA | D | 907 | 8 | . | S | - | . | - | . | - | Total IO wait time |
| IRESP | CICSPA | D | 908 | 8 | . | S | . | - | . | - | . | Transaction internal response time |
| IRWAIT | DFHTERM | S | 100 | 8 | . | S | . | . | . | . | . | MRO link wait time |
| ISALLOC | DFH SOCK | A | 288 | 4 | . | S | . | . | . | . | . | Allocate Session requests for sessions on IP |
| ISALWTT | DFH SOCK | S | 319 | 8 | . | S | . | . | . | . | . | IPIC allocate session wait time |
| ISIPICNM | DFH SOCK | C | 305 | 8 | . | S | S | . | S | . | S | Name of IPCONN definition that attached the task |
| ISRTCALL | DBCTL | A | 014 | 8 | . | S | . | . | . | . | . | Number of Database ISRT calls issued |
| ISWAIT | DFH SOCK | S | 300 | 8 | . | S | . | . | . | . | . | IPCONN link wait time |
| J8CPU | DFHTASK | S | 260 | 8 | . | S | . | . | . | . | . | CICS J8 TCB CPU time |
| J9CPU | DFHTASK | S | 267 | 8 | . | S | . | . | . | . | . | User task J9 Mode CPU time |
| JCWAIT | DFHJOUR | S | 010 | 8 | . | S | . | . | . | . | . | Journal I/O wait time |
| JNLPUT | DFHJOUR | A | 058 | 4 | . | S | . | . | . | . | . | Journal write requests |
| JOBNAME | CICSPA | C | 905 | 8 | . | S | S | . | S | . | S | Job Name |
| JVMITIME | DFHTASK | S | 273 | 8 | . | S | . | . | . | . | . | JVM initialize elapsed time |
| JVMMTIME | CICSPA | D | 910 | 8 | . | S | . | . | . | . | . | JVM Method time |
| JVMRTIME | DFHTASK | S | 275 | 8 | . | S | . | . | . | . | . | JVM reset elapsed time |
| JVMSUSP | DFHTASK | S | 254 | 8 | . | S | . | . | . | . | . | JVM suspend time |
| JVMTHDWT | DFHTASK | S | 401 | 8 | . | S | . | . | . | . | . | JVM server thread wait time |
| JVMTIME | DFHTASK | S | 253 | 8 | . | S | . | . | . | . | . | JVM elapsed time |
| KY8CPU | DFHTASK | S | 263 | 8 | . | S | . | . | . | . | . | CICS Key 8 TCB CPU time |
| KY8DISPT | DFHTASK | S | 262 | 8 | . | S | . | . | . | . | . | CICS Key 8 TCB dispatch time |
| KY9CPU | DFHTASK | S | 265 | 8 | . | S | . | . | . | . | . | User task Key 9 Mode CPU time |
| KY9DISPT | DFHTASK | S | 264 | 8 | . | S | . | . | . | . | . | User task Key 9 Mode Dispatch time |
| L8CPU | DFHTASK | S | 259 | 8 | . | S | . | . | . | . | . | CICS L8 TCB CPU time |
| L9CPU | DFHTASK | S | 266 | 8 | . | S | . | . | . | . | . | User task L9 CPU time |
| LOCKDLAY | DFHTASK | S | 128 | 8 | . | S | . | . | . | . | . | Lock Manager (LM) wait time |
| LOCKSPLY | CICSPA | D | 923 | 8 | . | . | . | . | . | . | . | Total Lock wait time and Enqueue delay time |
| LOCKWAIT | CICSPA | D | 922 | 8 | . | . | . | . | . | . | . | Total Lock wait time |
| LOGWRITE | DFHJOUR | A | 172 | 4 | . | S | . | . | . | . | . | Log Stream write requests |
| LU61WAIT | DFHTERM | S | 133 | 8 | . | S | . | . | . | . | . | LU6.1 wait time |
| LU62WAIT | DFHTERM | S | 134 | 8 | . | S | . | . | . | . | . | LU6.2 wait time |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | | HDB template | | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|---|-----------------|---|---|
| | Group | Type | ID | Length | T | X | Y | T | Y | |
| LUNAME | DFHTERM | C | 111 | 8 | • | S | S | • | S | VTAM logical unit name |
| MAXHTDLY | DFHTASK | S | 278 | 8 | • | S | • | • | • | Maximum Hot-Pooling TCB delay time |
| MAXJTDLY | DFHTASK | S | 277 | 8 | • | S | • | • | • | Maximum JVM TCB delay time |
| MAXOTDLY | DFHTASK | S | 250 | 8 | • | S | • | • | • | Maximum Open TCB delay time |
| MAXSTDLY | DFHTASK | S | 281 | 8 | • | S | • | • | • | Maximum SSL TCB delay time |
| MAXTASKS | DFHTASK | C | 433 | 8 | • | S | S | • | S | Current MAXTASKS (MXT) value at task start |
| MAXTTDLY | DFHTASK | S | 283 | 8 | • | S | • | • | • | Maximum JVM server thread TCB delay time |
| MAXXTDLY | DFHTASK | S | 282 | 8 | • | S | • | • | • | Maximum XPLink TCB delay time |
| MLXMLTCT | DFHWEBB | A | 413 | 4 | • | S | • | • | • | Application data TRANSFORM requests |
| MLXSSTCM | DFHWEBB | S | 411 | 8 | • | S | • | • | • | z/OS XML System Services CPU time |
| MLXSSTDL | DFHWEBB | A | 412 | 4 | • | S | • | • | • | Document length parsed - z/OS System Services |
| MPPRTXCD | DFHCICS | A | 449 | 4 | • | S | • | • | • | Number of policy rule thresholds exceeded |
| MQWARN | OMCICS | C | 004 | 4 | • | S | S | • | S | OMEGAMON MQ Limit Warning |
| MSCPU | DFHTASK | S | 258 | 8 | • | S | • | • | • | CICS TCBS CPU time |
| MSDISPT | DFHTASK | S | 257 | 8 | • | S | • | • | • | CICS TCBS dispatch time |
| MSGIN1 | DFHTERM | A | 034 | 4 | • | S | • | • | • | Messages received count |
| MSGIN2 | DFHTERM | A | 067 | 4 | • | S | • | • | • | Messages received from LU6.1 |
| MSGOUT1 | DFHTERM | A | 035 | 4 | • | S | • | • | • | Messages sent count |
| MSGOUT2 | DFHTERM | A | 068 | 4 | • | S | • | • | • | Messages sent to LU6.1 |
| MVSID | CICSPA | C | 904 | 4 | • | S | S | S | S | MVS SMF ID |
| MXTDELAY | DFHTASK | S | 127 | 8 | • | S | • | • | • | First dispatch MXT wait time |
| NATURE | DFHTERM | A | 165 | 4 | • | S | - | • | - | Transaction |
| NETID | DFHTERM | C | 197 | 8 | • | S | - | • | - | VTAM LUALIAS Network ID |
| NETNAME | DFHTASK | C | 097 | 20 | • | S | - | • | - | Originating System VTAM network name |
| NETUOWSX | DFHTASK | C | 098 | 8 | - | - | - | - | - | Network UOW ID |
| OADATA1 | DFHCICS | C | 352 | 64 | • | S | S | • | S | Originating Adapter data 1 |
| OADATA2 | DFHCICS | C | 353 | 64 | • | S | S | • | S | Originating Adapter data 2 |
| OADATA3 | DFHCICS | C | 354 | 64 | • | S | S | • | S | Originating Adapter data 3 |
| OADID | DFHCICS | C | 351 | 64 | • | S | S | • | S | Originating Adapter Identifier |
| OAPPLID | DFHCICS | C | 360 | 8 | • | S | S | • | S | Originating CICS APPLID |
| OCL6ADR | DFHCICS | C | 372 | 40 | • | S | - | • | - | Originating Client or Telnet IP address |
| OCLINTIP | DFHCICS | C | 368 | 16 | • | S | - | • | - | Originating Client or Telnet IP address |
| OCLIPORT | DFHCICS | A | 369 | 4 | • | S | - | • | - | Originating Client IP Port Number |
| OFCTY | DFHCICS | C | 371 | 8 | • | S | S | • | S | Originating Transaction Facility name |
| OFCTYTP | DFHCICS | C | 370 | 8 | • | S | - | • | - | Originating Transaction Facility Type |
| OFFLIPCT | CICSPA | D | 942 | 8 | - | - | • | - | - | % offld elig CPU time on std CP based on intrvl |
| OFFLPCT | CICSPA | D | 941 | 8 | - | - | • | - | - | % offload eligible CPU time on standard CP |
| OFLDIPCT | CICSPA | D | 940 | 8 | - | - | • | - | - | % offload eligible CPU time based on interval |
| OFLDPCT | CICSPA | D | 936 | 8 | - | - | • | - | - | % offload eligible CPU time |
| OMEGWORK | OMCICS | C | 015 | 32 | • | S | S | • | S | OMEGAMON User work area |
| OMODDLY | CICSPA | D | 928 | 8 | • | • | • | • | • | Other CICS TCB Mode redispach wait time |
| ONETWKID | DFHCICS | C | 359 | 8 | • | S | S | • | S | Originating Network ID |
| OORIGIN | DFHCICS | C | 370 | 8 | • | S | S | • | S | Originating Transaction Origin type |
| OPORT | DFHCICS | A | 367 | 4 | • | S | - | • | - | Originating TCP/IP Port Number |
| ORIGIN | DFHTASK | C | 164 | 8 | • | S | S | • | S | Transaction origin type |
| OSLATNCY | CICSPA | D | 920 | 8 | • | S | • | • | • | Task start latency since Origin task start |
| OSOWAIT | DFH SOCK | S | 299 | 8 | • | S | • | • | • | Outbound Socket I/O Wait Time |
| OSTART | DFHCICS | T | 361 | 8 | • | S | S | • | S | Originating Task start time |
| OTASKNO | DFHCICS | P | 362 | 4 | • | S | - | • | - | Originating Transaction number |
| OTCPSRVC | DFHCICS | C | 366 | 8 | • | S | S | • | S | Originating TCP/IP Service Name |
| OTRAN | DFHCICS | C | 363 | 4 | • | S | S | • | S | Originating Transaction identifier |
| OTRANFLG | DFHCICS | A | 370 | 16 | • | S | - | • | - | Originating Transaction flags |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | | | | HDB template | | Description |
|-----------------------|-------------|------|-----|--------|-------------|---|---|---|---|--------------------------------------|--------------------------------------|---|
| | Group | Type | ID | Length | T | X | Y | T | Y | S U M L M I S R | S U M L M I S R | |
| OTRANTYP | DFHCICS | C | 370 | 8 | • | • | – | • | – | | | Originating Transaction type |
| OTSID | DFHTASK | C | 194 | 128 | – | – | – | – | – | | | OTS Transaction ID |
| OTSINDWT | DFHSYNC | S | 199 | 8 | • | S | • | • | • | | | OTS Indoubt Wait time |
| OUSERCOR | DFHCICS | C | 365 | 64 | • | S | S | • | S | | | Originating User Correlator |
| OUSERID | DFHCICS | C | 364 | 8 | • | S | S | • | S | | | Originating User ID |
| OVFLBFRU | DBCTL | A | 029 | 8 | • | S | • | • | • | | | Number of Overflow Buffers used |
| PC24BHW | DFHSTOR | A | 108 | 4 | • | S | • | • | • | | | Program Storage HWM below 16MB |
| PC24CHW | DFHSTOR | A | 143 | 4 | • | S | • | • | • | | | Program Storage (CDSA) HWM below 16MB |
| PC24RHW | DFHSTOR | A | 162 | 4 | • | S | • | • | • | | | Program Storage (RDSA) HWM below 16MB |
| PC24SHW | DFHSTOR | A | 160 | 4 | • | S | • | • | • | | | Program Storage (SDSA) HWM below 16MB |
| PC31AHW | DFHSTOR | A | 139 | 4 | • | S | • | • | • | | | Program Storage HWM above 16MB |
| PC31CHW | DFHSTOR | A | 142 | 4 | • | S | • | • | • | | | Program Storage (ECDSA) HWM above 16MB |
| PC31RHW | DFHSTOR | A | 122 | 4 | • | S | • | • | • | | | Program Storage (ERDSA) HWM above 16MB |
| PC31SHW | DFHSTOR | A | 161 | 4 | • | S | • | • | • | | | Program Storage (ESDSA) HWM above 16MB |
| PCDLCRDL | DFHPROG | A | 287 | 8 | • | S | • | • | • | | | Container data length for DPL RETURN w/ CHANNEL |
| PCDLCSDL | DFHPROG | A | 286 | 8 | • | S | • | • | • | | | Container data length for DPL reqs with CHANNEL |
| PCDPL | DFHPROG | A | 073 | 4 | • | S | • | • | • | | | Distributed Program Link (DPL) requests |
| PCDPLCCT | DFHPROG | A | 308 | 8 | • | S | • | • | • | | | DPL requests with CHANNEL option |
| PCLINK | DFHPROG | A | 055 | 4 | • | S | • | • | • | | | Program LINK requests |
| PCLNKCCCT | DFHPROG | A | 306 | 8 | • | S | • | • | • | | | LINK requests with CHANNEL option |
| PCLOAD | DFHPROG | A | 057 | 4 | • | S | • | • | • | | | Program LOAD requests |
| PCLOADTM | DFHPROG | S | 115 | 8 | • | S | • | • | • | | | Program Library wait time |
| PCLURM | DFHPROG | A | 072 | 4 | • | S | • | • | • | | | Program LINK URM requests |
| PCRTNCCT | DFHPROG | A | 309 | 8 | • | S | • | • | • | | | Program RETURN requests with CHANNEL option |
| PCRTNCDL | DFHPROG | A | 310 | 8 | • | S | • | • | • | | | Container data length for RETURN with CHANNEL |
| PCSTGHW | DFHSTOR | A | 087 | 4 | • | S | • | • | • | | | Program Storage HWM above and below 16MB |
| PCXCLCCT | DFHPROG | A | 307 | 8 | • | S | • | • | • | | | XCTL requests with CHANNEL option |
| PCXCTL | DFHPROG | A | 056 | 4 | • | S | • | • | • | | | Program XCTL requests |
| PGBRWCCT | DFHCHNL | A | 322 | 8 | • | S | • | • | • | | | BROWSE CHANNEL CONTAINER requests |
| PGCRECCT | DFHCHNL | A | 328 | 8 | • | S | • | • | • | | | Number of Containers created |
| PGCSTHW | DFHCHNL | A | 329 | 4 | • | S | – | • | – | | | Maximum Container Storage allocated to task |
| PGGETCCT | DFHCHNL | A | 323 | 8 | • | S | • | • | • | | | GET CHANNEL CONTAINER requests |
| PGGETCDL | DFHCHNL | A | 326 | 8 | • | S | • | • | • | | | GET CHANNEL CONTAINER data length |
| PGMOVCCT | DFHCHNL | A | 325 | 8 | • | S | • | • | • | | | MOVE CHANNEL CONTAINER requests |
| PGPUTCCT | DFHCHNL | A | 324 | 8 | • | S | • | • | • | | | PUT CHANNEL CONTAINER requests |
| PGPUTCDL | DFHCHNL | A | 327 | 8 | • | S | • | • | • | | | PUT CHANNEL CONTAINER data length |
| PGTOTCCT | DFHCHNL | A | 321 | 8 | • | S | • | • | • | | | Total number of CHANNEL CONTAINER requests |
| PHAPPLID | DFHCICS | C | 374 | 8 | • | S | S | • | S | | | Previous Hop Data APPLID |
| PHCOUNT | DFHCICS | A | 378 | 4 | • | S | • | • | • | | | Previous Hop Data Count |
| PHLATNCY | CICSPA | D | 921 | 8 | • | S | • | • | • | | | Previous Hop latency time |
| PHNTWKID | DFHCICS | C | 373 | 8 | • | S | S | • | S | | | Previous Hop Data Network ID |
| PHSTART | DFHCICS | T | 375 | 8 | • | S | – | • | – | | | Previous Hop Data Task Start |
| PHTASKNO | DFHCICS | P | 376 | 4 | • | S | – | • | – | | | Previous Hop Data Transaction Number |
| PHTRAN | DFHCICS | C | 377 | 4 | • | S | S | • | S | | | Previous Hop Data Transaction ID |
| PILOCKEL | DBCTL | S | 006 | 8 | • | S | • | • | • | | | Elapsed time for PI Locking |
| POOLWAIT | DBCTL | S | 002 | 8 | • | S | • | • | • | | | Elapsed wait time for Pool Space |
| PORT | DFH SOCK | A | 246 | 8 | • | S | – | • | – | | | TCP/IP Port Number |
| PRCSNAME | DFHC B TS | C | 200 | 36 | • | • | – | • | – | | | BTS Process name |
| PRCSTYPE | DFHC B TS | C | 201 | 8 | • | • | S | • | S | | | BTS Process type |
| PROGRAM | DFH P R O G | C | 071 | 8 | • | S | S | S | S | | | Program name |
| PSBNAME | DBCTL | C | 001 | 8 | • | S | S | S | S | | | PSB Name |
| PTPWAIT | DFHTASK | S | 285 | 8 | • | S | • | • | • | | | 3270 Bridge Partner wait time |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | HDB template | | Description | |
|-----------------------|-----------|------|-----|--------|-------------|---|-----------------|---|-------------|---|
| | Group | Type | ID | Length | T | X | Y | T | | Y |
| QRCPU | DFHTASK | S | 256 | 8 | • | S | • | • | • | CICS QR TCB CPU time |
| QRDISPT | DFHTASK | S | 255 | 8 | • | S | • | • | • | CICS QR TCB dispatch time |
| QRDSPRTO | CICSPA | D | 925 | 8 | • | • | – | • | – | QR TCB Dispatch to CPU ratio |
| QRMODDLY | DFHTASK | S | 249 | 8 | • | S | • | • | • | CICS QR TCB redispach wait time |
| RATEMIN | CICSPA | D | 926 | 4 | – | – | • | – | • | Transaction rate per minute |
| RATESEC | CICSPA | D | 927 | 4 | – | – | • | – | • | Transaction rate per second |
| RECCOUNT | DFHCICS | A | 131 | 4 | • | S | • | • | • | Task Performance record count |
| RELEASE | CICSPA | C | 909 | 4 | • | S | S | • | S | CICS release |
| REPLCALL | DBCTL | A | 016 | 8 | • | S | • | • | • | Number of Database REPL calls issued |
| RESPONSE | CICSPA | D | 901 | 8 | • | S | • | • | • | Transaction response time |
| RLSCPU | DFHFILE | S | 175 | 8 | • | S | • | • | • | RLS File Request CPU (SRB) time |
| RLSWAIT | DFHFILE | S | 174 | 8 | • | S | • | • | • | RLS File I/O wait time |
| RLUNAME | DFHTERM | C | 198 | 8 | • | S | S | • | S | VTAM LUALIAS Logical Unit name |
| RMICPSM | DFHRMI | S | 007 | 8 | • | S | • | • | • | RMI elapsed time for CICSplex SM requests |
| RMIDB2 | DFHRMI | S | 003 | 8 | • | S | • | • | • | RMI elapsed time for DB2 requests |
| RMIDBCTL | DFHRMI | S | 004 | 8 | • | S | • | • | • | RMI elapsed time for DBCTL requests |
| RMIEXDLI | DFHRMI | S | 005 | 8 | • | S | • | • | • | RMI elapsed time for EXEC DLI requests |
| RMIMQM | DFHRMI | S | 006 | 8 | • | S | • | • | • | RMI elapsed time for WebSphere MQ requests |
| RMIOTHER | DFHRMI | S | 002 | 8 | • | S | • | • | • | RMI other elapsed time |
| RMIOTIME | CICSPA | D | 911 | 8 | • | S | • | • | • | Resource Manager Interface (RMI) other time |
| RMISUSP | DFHTASK | S | 171 | 8 | • | S | • | • | • | Resource Manager Interface (RMI) suspend time |
| RMITCPIP | DFHRMI | S | 008 | 8 | • | S | • | • | • | RMI elapsed time for TCP/IP socket requests |
| RMITIME | DFHTASK | S | 170 | 8 | • | S | • | • | • | Resource Manager Interface (RMI) elapsed time |
| RMITOTAL | DFHRMI | S | 001 | 8 | • | S | • | • | • | RMI total elapsed time |
| RMUOWID | DFHTASK | C | 132 | 16 | • | S | – | • | – | Recovery UOW ID |
| ROCPU | DFHTASK | S | 270 | 8 | • | S | • | • | • | CICS RO TCB CPU time |
| RODISPT | DFHTASK | S | 269 | 8 | • | S | • | • | • | CICS RO TCB dispatch time |
| ROMODDLY | DFHTASK | S | 348 | 8 | • | S | • | • | • | Other CICS TCB Mode redispach wait time |
| RPTCLASS | DFHCICS | C | 168 | 8 | • | S | S | • | S | WLM Report Class |
| RQPWAIT | DFHTASK | S | 193 | 8 | • | S | • | • | • | Request Processor Wait Time |
| RQRWAIT | DFHTASK | S | 192 | 8 | • | S | • | • | • | Request Receiver Wait Time |
| RRMSWAIT | DFHTASK | S | 191 | 8 | • | S | • | • | • | Resource Recovery Services indoubt wait time |
| RSYSID | DFHCICS | C | 130 | 4 | • | S | S | • | S | Remote System ID |
| RTYPE | DFHCICS | C | 112 | 4 | • | • | – | • | – | Performance record type |
| RUNTRWTT | DFHTASK | S | 195 | 8 | • | S | • | • | • | BTS run Process/Activity wait time |
| S8CPU | DFHTASK | S | 261 | 8 | • | S | • | • | • | CICS S8 TCB CPU time |
| SC24CGET | DFHSTOR | A | 117 | 4 | • | S | • | • | • | CDSA GETMAINs below 16MB |
| SC24CHWM | DFHSTOR | A | 116 | 4 | • | S | • | • | • | CDSA HWM below 16MB |
| SC24COCC | DFHSTOR | A | 118 | 8 | • | S | • | • | • | CDSA Storage Occupancy below 16MB |
| SC24FSHR | DFHSTOR | A | 146 | 4 | • | S | • | • | • | CDSA/SDSA storage FREEMAINed below 16MB |
| SC24GSHR | DFHSTOR | A | 145 | 4 | • | S | • | • | • | CDSA/SDSA storage GETMAINed below 16MB |
| SC24SGET | DFHSTOR | A | 144 | 4 | • | S | • | • | • | CDSA/SDSA GETMAINs below 16MB |
| SC24UGET | DFHSTOR | A | 054 | 4 | • | S | • | • | • | UDSA GETMAINs below 16MB |
| SC24UHWM | DFHSTOR | A | 033 | 4 | • | S | • | • | • | UDSA HWM below 16MB |
| SC24UOCC | DFHSTOR | A | 095 | 8 | • | S | • | • | • | UDSA Storage Occupancy below 16MB |
| SC31CGET | DFHSTOR | A | 120 | 4 | • | S | • | • | • | ECDSA GETMAINs above 16MB |
| SC31CHWM | DFHSTOR | A | 119 | 4 | • | S | • | • | • | ECDSA HWM above 16MB |
| SC31COCC | DFHSTOR | A | 121 | 8 | • | S | • | • | • | ECDSA Storage Occupancy above 16MB |
| SC31FSHR | DFHSTOR | A | 149 | 4 | • | S | • | • | • | ECDSA/ESDSA storage FREEMAINed above 16MB |
| SC31GSHR | DFHSTOR | A | 148 | 4 | • | S | • | • | • | ECDSA/ESDSA storage GETMAINed above 16MB |
| SC31SGET | DFHSTOR | A | 147 | 4 | • | S | • | • | • | ECDSA/ESDSA GETMAINs above 16MB |
| SC31UGET | DFHSTOR | A | 105 | 4 | • | S | • | • | • | EUDSA GETMAINs above 16MB |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | | | | HDB template | | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|---|---|---|---|---|---|
| | Group | Type | ID | Length | T | X | Y | T | Y | S U M L M I A S R | S U M L M I A S R | |
| SC31UHW | DFHSTOR | A | 106 | 4 | • | S | • | • | • | • | • | EUDSA HWM above 16MB |
| SC31UOCC | DFHSTOR | A | 107 | 8 | • | S | • | • | • | • | • | EUDSA Storage Occupancy above 16MB |
| SC64CGET | DFHSTOR | A | 441 | 4 | • | S | • | • | • | • | • | GCDSA GETMAINS above the bar |
| SC64CHWM | DFHSTOR | A | 442 | 4 | • | S | • | • | • | • | • | GCDSA HWM above the bar |
| SC64FSHR | DFHSTOR | A | 447 | 4 | • | S | • | • | • | • | • | GCDSA/GSDSA storage FREEMAINed above the bar |
| SC64GSHR | DFHSTOR | A | 446 | 4 | • | S | • | • | • | • | • | GCDSA/GSDSA storage GETMAINed above the bar |
| SC64SGET | DFHSTOR | A | 445 | 4 | • | S | • | • | • | • | • | GCDSA/GSDSA GETMAINS above the bar |
| SC64UGET | DFHSTOR | A | 443 | 4 | • | S | • | • | • | • | • | GUDSA GETMAINS above the bar |
| SC64UHW | DFHSTOR | A | 444 | 4 | • | S | • | • | • | • | • | GUDSA HWM above the bar |
| SCHEDEND | DBCTL | T | 034 | 8 | • | – | – | • | • | – | – | IMS Schedule end time |
| SCHEDSTA | DBCTL | T | 033 | 8 | • | – | – | • | • | – | – | IMS Schedule start time |
| SCHTELAP | DBCTL | S | 004 | 8 | • | S | • | • | • | • | • | Elapsed time for Schedule Process |
| SESSTYPE | DFHTERM | A | 165 | 4 | • | • | – | • | • | – | – | Terminal session type |
| SOBYDECT | DFH SOCK | A | 243 | 4 | • | S | • | • | • | • | • | Secure Socket bytes decrypted count |
| SOBYENCT | DFH SOCK | A | 242 | 4 | • | S | • | • | • | • | • | Secure Socket bytes encrypted count |
| SOCHRIN | DFH SOCK | A | 295 | 8 | • | S | • | • | • | • | • | Outbound Sockets characters received count |
| SOCHRIN1 | DFH SOCK | A | 302 | 8 | • | S | • | • | • | • | • | Inbound Sockets characters received count |
| SOCHROU1 | DFH SOCK | A | 304 | 8 | • | S | • | • | • | • | • | Inbound Sockets characters sent count |
| SOCHROUT | DFH SOCK | A | 297 | 8 | • | S | • | • | • | • | • | Outbound Sockets characters sent count |
| SOCIPHER | DFH SOCK | C | 320 | 8 | • | S | S | • | S | • | S | Inbound SSL connection Cipher suite code |
| SOCNP SCT | DFH SOCK | A | 290 | 8 | • | S | • | • | • | • | • | Create Non-Persistent Outbound Socket reqs |
| SOCPSCT | DFH SOCK | A | 291 | 8 | • | S | • | • | • | • | • | Create Persistent Outbound Socket requests |
| SOEXTRCT | DFH SOCK | A | 289 | 8 | • | S | • | • | • | • | • | EXTRACT TCP/IP and CERTIFICATE requests |
| SOMODDLY | DFHTASK | S | 349 | 8 | • | S | • | • | • | • | • | CICS SO TCB redispatch wait time |
| SOMSGIN1 | DFH SOCK | A | 301 | 8 | • | S | • | • | • | • | • | Inbound Sockets RECEIVE requests |
| SOMSGOU1 | DFH SOCK | A | 303 | 8 | • | S | • | • | • | • | • | Inbound Sockets SEND requests |
| SONPSHWM | DFH SOCK | A | 292 | 8 | • | S | • | • | • | • | • | Non-Persistent Outbound Socket HWM |
| SOPSHWM | DFH SOCK | A | 293 | 8 | • | S | • | • | • | • | • | Persistent Outbound Socket HWM |
| SORCV | DFH SOCK | A | 294 | 8 | • | S | • | • | • | • | • | Outbound Sockets RECEIVE requests |
| SOSEND | DFH SOCK | A | 296 | 8 | • | S | • | • | • | • | • | Outbound Sockets SEND requests |
| SOTOTAL | DFH SOCK | A | 298 | 8 | • | S | • | • | • | • | • | Socket Total requests |
| SOWAIT | DFH SOCK | S | 241 | 8 | • | S | • | • | • | • | • | Inbound Socket I/O wait time |
| SPEIPCT | CICSPA | D | 938 | 8 | – | – | • | – | – | – | – | % specialty processor CPU based on interval |
| SPEPCT | CICSPA | D | 934 | 8 | – | – | • | – | – | – | – | % specialty processor CPU time |
| SRVCLASS | DFHCICS | C | 167 | 8 | • | S | S | • | S | • | S | WLM Service Class |
| START | DFHCICS | T | 005 | 8 | • | S | S | S | S | • | • | Task start time |
| STCPIPCT | CICSPA | D | 939 | 8 | – | – | • | – | – | – | – | % std CP not offld eligible based on interval |
| STCPPCT | CICSPA | D | 935 | 8 | – | – | • | – | – | – | – | % standard CP CPU time not offload eligible |
| STOP | DFHCICS | T | 006 | 8 | • | S | S | S | S | • | • | Task stop time |
| STYPE | DFHTASK | C | 004 | 2 | • | S | – | • | • | – | – | Transaction start type |
| SUPPREQ | OMCICS | S | 018 | 8 | • | S | • | • | • | • | • | OMEGAMON monitored Supra requests |
| SUPRWARN | OMCICS | C | 007 | 4 | • | S | S | • | S | • | • | OMEGAMON Supra Limit Warning |
| SUSPEND | DFHTASK | S | 014 | 8 | • | S | • | • | • | • | • | Suspend time |
| SYNCDLY | DFHSYNC | S | 196 | 8 | • | S | • | • | • | • | • | SYNCPOINT parent request wait time |
| SYNCP T | DFHSYNC | A | 060 | 4 | • | S | • | • | • | • | • | SYNCPOINT requests |
| SYNCTIME | DFHSYNC | S | 173 | 8 | • | S | • | • | • | • | • | SYNCPOINT processing time |
| SZALLCTO | DFHFEPI | A | 157 | 4 | • | S | • | • | • | • | • | Allocate conversation time-out count |
| SZALLO C | DFHFEPI | A | 150 | 4 | • | S | • | • | • | • | • | Conversations allocated count |
| SZCHRIN | DFHFEPI | A | 155 | 4 | • | S | • | • | • | • | • | FEPI characters received count |
| SZCHROUT | DFHFEPI | A | 154 | 4 | • | S | • | • | • | • | • | FEPI characters sent count |
| SZR CV | DFHFEPI | A | 151 | 4 | • | S | • | • | • | • | • | FEPI RECEIVE requests |
| SZRCVTO | DFHFEPI | A | 158 | 4 | • | S | • | • | • | • | • | Receive Data time-out count |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | | | | HDB template | | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|---|---|---|--------------------------------------|--------------------------------------|--|
| | Group | Type | ID | Length | T | X | Y | T | Y | S U M L M I S R | S U M L M I S R | |
| SZSEND | DFHFEPI | A | 152 | 4 | • | S | • | • | • | • | • | FEPI SEND requests |
| SZSTART | DFHFEPI | A | 153 | 4 | • | S | • | • | • | • | • | FEPI START requests |
| SZTOTAL | DFHFEPI | A | 159 | 4 | • | S | • | • | • | • | • | FEPI API and SPI requests |
| SZWAIT | DFHFEPI | S | 156 | 8 | • | S | • | • | • | • | • | FEPI services wait time |
| T8CPU | DFHTASK | S | 400 | 8 | • | S | • | • | • | • | • | CICS T8 TCB CPU time |
| TASKCNT | CICSPA | X | 902 | 4 | – | – | • | – | • | • | • | Total Task count |
| TASKNO | DFHTASK | P | 031 | 4 | • | S | – | • | – | • | • | Transaction identification number |
| TASKTCNT | CICSPA | X | 914 | 4 | – | – | • | – | • | • | • | Total Task Termination count |
| TCALLOC | DFHTERM | A | 069 | 4 | • | S | • | • | • | • | • | TCTTE ALLOCATE requests |
| TCALWTT | DFHTERM | S | 343 | 8 | • | S | • | • | • | • | • | MRO allocate session wait time |
| TCBATTCT | DFHTASK | A | 251 | 8 | • | S | • | • | • | • | • | TCBs attached count |
| TCC62IN2 | DFHTERM | A | 137 | 4 | • | S | • | • | • | • | • | LU6.2 characters received count |
| TCC62OU2 | DFHTERM | A | 138 | 4 | • | S | • | • | • | • | • | LU6.2 characters sent count |
| TCLASSNM | DFHTASK | C | 166 | 8 | • | S | S | • | • | S | S | Transaction Class name |
| TCLDELAY | DFHTASK | S | 126 | 8 | • | S | • | • | • | • | • | First dispatch TCLSNAME wait time |
| TCM62IN2 | DFHTERM | A | 135 | 4 | • | S | • | • | • | • | • | LU6.2 messages received count |
| TCM62OU2 | DFHTERM | A | 136 | 4 | • | S | • | • | • | • | • | LU6.2 messages sent count |
| TCPSRVCE | DFH SOCK | C | 245 | 8 | • | S | S | • | • | S | S | TCP/IP Service Name |
| TCWAIT | DFHTERM | S | 009 | 8 | • | S | • | • | • | • | • | Terminal wait for input time |
| TDELWTT | DFHDEST | S | 404 | 8 | • | S | • | • | • | • | • | Extrapartition transient data lock wait time |
| TDGET | DFHDEST | A | 041 | 4 | • | S | • | • | • | • | • | Transient data GET requests |
| TDILWTT | DFHDEST | S | 403 | 8 | • | S | • | • | • | • | • | Intrapartition transient data lock wait time |
| TDPURGE | DFHDEST | A | 043 | 4 | • | S | • | • | • | • | • | Transient data PURGE requests |
| TDPUT | DFHDEST | A | 042 | 4 | • | S | • | • | • | • | • | Transient data PUT requests |
| TDTOTAL | DFHDEST | A | 091 | 4 | • | S | • | • | • | • | • | Transient data Total requests |
| TDWAIT | DFHDEST | S | 101 | 8 | • | S | • | • | • | • | • | VSAM transient data I/O wait time |
| TERM | DFHTERM | C | 002 | 4 | • | S | S | • | • | S | S | Terminal ID |
| TERMCNNM | DFHTERM | C | 169 | 4 | • | S | S | • | • | S | S | Terminal session Connection name |
| TERMCODE | DFHTERM | A | 165 | 4 | • | • | – | • | – | • | • | Terminal Device Type |
| TERMINFO | DFHTERM | A | 165 | 4 | • | • | – | • | – | • | • | Terminal information |
| TESTDEQS | DBCTL | A | 020 | 8 | • | S | • | • | • | • | • | Number of Test Dequeues |
| TESTENQS | DBCTL | A | 018 | 8 | • | S | • | • | • | • | • | Number of Test Enqueues |
| TESTENQW | DBCTL | A | 019 | 8 | • | S | • | • | • | • | • | Number of waits on Test Enqueues |
| THREDCPU | DBCTL | S | 032 | 8 | • | S | • | • | • | • | • | Thread TCB CPU time |
| TIASKTCT | DFHCICS | A | 405 | 4 | • | S | • | • | • | • | • | ASKTIME requests |
| TITOTCT | DFHCICS | A | 406 | 4 | • | S | • | • | • | • | • | ASKTIME |
| TOTCPU | CICSPA | D | 918 | 8 | • | S | • | • | • | • | • | Total Task CPU Time |
| TOTRECS | CICSPA | A | 001 | 8 | • | • | • | • | • | • | • | Cross-System Total record count |
| TRAN | DFHTASK | C | 001 | 4 | • | S | S | S | S | S | S | Transaction identifier |
| TRANFLAG | DFHTASK | A | 164 | 16 | • | • | – | • | – | • | • | Transaction flags |
| TRANPRTY | DFHTASK | A | 109 | 4 | • | S | – | • | – | • | • | Transaction priority |
| TRANROUT | CICSPA | A | 003 | 8 | • | • | • | • | • | • | • | Cross-System Transaction Routing records |
| TRANTYPE | DFHTASK | C | 164 | 8 | • | • | S | • | • | S | S | Transaction type |
| TRNGRPID | DFHTASK | C | 082 | 28 | – | – | – | – | – | – | – | Transaction Group ID |
| TSGET | DFHTEMP | A | 044 | 4 | • | S | • | • | • | • | • | Temporary Storage GET requests |
| TSPUTAUX | DFHTEMP | A | 046 | 4 | • | S | • | • | • | • | • | Auxiliary TS PUT requests |
| TSPUTMCT | DFHTEMP | A | 047 | 4 | • | S | • | • | • | • | • | Main TS PUT requests |
| TSQNAME | CICSPA | C | 917 | 8 | – | – | – | – | – | – | – | Temporary Storage Queue Name |
| TSSHWAIT | DFHTEMP | S | 178 | 8 | • | S | • | • | • | • | • | Asynchronous Shared TS wait time |
| TSOTAL | DFHTEMP | A | 092 | 4 | • | S | • | • | • | • | • | TS Total requests |
| TSWAIT | DFHTEMP | S | 011 | 8 | • | S | • | • | • | • | • | VSAM TS I/O wait time |
| UEIWARN | OMCICS | C | 014 | 4 | • | S | S | • | • | S | S | OMEGAMON User Event Limit Warning |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | | | | HDB template | | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|---|---|---|-----------------|---|---|
| | Group | Type | ID | Length | T | X | Y | T | Y | S | S | |
| UOWCONTS | DBCTL | A | 030 | 8 | • | S | • | • | • | • | • | Number of UOW Contentions |
| UOWID | CICSPA | C | 912 | 12 | • | • | S | • | • | • | • | Network UOW ID |
| UOWSEQ | CICSPA | C | 913 | 5 | • | • | • | • | • | • | • | Network UOW Sequence Number |
| UPDTDEQS | DBCTL | A | 023 | 8 | • | S | • | • | • | • | • | Number of Update Dequeues |
| UPDTENQS | DBCTL | A | 021 | 8 | • | S | • | • | • | • | • | Number of Update Enqueues |
| UPDTENQW | DBCTL | A | 022 | 8 | • | S | • | • | • | • | • | Number of waits on Update Enqueues |
| USERID | DFHCICS | C | 089 | 8 | • | S | S | S | S | S | S | User ID |
| USREVNT | OMCICS | S | 020 | 8 | • | S | • | • | • | • | • | OMEGAMON User defined events |
| VSAMWARN | OMCICS | C | 003 | 4 | • | S | S | • | • | • | • | OMEGAMON VSAM Limit warning |
| WAITCICS | DFHTASK | S | 182 | 8 | • | S | • | • | • | • | • | CICS ECB wait time |
| WAITEXT | DFHTASK | S | 181 | 8 | • | S | • | • | • | • | • | External ECB wait time |
| WBATMSNM | DFHWEBB | C | 382 | 8 | • | S | S | • | • | • | • | ATOMSERVICE resource definition name |
| WBBROWSE | DFHWEBB | A | 239 | 8 | • | S | • | • | • | • | • | Web Browse requests |
| WBBWOCT | DFHWEBB | A | 338 | 8 | • | S | • | • | • | • | • | CICS Web Support BROWSE HTTPHEADER requests |
| WBCHRIN | DFHWEBB | A | 232 | 4 | • | S | • | • | • | • | • | Web characters received count |
| WBCHRIN1 | DFHWEBB | A | 334 | 8 | • | S | • | • | • | • | • | CICS Web Support RECEIVE and CONVERSE chars |
| WBCHROU1 | DFHWEBB | A | 336 | 8 | • | S | • | • | • | • | • | CICS Web Support SEND and CONVERSE chars |
| WBCHROUT | DFHWEBB | A | 234 | 4 | • | S | • | • | • | • | • | Web characters sent count |
| WBEXTRACT | DFHWEBB | A | 238 | 8 | • | S | • | • | • | • | • | Web EXTRACT requests |
| WBISFCT | DFHWEBB | A | 388 | 4 | • | S | • | • | • | • | • | INVOKE SERVICE request SOAP faults received |
| WBIWBSCT | DFHWEBB | A | 340 | 8 | • | S | • | • | • | • | • | INVOKE SERVICE and INVOKE WEBSERVICE requests |
| WBPASCT | DFHWEBB | A | 337 | 8 | • | S | • | • | • | • | • | CICS Web Support PARSE URL requests |
| WBPIPLNM | DFHWEBB | C | 381 | 8 | • | S | S | • | • | • | • | PIPELINE resource definition name |
| WBPROGNM | DFHWEBB | C | 385 | 8 | • | S | S | • | • | • | • | Program name in URIMAP resource definition |
| WBRCV | DFHWEBB | A | 231 | 4 | • | S | • | • | • | • | • | Web RECEIVE requests |
| WBRCVIN1 | DFHWEBB | A | 333 | 8 | • | S | • | • | • | • | • | CICS Web Support RECEIVE and CONVERSE requests |
| WBREAD | DFHWEBB | A | 224 | 8 | • | S | • | • | • | • | • | Web READ requests |
| WBREDOCT | DFHWEBB | A | 331 | 8 | • | S | • | • | • | • | • | CICS Web Support READ HTTPHEADER requests |
| WBREPRCT | DFHWEBB | A | 236 | 4 | • | S | • | • | • | • | • | Web Temporary Storage Repository read requests |
| WBREPRDL | DFHWEBB | A | 341 | 8 | • | S | • | • | • | • | • | Repository Read data length |
| WBREPWCT | DFHWEBB | A | 237 | 4 | • | S | • | • | • | • | • | Web Temporary Storage Repository write requests |
| WBREPWDL | DFHWEBB | A | 342 | 8 | • | S | • | • | • | • | • | Repository Write data length |
| WBSEND | DFHWEBB | A | 233 | 4 | • | S | • | • | • | • | • | Web SEND requests |
| WBSFCRCT | DFHWEBB | A | 386 | 4 | • | S | • | • | • | • | • | SOAPFAULT CREATE requests |
| WBSFTOCT | DFHWEBB | A | 387 | 4 | • | S | • | • | • | • | • | SOAPFAULT ADD |
| WBSNDOU1 | DFHWEBB | A | 335 | 8 | • | S | • | • | • | • | • | CICS Web Support SEND and CONVERSE requests |
| WBSREQBL | DFHWEBB | A | 390 | 4 | • | S | • | • | • | • | • | SOAP request SOAP body length |
| WBSRSPBL | DFHWEBB | A | 392 | 4 | • | S | • | • | • | • | • | SOAP response SOAP body length |
| WBSVCENM | DFHWEBB | C | 383 | 32 | • | S | S | • | • | • | • | WEBSERVICE resource definition name |
| WBSVOPNM | DFHWEBB | C | 384 | 64 | • | S | S | • | • | • | • | WEBSERVICE operation name |
| WBTOTAL | DFHWEBB | A | 235 | 4 | • | S | • | • | • | • | • | Web Total requests |
| WBURIMNM | DFHWEBB | C | 380 | 8 | • | S | S | • | • | • | • | URIMAP resource definition name |
| WBWRITE | DFHWEBB | A | 225 | 8 | • | S | • | • | • | • | • | Web WRITE requests |
| WBWRTOCT | DFHWEBB | A | 332 | 8 | • | S | • | • | • | • | • | CICS Web Support WRITE HTTPHEADER requests |
| WMQASRBT | DFHDATA | S | 397 | 8 | • | S | • | • | • | • | • | WebSphere MQ API SRB CPU time |
| WMQGETWT | DFHDATA | S | 396 | 8 | • | S | • | • | • | • | • | WebSphere MQ GETWAIT wait time |
| WMQREQCT | DFHDATA | A | 395 | 4 | • | S | • | • | • | • | • | Number of WebSphere MQ requests |
| WSACBLCT | DFHWEBB | A | 420 | 4 | • | S | • | • | • | • | • | WSACONTEXT BUILD requests |
| WSACGTCT | DFHWEBB | A | 421 | 4 | • | S | • | • | • | • | • | WSACONTEXT GET requests |
| WSAEPCT | DFHWEBB | A | 422 | 4 | • | S | • | • | • | • | • | WSAEPR CREATE requests |
| WSATOTCT | DFHWEBB | A | 423 | 4 | • | S | • | • | • | • | • | Total Web Services Addressing requests |
| X8CPU | DFHTASK | S | 271 | 8 | • | S | • | • | • | • | • | CICS X8 TCB CPU time |

Table 19. Cross-reference: fields × forms, HDB templates (continued)

| CICS PA field name | CMF field | | | | Report form | | | | HDB template | Description |
|-----------------------|-----------|------|-----|--------|-------------|---|---|---|-----------------|----------------------------|
| | Group | Type | ID | Length | T | X | Y | T | Y | |
| X9CPU | DFHTASK | S | 272 | 8 | • | S | • | • | • | User task X9 Mode CPU time |

Chapter 30. CICS PA-specific fields

CICS PA-specific fields are additional derived fields, such as sums, ratios, and percentages, that are generated by CICS PA based on CMF data. You can use these fields in report forms.

ACAPPLVR

Application context application version. This character field represents three 4-byte binary values separated by hyphens: ACMAJVER (major version), ACMINVER (minor version), and ACMICVER (micro version).

ALERT

For Performance Summary alert reporting, the count or percentage total of transactions at the specified alert severity (Critical, Warning, or Info) for the summary key.

APPLID

CICS generic APPLID.

APPLRECS

Number of Application records in this Network Unit-of-Work Extract record. All Cross-System Work Extract records include this field.

CECMTYPE

A concatenation of CECMCHTP (CEC machine type) and CECMDLID (CEC model ID).

COMMWAIT

Total time value of the communications related fields IRWAIT, ISWAIT, SZWAIT, TCWAIT, LU61WAIT, and LU62WAIT.

CPUIPCT

The task processor time (USRCPUT) as a percentage of the Summary report time interval (in seconds). It is calculated as:

$$\text{USRCPUT} / \text{Summary Report Time Interval} * 100$$

CPUISSPE

The task processor time that was eligible for offload to a specialty processor. It is calculated as:

$$\text{CPUONCPE} + (\text{USRCPUT} - \text{CPUONCP})$$

CPUONCP

The task processor time on a standard processor. It is taken from the value of CPUTONCP (DFHTASK S436).

CPUONCPE

The task processor time on a standard processor that was eligible for offload to a specialty processor. It is taken from the value of OFFLCPUT (DFHTASK S437).

CPUONCPN

The task processor time on a standard processor that was not offload eligible. It is calculated as:

$$\text{CPUONCP} - \text{CPUONCPE}$$

CPUONSP

The task processor time that was offloaded to a specialty processor. It is calculated as:

USRCPUT - CPUONCP

CPUSU

CPU time expressed in transaction service units. The task USRCPUT (DFHTASK S008) is converted to service units using a conversion factor specified for either the image on which the transaction ran or the input files. It is calculated as:

$USRCPUT * \text{service unit conversion factor}$

DPLRECS

Number of Distributed Program Link (DPL) records in this Network Unit-of-Work Extract record. This is a subset of FUNCSHIP, the Function Shipping record count. All Cross-System Work Extract records include this field.

ENQSDLY

The total elapsed time waiting for a CICS task control local or global enqueue. It is calculated as:

$ENQDELAY + GNQDELAY$

FILENAME

Transaction resource class data only: VSAM file name.

FUNCSHIP

Number of Function Shipping records in this Network Unit-of-Work Extract record. All Cross-System Work Extract records include this field.

IOWAIT

Total time value of the I/O wait time fields FCWAIT, JCWAIT, TDWAIT, TSWAIT.

IRESP CICS internal response time for the transaction. It is calculated by the difference in the Start and Stop times minus the time spent waiting on the terminal (operator think time).

JOBNAME

Jobname of the CICS system.

JVMTIME

JVM method time. This is the elapsed time spent in the CICS JVM by the user task, excluding the JVM initialize and reset elapsed times. It is calculated as:

$JVM \text{ elapsed time (JVMTIME)} - JVM \text{ init time (JVMITIME)}$
 $- JVM \text{ reset time (JVMRTIME)}$

LOCKSDLY

The total elapsed time waiting for a CICS task control local enqueue or global enqueue, or waiting to acquire a CICS lock manager (LM) lock on a resource, an intrapartition transient data lock, or an extrapartition transient data lock. It is calculated as:

$ENQDELAY + GNQDELAY + LMDELAY + TDILWTT + TDELWTT$

LOCKWAIT

The total elapsed time that the user task waited to acquire a CICS lock manager (LM) lock on a resource, an intrapartition transient data lock, or an extrapartition transient data lock. It is calculated as:

$LMDELAY + TDILWTT + TDELWTT$

MVSID

SMF system ID.

OFFLIPCT

The total task processor time on standard CP that was eligible for offload to specialty processor (zIIP or zAAP) as a percentage of the Summary report time interval (in seconds). It is calculated as:

$\text{OFFLCPUT} / \text{Summary Report Time Interval} * 100$

OFFLPCT

The total task processor time on standard CP that was eligible for offload to specialty processor (zIIP or zAAP) as a percentage of the total task processor time (USRCPUT). It is calculated as:

$\text{OFFLCPUT} / \text{USRCPUT} * 100$

OFLDIPCT

The task processor time that was offload eligible as a percentage of the Summary report time interval (in seconds). It is calculated as:

$(\text{OFFLCPUT} + (\text{USRCPUT} - \text{CPUTONCP})) / \text{Summary Report Time Interval} * 100$

OFLDPCT

The task processor time that was offload eligible as a percentage of the total task processor time (USRCPUT). It is calculated as:

$((\text{OFFLCPUT} + (\text{USRCPUT} - \text{CPUTONCP})) / \text{USRCPUT}) * 100$

OMODDLY

(Other Mode Delay) The elapsed time for which the user task waited for redispach on a CICS TCB other than on the CICS QR, RO, and SO mode TCBs. It is calculated as:

$\text{DISPWTT} - (\text{QRMODDLY} + \text{ROMODDLY} + \text{SOMODDLY})$

OSLATNCY

Latency since start of originating transaction. It is calculated as the difference between the Start time of the current transaction and the Start time of the originating transaction.

PHLATNCY

Previous hop latency time for the transaction. It is calculated as the difference between the Start time of the current transaction and the Start time of the previous hop transaction.

QRDSPRTO

The ratio of QR TCB Dispatch to QR TCB CPU. It is calculated as:

$(\text{QR CPU} / \text{QR Dispatch}) * 100$

RATEMIN

The transaction rate per minute.

Note: Performance alerts for the RATEMIN and RATESEC fields are not included in the ALERT field count. This is because they are based on the summarised data, not on individual transaction alerts. This could result in the ALERT fields showing zeros while in fact the special derived field generates alerts.

RATESEC

The transaction rate per second.

Note: Performance alerts for the RATEMIN and RATESEC fields are not included in the ALERT field count. This is because they are based on the summarised data, not on individual transaction alerts. This could result in the ALERT fields showing zeros while in fact the special derived field generates alerts.

RELEASE

CICS release. For example, CICS TS V4.1 is 660.

RESPONSE

CICS response time for the transaction. It is calculated as the difference between the Start and Stop times.

RMIOTIME

Elapsed time the task was suspended by the dispatcher while in the Resource Manager Interface (RMI), excluding time waiting for DB2 and IMS. It is calculated as:

$$\text{RMISUSP} - \text{IMSWAIT} - \text{DB2RDYQW} - \text{DB2CONWT} - \text{DB2WAIT}$$

(RMI suspend time - IMS wait time - DB2 readyq wait time - DB2 connection wait time - DB2 wait time)

SPEIPCT

The task processor time that was offloaded to specialty processor (USRCPUT – CPUTONCP) as a percentage of the Summary report time interval (in seconds). It is calculated as:

$$(\text{USRCPUT} - \text{CPUTONCP}) / \text{Summary Report Time Interval} * 100$$
SPEPCT

The task processor time that was offloaded to specialty processor as a percentage of the total task processor time (USRCPUT). It is calculated as:

$$((\text{USRCPUT} - \text{CPUTONCP}) / \text{USRCPUT}) * 100$$
STCPIPCT

The task processor time on standard CP that was not offload eligible as a percentage of the Summary report time interval (in seconds). It is calculated as:

$$(\text{CPUTONCP} - \text{OFFLCPUT}) / \text{Summary Report Time Interval} * 100$$
STCPPCT

The task processor time on standard CP that was not offload eligible as a percentage of the total task processor time (USRCPUT). It is calculated as:

$$((\text{CPUTONCP} - \text{OFFLCPUT}) / \text{USRCPUT}) * 100$$
TASKCNT

For Summary reporting only: the total number of tasks (CMF records).

TASKTCNT

For Summary reporting only: the total number of completed tasks (CMF termination records).

TOTCPU

The total task CPU time. This field is calculated as:

$$\text{User CPU Time (DFHTASK S008)} + \text{RLS File Request CPU Time (DFHFILE S175)}$$
TOTRECS

Total number of records in this Network Unit-of-Work Extract record. All Cross-System Work Extract records include this field. It is calculated as:

$$\text{APPLRECS} + \text{TRANROUT} + \text{FUNCSHIP} + \text{DPLRECS}$$
TRANROUT

Number of terminal-owning region records in this Network Unit-of-Work Extract record. All Cross-System Work Extract records include this field.

UOWID

Network unit-of-work ID: the first 6 bytes of NETUOWSX DFHTASK C098 that uniquely identifies this unit of work. This ID is assigned at attach time using either a STCK token (when the task is attached to a local terminal), or the network unit of work ID passed as part of an ISC APPC or IRC attach header. The system clock will wrap at intervals of several months.

UOWSEQ

Network unit-of-work ID sequence number: the last 2 bytes of NETUOWSX DFHTASK C098. This field is the period count, typically incremented at each syncpoint.

Part 8. Appendixes

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Bibliography

Additional information can be found in the following publications.

CICS Performance Analyzer books

User's Guide, SC34-2815
Report Reference, SC34-2816
Getting Started Guide, SC34-2817
Program Directory, GI13-0590

Books from related libraries

You might find the following publications useful when using CICS Performance Analyzer to analyze and tune the performance of your CICS systems.

CICS Transaction Server for z/OS Version 5.1

CICS System Definition Guide, SC34-2871
CICS Customization Guide, SC34-2847
CICS Resource Definition Guide, SC34-2868
CICS Operations and Utilities Guide, SC34-2863
CICS Supplied Transactions, SC34-2870
CICS Application Programming Guide, SC34-2844
CICS Application Programming Reference, SC34-2845
CICS System Programming Reference, SC34-2872
CICS Business Transaction Services, SC34-2846
CICS External Interfaces Guide, SC34-2854
CICS Internet Guide, SC34-2859
CICS Performance Guide, SC34-2864
CICS DB2 Guide, SC34-2850

Information Center: <http://pic.dhe.ibm.com/infocenter/cicsts/v5r1/>

CICS Transaction Server for z/OS Version 4.2

CICS System Definition Guide, SC34-7185
CICS Customization Guide, SC34-7161
CICS Resource Definition Guide, SC34-7181
CICS Operations and Utilities Guide, SC34-7213
CICS Supplied Transactions, SC34-7184
CICS Application Programming Guide, SC34-7158
CICS Application Programming Reference, SC34-7159
CICS System Programming Reference, SC34-7186
CICS Business Transaction Services, SC34-7160
CICS External Interfaces Guide, SC34-7168
CICS Internet Guide, SC34-7173
CICS Performance Guide, SC34-7177
CICS DB2 Guide, SC34-7164

Information Center: <http://pic.dhe.ibm.com/infocenter/cicsts/v4r2/>

CICS Transaction Gateway V9.0

CICS Transaction Gateway for z/OS Administration, SC34-2828

Information Center: <http://pic.dhe.ibm.com/infocenter/cicstgzo/v9r0/>

CICS Transaction Gateway V8.1

CICS Transaction Gateway for z/OS Administration, SC34-7220

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IMS Performance Analyzer for z/OS

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WebSphere MQ for z/OS System Setup Guide, SC34-6052

Tivoli Decision Support for z/OS

Administration Guide, SH19-6816

CICS Performance Feature Guide and Reference, SH19-6820

DB2

DB2 for z/OS Administration Guide, SC19-2968

Others

Threadsafe Considerations for CICS, SG24-6351

Systems Programmers Guide to: z/OS System Logger, SG24-6898

Performance Considerations and Measurements for CICS and System Logger, REDP-3768

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