IBM Software Group

CICS Performance Analyzer for z/OS Version 1 Release 3

Technical Presentation

e business software

Preface

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  - DB2, QMF
  - DFSMS/MVS, TotalStorage
  - IBM
  - MQSeries
  - OS/390, S/390, z/OS
  - RMF, Resource Measurement Facility
  - WebSphere
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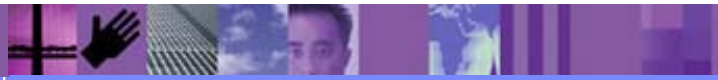
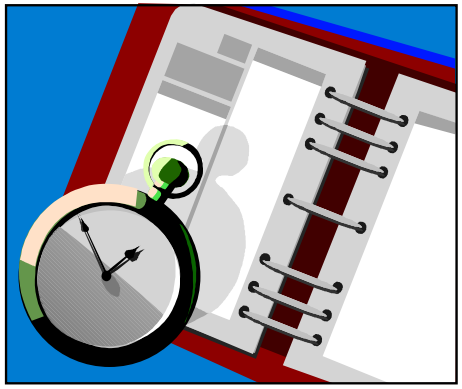


Presentation Overview



- CICS PA Overview
- CICS PA Benefits
- CICS PA Dialog ...
  - Defining your CICS Systems, DB2 Subsystems, ...
    - Definition Take-Up from an SMF File
  - Requesting Reports and Extracts
  - Tailoring ...
    - Report Forms, Selection Criteria, Object Lists, ...
- CICS PA Reports and Extracts
- CICS PA Historical Database
- Summary

What is CICS PA ?

- CICS Performance Analyzer for z/OS
  - Comprehensive Performance Reporting for CICS
    - It is NOT an Online Monitor - Batch Reporting Only!
  - CICS Monitoring Facility (CMF) data (SMF 110)
    - Performance, Resource and Exception
  - DB2 Accounting records (SMF 101)
  - WebSphere MQ Accounting records (SMF 116)
  - MVS System Logger records (SMF 88)
- Program Product - 5655-F38
  - Not part of CICS Transaction Server for z/OS
- Complements the standard CICS utilities ...
  - DFH$MOLS, DFHSTUP and DFH0STAT

CICS PA Benefits

- Ease of use ...
  - No additional setup or customization required
  - Familiar CICS terms and concepts
- ISPF Dialog to build, maintain, submit reports
  - Tailor your reports easily using Report Forms
  - Extensive online help available, field descriptions, ...
- Extensive Tabular Reports and Graph Reports
  - List, List Extended, Summary, Wait Analysis,Totals, ...
  - Resource Usage, Cross-System, MVS Workload Manager, ...
  - CICS BTS, DB2, WebSphere MQ, MVS System Logger, ...
- Extract Data Sets
  - Cross-System Work, Export, Record Selection, ...
- Historical Database Capability
  - Trending and Capacity Planning

CICS PA Benefits ...

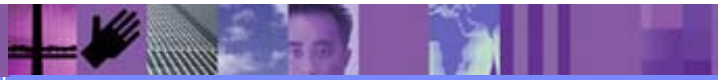
- CICS PA can help ....
  - Analyze CICS application performance
  - Improve CICS resource usage
  - Evaluate the effects of CICS system tuning efforts
  - Improve transaction response time
  - Provide ongoing system management and measurement reports
  - Increase availability of resources
  - Increase the productivity of system and application programmers
  - Provide awareness of usage trends
    - assisting future growth estimates

CICS PA Benefits - Notes

CICS PA reports on all aspects of your CICS system activity and resource usage. You can use the CICS PA Interactive System Productivity Facility (ISPF) dialog to generate your report and extract requests. The dialog assists you in building the reports and extracts specific to your requirements without you having to understand the complexity of the CICS Monitoring Facility (CMF) data, and the DB2 and WebSphere MQ Accounting data.

CICS PA provides a comprehensive suite of reports and data extracts for use by:-

- System Programmers - to track overall CICS system performance, evaluate the effects of CICS system tuning efforts.
- Applications Programmers - to analyze the performance of their applications and the resources they use.
- DBAs - to analyze the usage and performance of CICS Resource Managers and database systems such as DB2 and IMS (DBCTL).
- Managers - to ensure transactions are meeting their required Service Levels and measure trends to help plan future requirements and strategies.



CICS PA Reports and Extracts

- CICS PA reports and data extracts analyze all aspects of your CICS systems, including ...
  - CICS application performance
  - CICS system resource usage
  - Cross-System performance ...
    - including MRO, ISC and DB2 Subsystems
  - Transaction Resource Usage
    - File and Tsqueue resource usage
  - External Subsystems used by your CICS applications ...
    - including WebSphere MQ, DB2 and IMS (DBCTL)
  - MVS Workload Manager (WLM)
  - CICS Business Transaction Services (BTS)
  - Transaction Groups ...
    - CICS Web Support, IIOP, ECI over TCP/IP, ...
  - Exception events that cause performance degradation

CICS PA Reports and Extracts - Notes

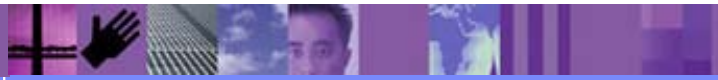
The flexibility of CICS PA allows you to easily tailor your report and extract requests to meet your specific performance reporting and analysis requirements. CICS PA allows you to keep pace with the ever-changing nature of CICS by providing a flexible and easy to use dialog that allows you to report on all aspects of your CICS system's performance.

CICS Transaction Server for z/OS Version 2.3 collects over 252 specific performance data fields in 18 groups. Also, if the monitoring MCT options APPLNAME=YES and RMI=YES are specified, then an additional 10 performance data fields in 2 groups are collected. And, if used, DBCTL adds a further 32 specialized fields. With the advent of CICS Transaction Server Version 2 and EJB support, the number of groups and data fields within existing groups continues to grow.

CICS PA can process CMF data from a single CICS system, or from multiple CICS systems that share the transaction workload by using MRO or ISC. Using the **Cross-System report** provides a consolidated report showing the complete transaction activity across connected CICS systems.

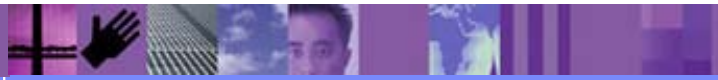
The **Transaction Resource Usage reports** provide a detailed analysis of the Resource class records collected by the CICS Monitoring Facility (CMF).

The **Workload Activity report** provides a detailed and/or summary report highlighting the MVS Workload Manager (WLM) Service Class and Report Class, and WLM reporting and completion phase used for each transaction.



CICS PA Reports and Extracts ...

- DB2 reports using DB2 Accounting records
  - List, Short Summary, Long Summary, ...
- MQ reports using WebSphere MQ Accounting records
  - List, Summary, ...
- MVS Logger reports using System Logger records
  - List, Logstream Summary, Structure Summary, ...
- Performance Data Extracts ...
  - Export (Detail or Summary)
    - Import into PC Spreadsheet and Database Tools
- Record Selection Extract ...
  - Creates a new SMF Data Set - data volume reduction
  - CICS SMF 110 CMF Performance Records
  - DB2 SMF 101 Accounting Records
  - WebSphere MQ SMF 116 Accounting Records
- Historical Database
  - Trending and Capacity Planning



CICS PA Reports and Extracts - Notes

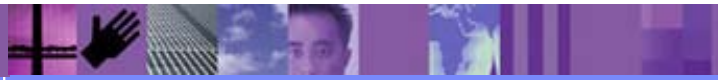
The **CICS Business Transaction Services (BTS) report** is similar to the Cross-System Work in that it is a detailed report that shows the correlation of the transactions performed by the same or different CICS systems on behalf of a single CICS Business Transaction Services (BTS) process.

The **Transaction Group** report accumulates data from one or more CICS systems, as long as the performance data is part of the same Transaction Group ID.

The **Exception List** and **Summary reports** provide a detailed analysis of the exception events recorded by the CICS Monitoring Facility (CMF).

The **DB2 reports** combine the CICS CMF performance class records (SMF 110) with the DB2 Accounting records (SMF 101) belonging to the same network unit-of-work that includes some DB2 activity to produce detail and/or summary reports showing DB2 usage for your CICS systems. The information provided in the CICS PA DB2 Reports can be used to assist in further analysis using DB2 performance reporting tools such as the IBM DB2 Performance Expert (DB2 PE).

The **WebSphere MQ reports** process WebSphere MQ Accounting (SMF 116) records to produce detail and/or summary reports of the MQ usage by your CICS systems. The MQ List reports provide a detailed analysis of the comprehensive data contained in the Class 1 (Subtype 0) and Class 3 (Subtypes 1 and 2) accounting records. The MQ Summary reports provide, summarized by either CICS Transaction ID and/or MQ queue name, an analysis of the MQ system and queue resources used and the transactions they service.



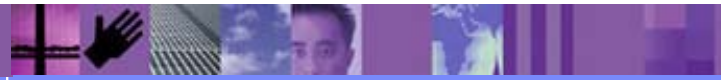
CICS PA Reports and Extracts - Notes

The **MVS Logger reports** process the MVS System Logger (SMF 88) records in order 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. These reports, when used in conjunction with the CICS Logger reports produced by the standard CICS statistics reporting utilities, provide a comprehensive analysis of the logstream activity for all your CICS systems and provide a more extensive and flexible performance reporting solution than the IXGRPT1 sample program.

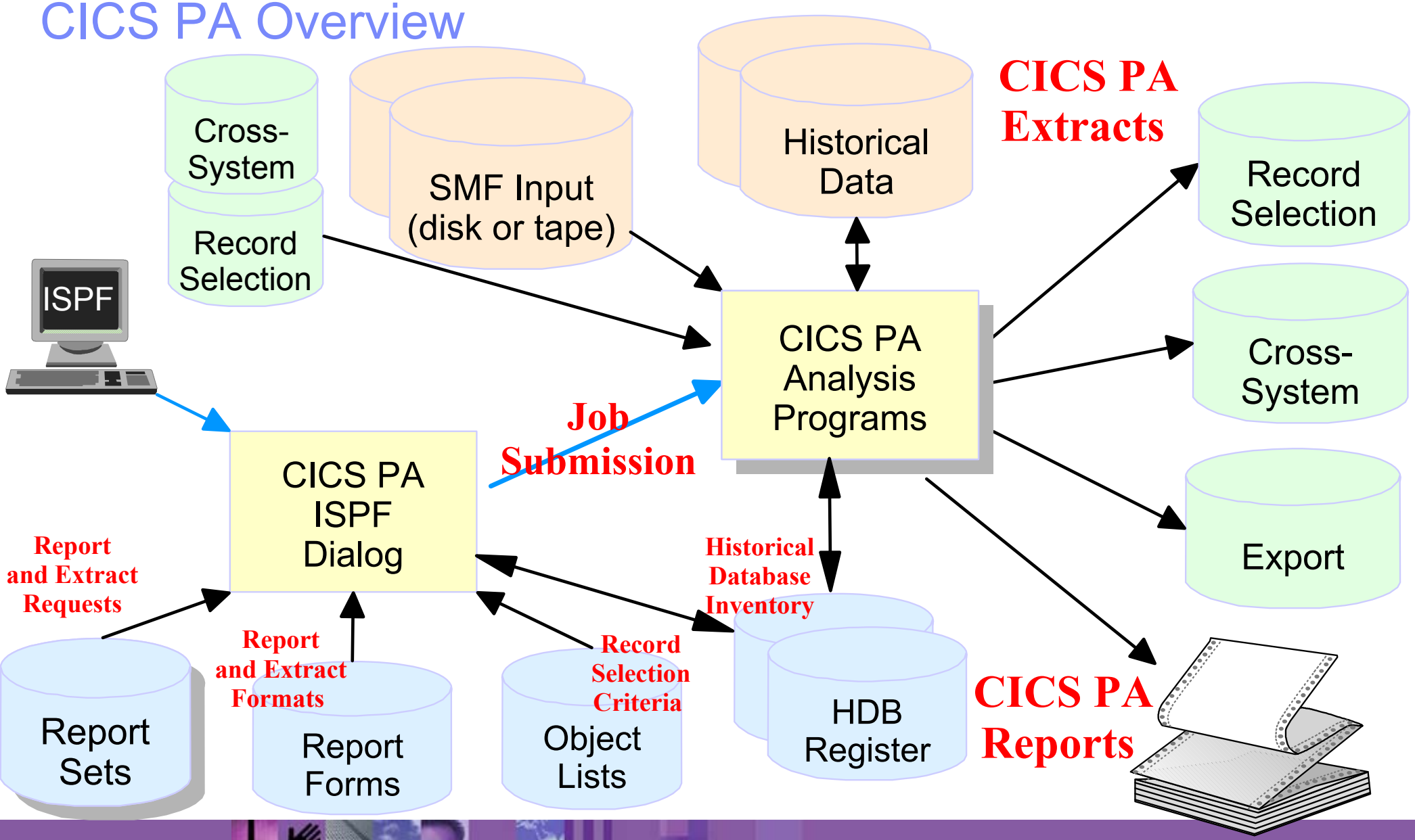
The **Cross-System Work Performance Data Extract** combines the CMF performance class records belonging to the same network unit-of-work into a single CMF record in order to provide a complete view of a transaction's CICS resource usage. The Cross-System Work Extract can then be used as input to other CICS PA reports or extracts for further analysis. The **Exported Performance Data Extract** facility creates a delimited text file of CMF performance class data which can then be imported by database or PC spreadsheet tools for further processing and analysis.

The **Record Selection Extract** provides a facility that allows you to create a smaller extract file containing only the CMF performance (and optionally DB2 Accounting and/or WebSphere MQ Accounting) records that are of interest to you. The Record Selection Extract can be used to filter large SMF files, that can then be used as input to CICS PA, allowing more efficient reporting and analysis.

The **Historical Database (HDB)** facility provides a flexible and easy-to-use facility for managing and reporting historical performance data for you CICS systems.



CICS PA Overview



CICS PA Overview - Notes

The CICS PA analysis programs use the performance and accounting data written to MVS System Management Facility (SMF) data sets. This includes the data collected by the CICS Monitoring Facility (CMF) and written as SMF type 110 records, DB2 Accounting data written as SMF type 101 records, WebSphere MQ Accounting data written as SMF type 116 records, and the MVS System Logger data written as SMF type 88 records.

You can produce all the CICS PA reports and extracts by simply defining your CICS Systems (APPLIDs), MVS Images, DB2 Subsystems, MQ Subsystems (WebSphere MQ Queue Managers), and MVS System Logger along with their associated unloaded SMF data sets.

Other CICS PA data sets include:-

1. Report Sets define your report and data extract requests.
2. Report Forms enable you to tailor your reports and extracts to include the information that you want to see.
3. Object Lists enable you to group objects for reporting purposes, e.g. Analyze the resource usage of a particular group of transactions or users.
4. HDB Register is the inventory of all information associated with the CICS PA Historical Database Manager.

More on the CICS PA data sets later in the presentation.

CICS PA - ISPF Dialog

- CICS PA Main Menu ...
  - CICS PA Profile and Settings
    - CICS PA Data Sets
  - System Definitions
  - Define Report Sets
    - Specify the reports and extracts
    - Specify the record selection criteria (optional)
    - Submit Report Sets
  - Define Report Forms
    - Tailor the report format and content (optional)
  - Define Object Lists
    - Enable record selection by a group of objects (fields)
  - Historical Database
    - Definition and maintenance of Historical Databases (HDBs)
    - Submit HDB report requests, Export HDB data sets to DB2, ...

CICS PA Main Menu

```
  File  Options  Help
V1R3M0          CICS Performance Analyzer 1.3 - Primary Option Menu
Option ===>

0  CICS PA Profile        Customize your CICS PA dialog profile
1  System Definitions     Specify CICS 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
X  Exit                   Terminate CICS PA

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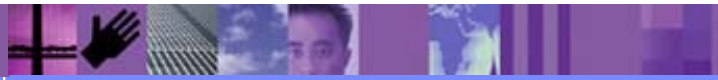
CICS PA Main Menu - Notes

The CICS PA Interactive System Productivity Facility (ISPF) dialog allows you to request and submit your report and data extract requests easily. For the more experienced user, a batch command interface is also available to request the reports and extracts.
Follow the dialog to meet your reporting and analysis requirements:-

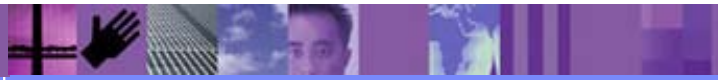
1. Customize your CICS PA dialog profile (optional). CICS PA will use default settings and prompt you to allocate data sets (with default allocation attributes) when required.
2. Define your CICS Systems (APPLIDs), MVS Images, DB2 Subsystems, MQ Subsystems (MQ Queue Managers), MVS System Logger and their associated unloaded SMF data sets.
3. Report Sets define your report and data extract requests. Here you request and tailor the required reports and extracts, then submit them for batch processing.
4. Report Forms enable you to tailor your reports and extracts to include the information that you want to see. You simply edit the report or extract format and content to meet your specific requirements. Comprehensive online help is available for every CMF field, so you never need to reference a manual.
5. Object Lists enable you to group objects for reporting purposes, e.g. Analyze the resource usage of a particular group of transactions or users.
6. Historical Database enables you to collect, process and manage historical performance data for your CICS systems.



CICS PA Profile panel (option 0)

```
  File  Options  Help
                          CICS PA Profile Options Menu
Option ===>

1  CICS PA Settings
2  Reporting Allocation Settings
3  Report Sets Data Set
4  Report Forms Data Set
5  Object Lists Data Set
X  Exit
```



CICS PA Settings panel (option 1)

```
  File  Options  Help
                              CICS PA Settings
Command ===>

Specify settings:

CICS PA Load Library . . . . . 'CBAKER.CICSPA.V1R3M0.SCPALINK'

Personal Profile Library . . . 'CBAKER.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)
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:
===> //CBAKER JOB (WINVMC,CBAKER),'CHRIS BAKER',REGION=0M
===> /*ROUTE PRINT WINVMC.CBAKER
===>
===>
```

CICS PA Profile and Settings - Notes

Selecting option 0 will cause the CICS PA Profile Options Menu to be displayed. From here you can select the CICS PA settings, reporting and data set allocations.

You would use this panel when you first start using CICS PA to create your personal profile and your CICS PA data sets.

CICS PA data sets:-

- Report Sets Data Set
- Report Forms Data Set
- Object Lists Data Set.

You may also find it useful to keep separate CICS PA data sets for production and test environments.

CICS PA System Definitions

- CICS PA System Definitions ...
  - CICS Systems (APPLIDs)
  - MVS Images
  - DB2 Subsystems
  - MQ Subsystems (WSMQ Queue Managers)
  - MVS System Logger
  - SMF File Management
  - Maintain Group definitions
  - Definition Take-Up from SMF File
    - Extract System Definitions from an SMF data set

CICS PA System Definitions ...

```
  File  Options  Help
V1R3M0          CICS Performance Analyzer 1.3 - Primary Option Menu
Option ===> 1

0  CICS PA Profile        Customize your CICS PA dialog profile
1  System Definitions     Specify CICS 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
X  Exit                   Terminate CICS PA

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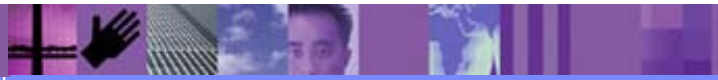


CICS PA System Definitions ...

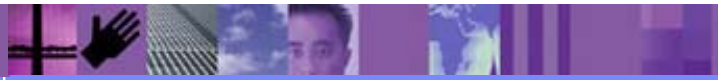
```
File  Options  Help
                        System Definitions
  File  Confirm  Options  Help
                    System Definitions Menu
Command ===>

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
```

CICS PA System Definitions - Notes

Selecting option 1 from the CICS PA Primary Option Menu will cause the CICS PA System Definitions Menu to be displayed. From here you can:-

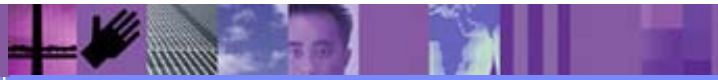
1. Define Systems, SMF files and Groups that you want to report against
2. Maintain SMF files for each System and/or for each MVS System (Image)
3. Maintain Group Definitions for reporting purposes
4. Use the Data Take-Up facility to extract details of your Systems from an SMF File for automatic take-up into your System Definitions.

You can choose to bypass this panel in the future by selecting the CICS PA System Definitions Menu System View option; the Systems View is shown on the next slide ....



CICS PA System Definitions - Systems View

```
  File  Edit  Filter  View  Options  Help
                              System Definitions                  Row 1 from 45
Command ===> NEW                                                Scroll ===> DATA

Enter "/" to select action.

                                                                          SMF Files
    System   Type     Image                Description                  System
_   DB2T     DB2      MV2C                                              DB2T
_   MV2D     Image                                                      MV2D
_   MV26LOGR Logger   SYSPLEX2             System Logger on MV26
_   MV2CLOGR Logger   MV2C                 System Logger on MV2C        MV2CLOGR
_   MV2DLOGR Logger   SYSPLEX2             System Logger on MV2D
_   SYSPLEX2 Image                         Notional Image for Sysplex2
_   IYK2Z1V1 CICS     MV2C                 My Test System CJB1 on Sysplex2  MV2C
_   IYK2Z1V2 CICS     MV2C                 My Test System CJB2 on Sysplex2
_   IYK2Z1V3 CICS     MV2C                 My Test System CJB3 on Sysplex2  MV2C
_   MV2C     Image                         MV2C Image in Sysplex2       MV2C
_   CIC1P1   CICS     CS01                 CICS Test System - 6.2       CIC1P1
_   CICSP2   CICS     CS01                 CICS Test System - 6.2
_   CS01     Image
_   C31TP4T9 CICS     CS31                                              C31TP4T9
_   CS31     Image
_   STC610R1 CICS
_   STC610R2 CICS                                                       STC610R2
_   STC610R3 CICS
_   SAMPLE   CICS     B234                 Sample System on image B234
_   B234     Image
_   CICSIMSA CICS
_   DE2D     DB2      MV2D                 System added by take-up      MV2D
```



CICS PA System Definitions - Notes

You define your CICS Systems (APPLIDs), MVS Images, DB2 Subsystems, MQ Subsystems (WebSphere MQ Queue Managers), and MVS System Loggers to CICS PA so that:-

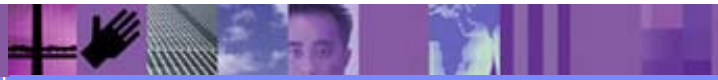
- they can be requested for report and data extract processing
- the SMF files containing the data can be defined.

You can specify SMF data sets for each System (CICS, DB2, MQ, Logger) and/or for each MVS System (Image) where they execute.

In addition, each CICS System can belong to one or more Groups. This allows you to easily use CICS PA to "connect" CICS Systems (APPLIDs) that are connected using MRO or APPC and also to their DB2 Subsystems, MQ Subsystems (WebSphere MQ Queue Managers), and MVS System Logger for reporting purposes. CICS PA Reports and Extracts can be requested for:-

- All CICS Systems (APPLIDs) that are defined to CICS PA
- Selected CICS Systems (APPLIDs)
- CICS Systems (APPLIDs) belonging to a particular MVS Image
- CICS Systems (APPLIDs) belonging to a Group, in order to create consolidated reports, e.g. a group of related regions using MRO or a particular DB2 Subsystem or MQ Subsystem.
- DB2 Subsystem or MQ Subsystem (WSMQ Queue Manager)
- MVS System Logger.

The main purpose of this panel and the other related panels is to connect the input SMF data sets to CICS Systems, MVS Images, DB2 Subsystems, MQ Subsystems, and MVS System Loggers.



CICS PA System Definitions - New System

```
  File  Edit  Filter  View  Options  Help
- ___________ System Definitions ___________   ___________________________
  |             New System                                   Row 1 from 45
C | Command ===> ____________________________           Scroll ===> DATA
  |
E | Specify the name and type of system.
  |                                                          SMF Files
  | System Name  . . ________                ion              System
  |                                                           DB2T
  | System Type  . . 1  1. CICS System                        MV2D
  |                     2. MVS Image
  |                     3. DB2 Subsystem                      MV2CLOGR
  |                     4. MQ Subsystem
  |                     5. System Logger     on Sysplex2      MV2C
  |___________________________________________ x2              MV2C
  CICSP2   CICS     CS01     CICS Test System - 6.2
  CS01     Image
  C31TP4T9 CICS     CS31                                      C31TP4T9
  CS31     Image
  STC610R1 CICS
  STC610R2 CICS                                               STC610R2
  STC610R3 CICS
  SAMPLE   CICS     B234     Sample System on image B234
  B234     Image
  CICSIMSA CICS
  DE2D     DB2      MV2D     System added by take-up          MV2D
```

Defining your CICS Systems - Part 1

```
File  Edit  Filter  View  Options  Help
                          System Definitions
  File  Edit  Dictionary  View  Options  Help
                              CICS System                Row 1 of 2 More: >
Command ===>                                             Scroll ===> DATA

CICS System definition:
 APPLID . . . . . . . . CICSP2    MVS Image . . CS01
 Description  . . . . . CICS Test System - 6.2
 CICS Version (VRM) . . 620
 MCT Suffix . . . . . . 62
 MCT Load Library . . . 'CICS.MCT.LOAD'
 SDFHLOAD Library . . . 'CICS.V620.TLIB.CICS.SDFHLOAD'
 Dictionary DSN . . . . 'CICSP.CICSP2.DICTREC'

/ Exc              SMF Data Set Name +                UNIT +  SEQ VOLSER +
_      CICSPA.SMF110.SAMPLE1
_   *  CICSPA.SMF110.SAMPLE2
******************************** End of lis
```

Files used by CICS system CICSP2

- You need only define the APPLID to start reporting
- All other fields are optional, but ...
  - Specify the MVS Image in order to simplify the SMF file definition

Defining your CICS Systems - Notes

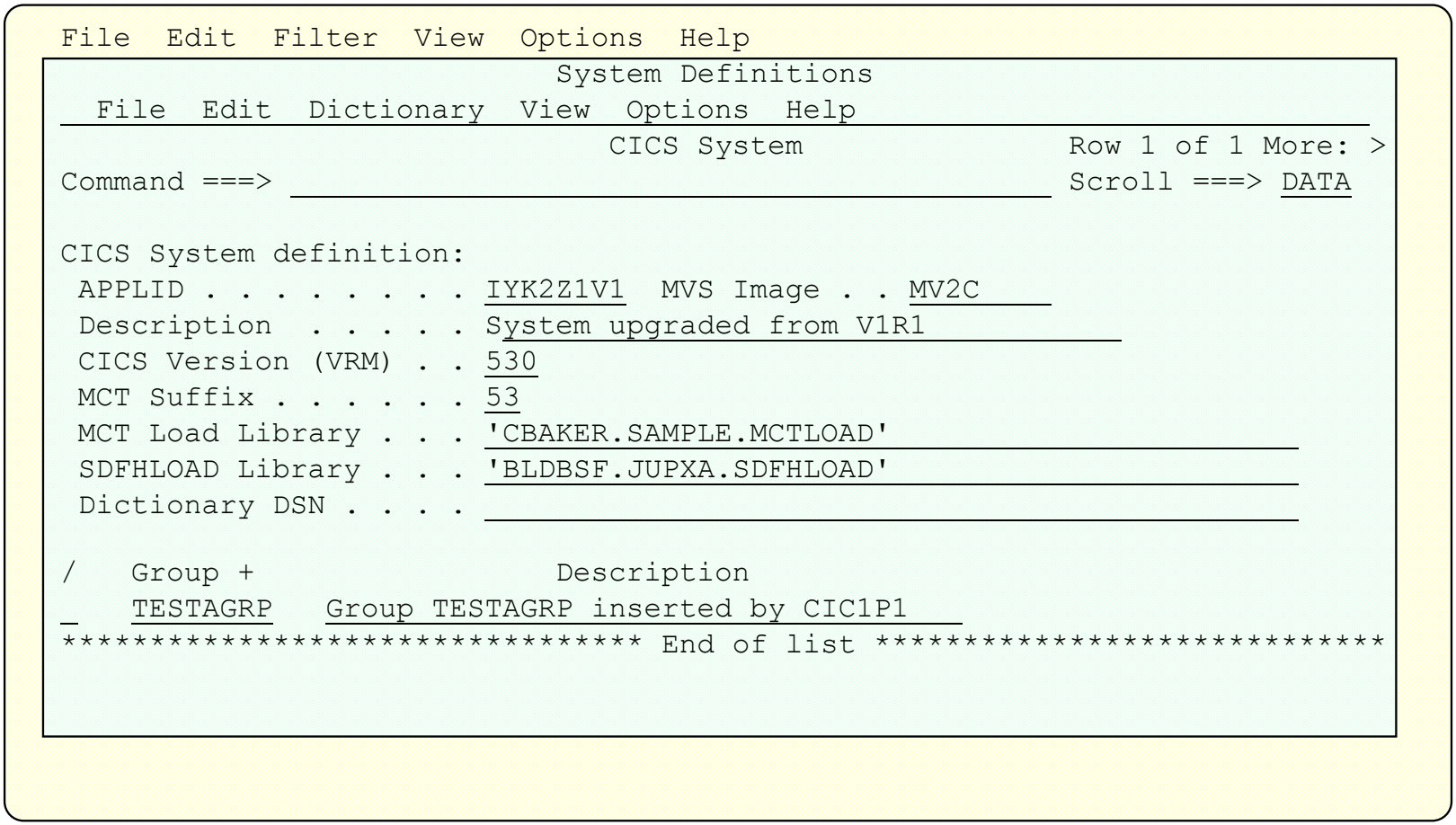
You define your CICS Systems generic **APPLID** here to prepare it for report and extract processing. You need only define the APPLID to start reporting. All other fields are optional. Specify an **MVS Image** to define which system the CICS System (APPLID) belongs to. This enables you to:-

- Request reporting by MVS Image - CICS Systems (APPLIDs) belonging to that MVS Image are selected
- Define SMF files to the MVS Image so that you need only define your SMF files once - CICS Systems (APPLIDs) on this MVS Image can share SMF files.

Specify the **MCT Suffix** to include your CMF User Fields.
Build a **Dictionary DSN** to contain the CMF dictionary record for those times when the SMF file does not contain one, so that reporting can start immediately. CICS CMF uses a dictionary record to "map" the CMF performance class records. CICS writes a dictionary record when the CICS Monitoring Facility starts, but not when SMF switches data sets. CICS PA only needs a dictionary record if you wish to include your CMF User Fields (from user defined EMPs in the MCT) in your reports and extracts. Otherwise, CICS PA uses the default dictionary record for the version of CICS you are reporting.

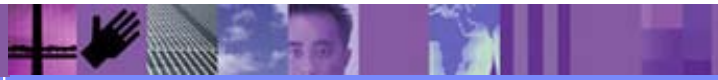
You can specify **SMF Files** that are used by this CICS system. Specific SMF data sets can be Excluded which means they will not be used in reporting.

Defining your CICS Systems - Part 2



Defining your CICS Systems - Notes

When defining each CICS System you can also specify the **Groups** that this CICS System belongs to (scroll Right). Define MRO or ISC connected regions to the same Group. When you request reporting by Group, all CICS systems belonging to the same Group are selected for consolidated (i.e. Cross-System) reporting.



Defining your MVS Images

```
 File  Edit  Filter  View  Options  Help
 ─────────────────────────── System Definitions ───────────────────────────
|  File  Edit  View  Options  Help                                         |
|                              MVS Image                 Row 1 of 1 More: > |
| Command ===> ____________________________________________ Scroll ===> DATA |
|                                                                          |
| MVS Image definition:                                                    |
|  MVS Image  . . . . . MV2C                                               |
|  Description  . . . . Image inserted by System IYK2Z1V1                  |
|                                                                          |
| / Exc                  SMF Data Set Name +                 UNIT +  SEQ VOLSER + |
| _      CICSPA.SMF110.SAMPLE1                                             |
| _      CICSPA.SMF110.SAMPLE2                                             |
| ******************************** End of lis                              |
|__________________________________________________________________________|
```

Files used by all systems defined
on MVS Image MV2C

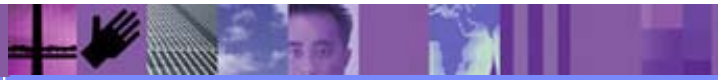
- Report on all Systems on an MVS Image
  - Define SMF data sets to the MVS Image ...
  - All Systems on the image will use these SMF data sets

Defining your MVS Images - Notes

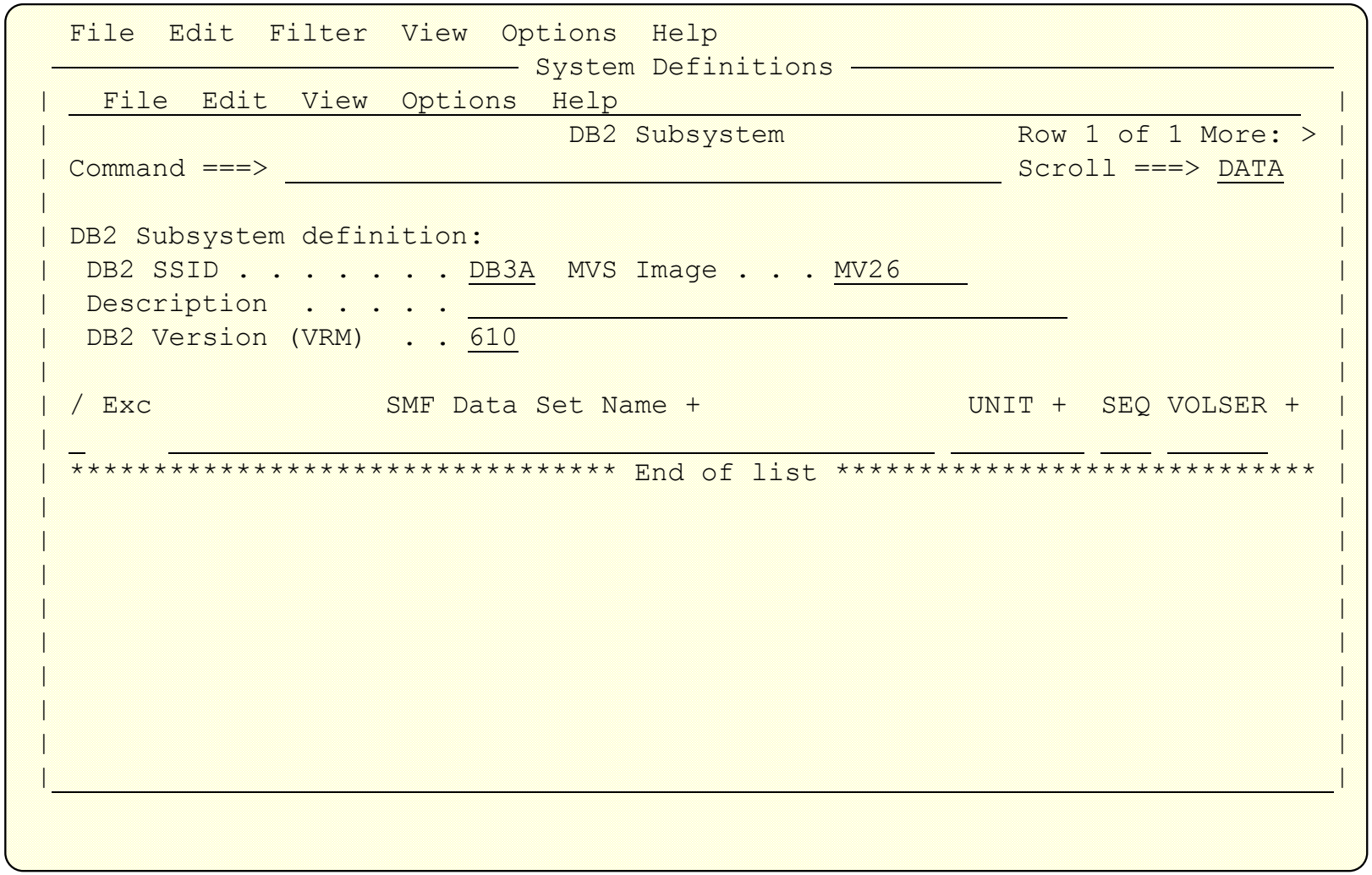
You define your MVS Systems (Images) to CICS PA so that:-

- you can report against all Systems (CICS, DB2, WebSphere MQ, MVS System Logger, ...) running on an MVS System (Image)
- the SMF data sets containing the SMF data can be defined.

You can specify the MVS (SMF) System (Image) so that you need only define your SMF data sets once. Specific SMF data sets can be Excluded which means they will not be used in reporting. You can also specify SMF data sets for each System (CICS, DB2 Subsystem, WebSphere MQ Queue Manager, MVS System Logger).



Defining your DB2 Subsystems



Defining your DB2 Subsystems - Notes

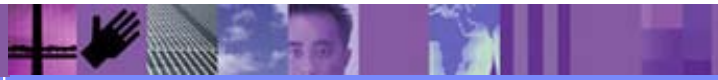
You define your DB2 Subsytems to CICS PA so that:-

- they can be requested for report and data extract processing
- the SMF files containing the DB2 Accounting (SMF 101) data can be defined.

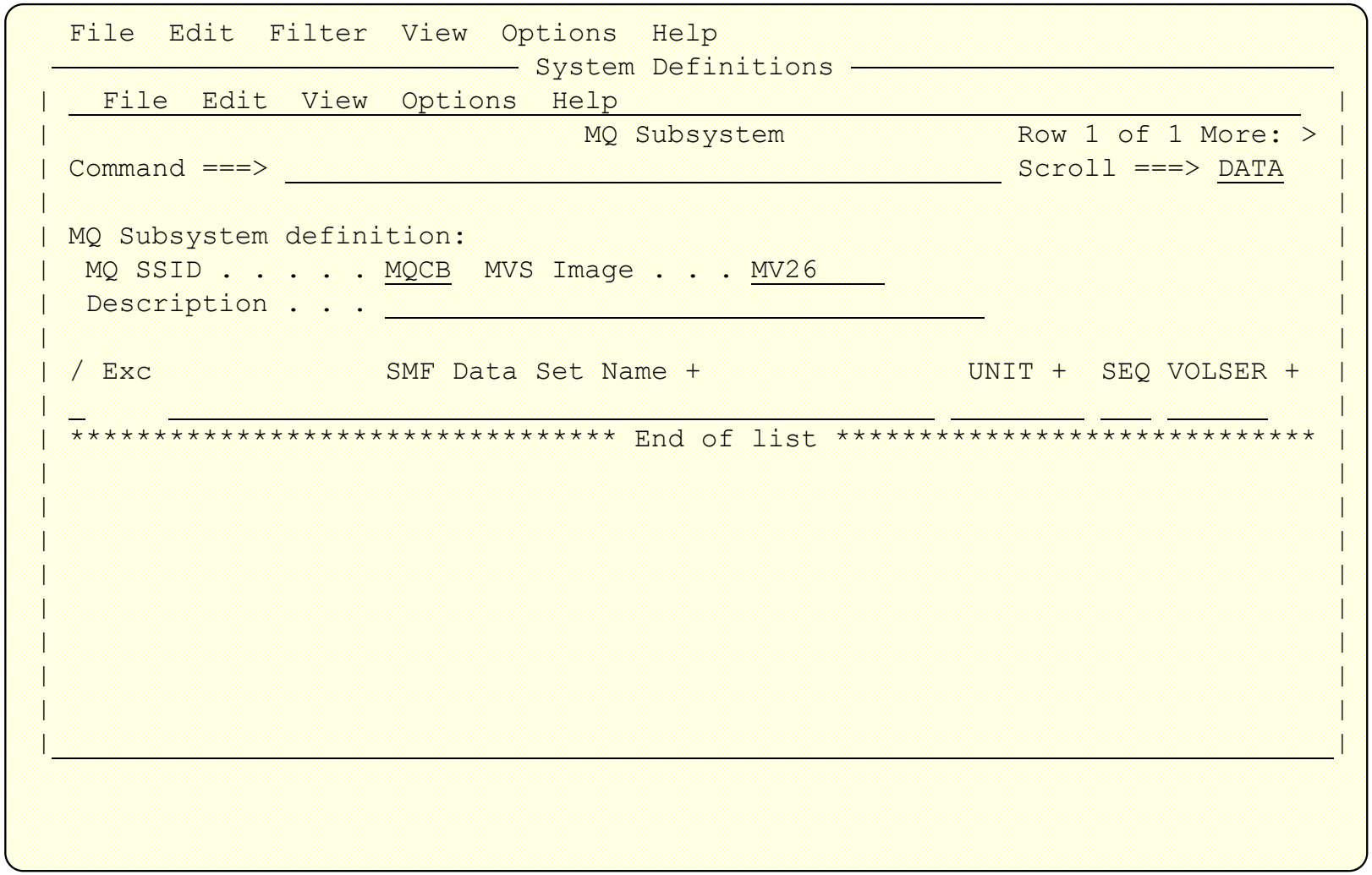
In addition, each DB2 Subsystem can belong in one or more Groups. This allows you to easily use CICS PA to "connect" DB2 Subsystems with their CICS Systems (APPLIDs) in the same Group.

CICS PA Reports and Extracts can be requested for:-

- All DB2 Subsystems that are defined to CICS PA
- Selected DB2 Subsystems
- DB2 Subsystems belonging to a particular MVS Image
- DB2 Subsystems belonging to a Group, in order to create consolidated reports, e.g. a group of CICS Systems and the DB2 Subsystems they use.



Defining your MQ Subsystems (WSMQ Queue Manager)



Defining your MQ Subsystems - Notes

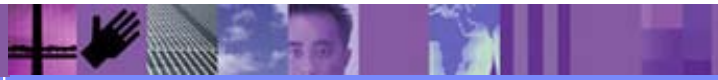
You define your MQ Subsystems (WebSphere MQ Queue Managers) to CICS PA so that:-

- they can be requested for report and data extract processing
- the SMF files containing the WebSphere MQ Accounting (SMF 116) data can be defined.

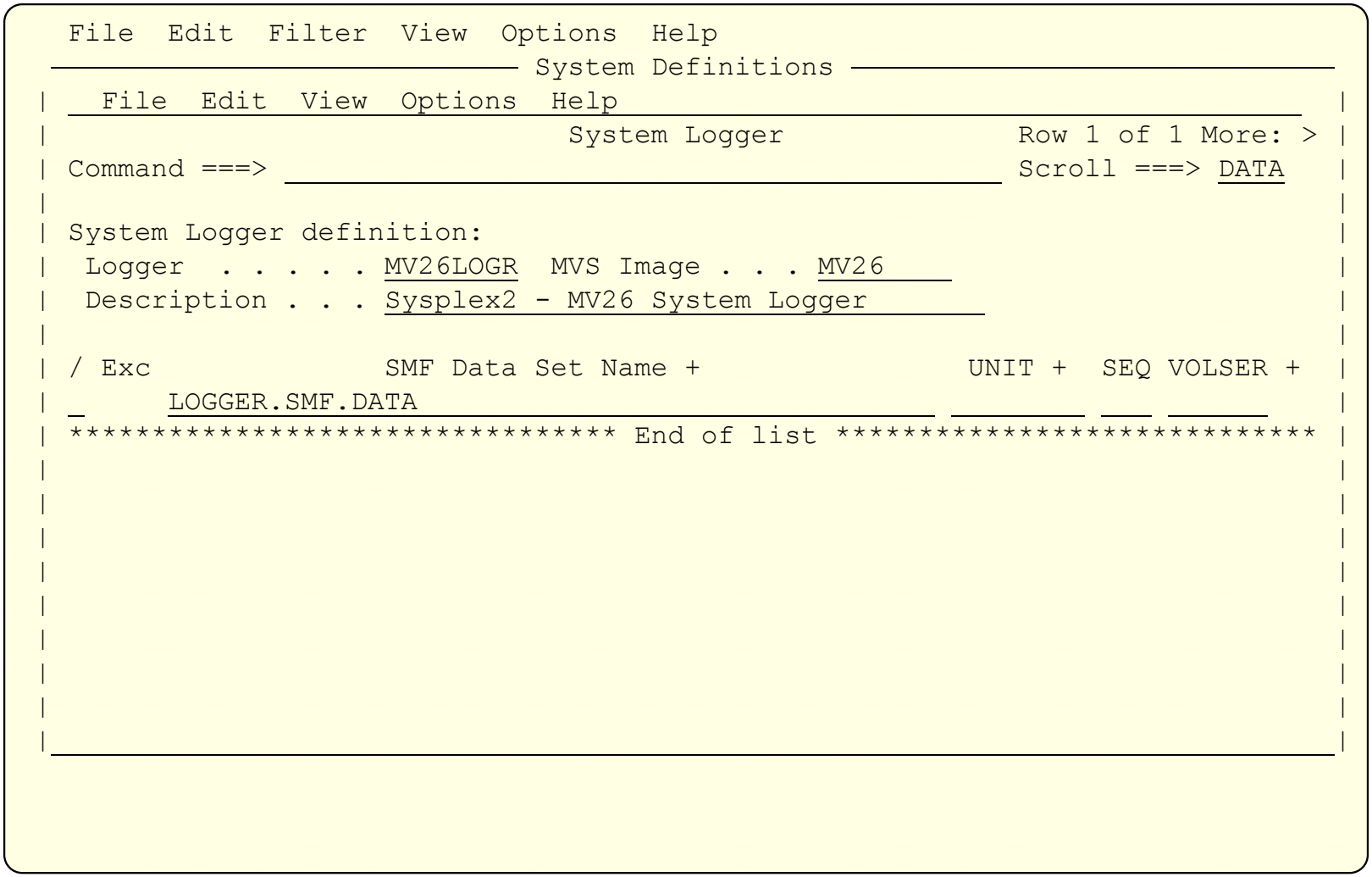
In addition, each MQ Subsystem (WSMQ Queue Manager) can belong in one or more Groups. This allows you to easily use CICS PA to "connect" MQ Subsystems (WebSphere MQ Queue Managers) with their CICS Systems (APPLIDs) in the same Group.

CICS PA Reports and Extracts can be requested for:-

- All MQ Subsystems (WebSphere MQ Queue Managers) that are defined to CICS PA
- Selected MQ Subsystems (WSMQ Queue Managers)
- WebSphere MQ Queue Managers belonging to a particular MVS Image
- WebSphere MQ Queue Managers belonging to a Group, in order to create consolidated reports, e.g. a group of CICS Systems and the WebSphere MQ Queue Managers they use.



Defining your MVS System Logger



Defining your MVS System Logger - Notes

You define your MVS System Loggers to CICS PA so that:-

- they can be requested for report and data extract processing
- the SMF files containing the SMF data can be defined.

In addition, each MVS System Logger can belong in one or more Groups. This allows you to easily use CICS PA to "connect" MVS System Loggers with their CICS Systems (APPLIDs) in the same Group.

CICS PA Reports and Extracts can be requested for:-

- Selected MVS System Loggers
- MVS System Logger belonging to a particular MVS Image
- MVS System Loggers belonging to a Group, in order to create consolidated reports, e.g. a group of related MVS System Loggers and their CICS Systems.

CICS PA System Definition - SMF Files

```
  File  Edit  Filter  View  Options  Help
                                 SMF Files                         Row 1 from 14
Command ===>                                                    Scroll ===> CSR

Select to review the Systems that use the SMF data set.

/   Use              SMF Data Set Name                    UNIT +  SEQ VOLSER +
S     3  CICSPA.SMF110.SAMPLE1
_     2  CICSPA.SMF110.SAMPLE2
_     2  JGRAUEL.C31TP4T9
_     1  JGRAUEL.SMF110S.D0619
_     1  SMF110.SAMPLE
_     1  SMF110.SAMPLE1
_     1  'CBAKER.SMF.STC610R2'
_     1  LOGGER.SMF.DATA
_     1  DB2.SMF.DATA3
_     0  DB2.SMF.DATA2
_     0  DB2.SMF.DATA1
_     1  'CBAKER.DB2.SMF.DATA3'                         DASD
_     1  'CBAKER.SZ1500.H95.L19.A4000.L30.JN03.TW202'   DASD
_     1  'CBAKER.STLABC4.D020112A.MANX'                 DASD
********************************* End of list *********************************
```

- SMF File maintenance
  - Display system definitions that reference an SMF file

System Definition - SMF Files - Notes

Selecting option 2 from the CICS PA System Definitions Menu will display the list of SMF files that are defined and/or referenced by the CICS PA system definitions.

This panel is used to maintain SMF data sets that you want to run your Report Sets against. 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 System Definitions that reference this SMF data set.

Selecting a specific SMF file from the list will display the CICS PA System Definitions that reference the SMF file as shown on the next slide ....

CICS PA System Definition - SMF Files

```
  File   Edit   Filter   View   Options   Help
 ──────────────────────────── System Definitions ──────────────────────────
|   File   Edit   Options   Help                                            |
|                           Systems with this File            Row 1 to 3 of 3 |
| Command ===> ____________________________________________ Scroll ===> CSR  |
|                                                                            |
| Data Set Name . . : CBAKER.CICSPA.SMF110.SAMPLE1                           |
|                                                                            |
| /  Exc   System +  Type      Image                  Description            |
| _        IYK2Z1V1  CICS      MV2C      My Test System CJB1 on Sysplex2     |
| _        IYK2Z1V3  CICS      MV2C      My Test System CJB3 on Sysplex2     |
| _        MV2C      Image               MV2C Image in Sysplex2              |
| ********************************* End of list *************************** |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|____________________________________________________________________________|
```

CICS PA System Definition - Groups

```
  File  Edit  Filter  View  Options  Help
                                  Groups                          Row 1 from 3
Command ===> ____________________________________________ Scroll ===> CSR

Select to review the Systems in the Group.

/   Use  Group                  Description
_     2  MROGROUP  My Sysplex2 MRO Group CJB1/CJB3
_     2  STCMRO     STC MRO Group
S    13  STM4       MVS Image STM4 Group
******************************** End of list ********************************
```

- Display and/or Update the Systems in a Group
  - Used to relate a group of systems for reporting purposes
    - MRO regions (TOR, AOR, etc) and the DB2 Subsystem(s) or MQ Queue Manager(s) they use
  - Request reporting by Group ...
    - CICS Systems (APPLIDs), DB2 Subsystems, and MQ Queue Managers belonging to that Group can be selected for consolidated (i.e. Cross-System Work, DB2 List, DB2 Summary, MQ List or MQ Summary) reporting

CICS PA System Definition - Groups - Notes

Selecting option 3 from the CICS PA System Definitions Menu will display the Groups that are defined to CICS PA. Use Groups to connect systems that are to be reported as a single entity;
i.e. MRO regions or a CICS DOR region and the DB2 Subsystem and/or MQ Subsystem (WSMQ Queue Manager) it uses.

Specify **Groups** to connect Systems (CICS, DB2, MQ, System Logger, ...):-

- Define MRO and ISC connected CICS regions to the same Group
- Define their "connected" DB2 Subsystems and/or MQ Subsystems (WSMQ Queue Managers)
- Request reporting by Group - CICS Systems (APPLIDs), DB2 Subsystems and/or MQ Subsystems (WSMQ Queue Managers) belonging to that Group are selected for consolidated (i.e. Cross-System Work, DB2 List, DB2 Summary, MQ List, or MQ Summary) reporting.

Selecting a specific group will display the systems that are defined in the group; as shown on the next slide ....

CICS PA System Definition - Groups ...

```
 File  Edit  Filter  View  Options  Help
 ---------------------------- System Definitions -------------------------
|   File  Edit  Options  Help                                              |
|                            Systems in this Group          Row 5 to 14 of 14 |
| Command ===> ___________________________________________ Scroll ===> CSR  |
|                                                                          |
| Group . . . . . . . STM4                                                 |
| Description . . . Dave's CICS/DB2 Configuration                          |
|                                                                          |
| /  System +  Type      Image                 Description                 |
| _  STM4IRT2  CICS      964       System added by take-up                  |
| _  STM4IRT3  CICS      964       System added by take-up                  |
| _  STM4IRT4  CICS      964       System added by take-up                  |
| _  STM4IRT5  CICS      964       System added by take-up                  |
| _  STM4IRT6  CICS      964       System added by take-up                  |
| _  STM4IRT7  CICS      964       System added by take-up                  |
| _  STM4IRT8  CICS      964       System added by take-up                  |
| _  STM4IRT9  CICS      964       System added by take-up                  |
| _  CH1G      DB2       964       System added by take-up                  |
| _  964       Image               System added by take-up                  |
| ********************************* End of list *************************** |
```

Definition Take-Up from SMF File

```
   File  Edit  Filter  View  Options  Help
              System Definitions
  |   File  Options  Help                                          |  10
C |  ------------------------------------------------------------------  |  SR
                    Data Take-Up from SMF
O   Command ===> ____________________________________________________

S   Specify the SMF File for data take-up.

0   Data Set name . . . 'CBAKER.DB2.SMF.DATA3'______________________
1
2   Specify details if data set is not cataloged:
3    UNIT  . . . . . . 3390____  +  VOLSER  . . . . _______ +
4    SEQ Number  . . ___  (1 to 255)
X
    Execution Mode
U   1  1. Submit Batch JCL
       2. Edit Batch JCL
```

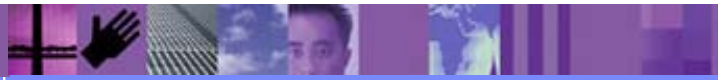
```
V1R3M0    08:16:27  7/23/2003                              CICS Performance Analyzer
                                                              Take-up from SMF

CPA2011I  Processing started for SMF File SMFIN001
CPA2030I  CMF records for System MV2D start at  7/17/2001  9:17:09:69
CPA2041I  DB2 Accounting Record found, DB2 SSID=DE2D    , Release=6.1
CPA2021I  CMF record for CICS system found, APPLID=IYK2Z2G1, Release=6.2.0
CPA2041I  DB2 Accounting Record found, DB2 SSID=DE2D    , Release=6.1
CPA2041I  DB2 Accounting Record found, DB2 SSID=DD2D    , Release=5.1
CPA2013I  Processing ended for SMF File SMFIN001, 4 Systems found
CPA2005I  CICS PA has completed processing, RC=0
```

Definition Take-Up from SMF File - Notes

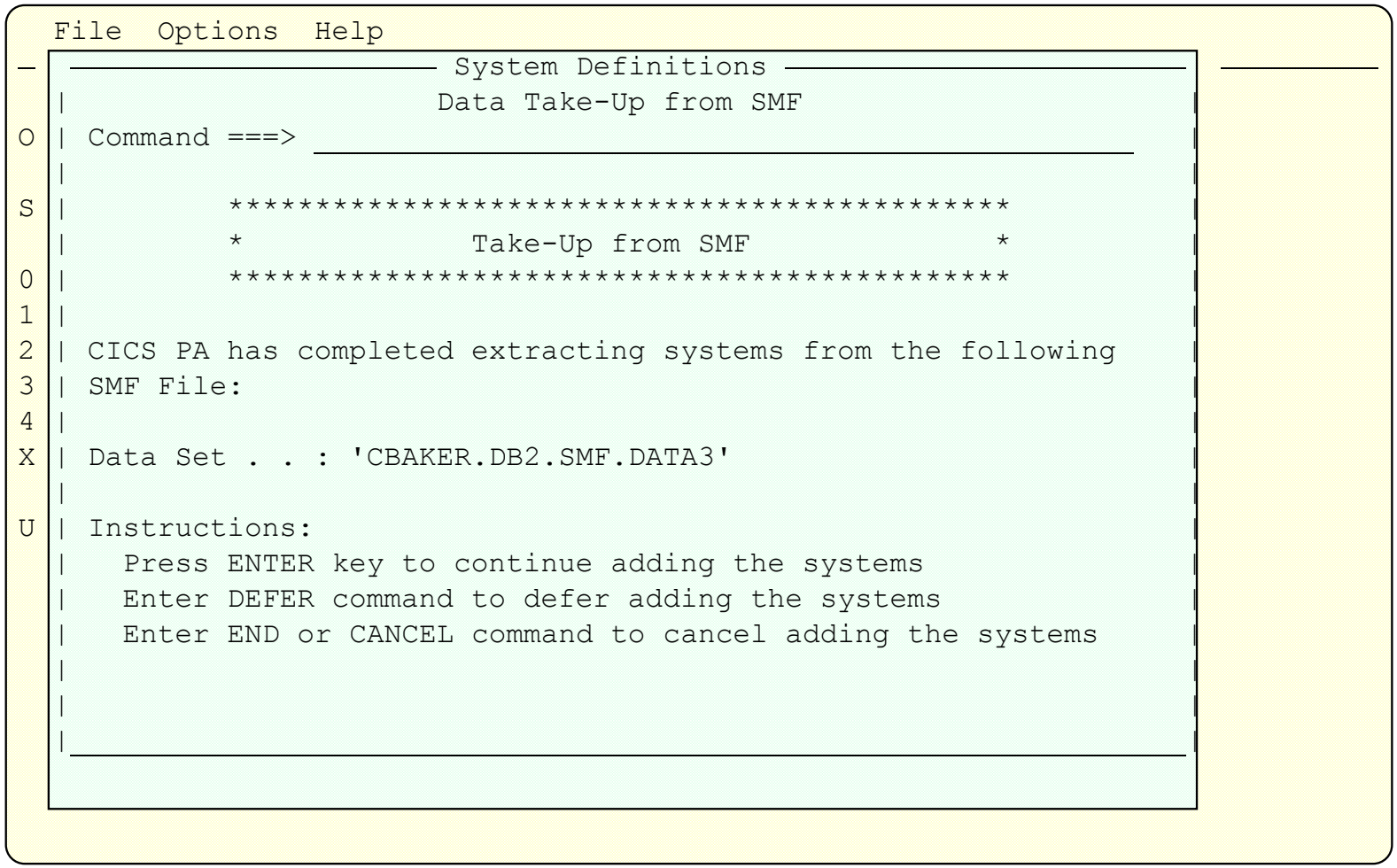
Selecting option 4 from the CICS PA System Definitions Menu will display the Data Take-Up panel. Using the data Take-Up facility CICS PA can automatically populate your System Definitions with details extracted from SMF files. This panel allows you to specify details of an SMF File for data take-up.

A batch job is generated to extract the take-up details from the SMF data set. When you next invoke System Definitions, you will be prompted by CICS PA to update your System Definitions with the results of the batch job.

This slide also shows an example of the CICS PA report generated from the Data Take-Up utility.

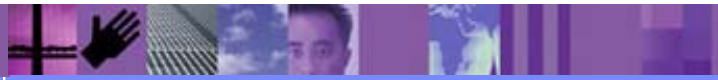


Take-Up from SMF File



System Definition - Hints and Tips

- Take your time setting up your System Definitions
  - Use the System Definition Take-Up facility for the initial setup
  - You only need to create Dictionary records if you want to include any user fields in a report using a report form!
- Consider your Reporting Requirements ...
  - Use 'Groups' to simplify your reporting requests ...
    - Production, Test, ...
    - Cross-System Work, MVS Workload Actvity, DB2 List, MQ List, ...
- Use the MVS Image definition to associate SMF Files
  - All Systems defined on the MVS image will use these files
- Running a second System Definition Take-Up ...
  - If the definitions already exist - only the SMF File is added
    - But the SMF file is NOT added to the MVS Image definition



System Definition - Hints and Tips - Notes

It is strongly recommended that you take your time when initially setting up your CICS PA System Definitions. Consider your reporting requirements, for example:-

- A Group of production or test CICS Systems
- A Group of CICS Systems, their related DB2 Subsystems and MQ Queue Managers ....

With CICS PA, you do NOT need to create dictionary records as CICS PA will automatically determine the availability of each performance data field requested for a report, even if data fields have been excluded from the performance record using the Monitoring Control Table (MCT) field exclude facility. You only need to create dictionary records if you want to include any user data fields defined by Event Monitoring Points (EMPs) in a report using a report form.

The simplest method of maintaining the relationship of the CICS Systems, DB2 Subsystems, and WebSphere MQ Queue Managers, etc, to their SMF Files is to associate the SMF File data set names to their MVS Image definition.

When running a second or subsequent Take-Up for CICS PA System Definitions and the definitions already exist, then only the SMF file data set name will be added. The SMF file data set name will also not be added to any existing MVS Image definition.

Report Sets panel (option 2)

```
   File   Systems   Confirm   Options   Help
 ------------------------------------------------------------------------------
                                Report Sets                      Row 1 to 11 of 11
 Command ===> ________________________________________________  Scroll ===> CSR

 Report Sets Data Set  . . .  CBAKER.CICSPA.RSET

 Select a Report Set to edit or run.

  /    Name              Description                      Changed          ID
 ___  JT1      CICS PA Report Set                     2001/07/17 12:45 CBAKER
 ___  PLIST    CICS PA Report Set                     2001/06/14 11:24 CBAKER
 ___  PLIST1   CICS PA Report Set                     2001/03/20 15:46 CBAKER
 ___  PSUMM    CICS PA Report Set                     2001/03/27 15:04 CBAKER
 ___  REPORT1  CICS PA Report Set                     2001/07/17 16:22 CBAKER
 ___  SUMMTOD  Summary by Time of Day                 2001/08/06 14:32 CBAKER
 ___  TEST     CICS PA Report Set                     2001/08/06 14:23 CBAKER
 ___  TEST1    CICS PA Report Set                     2001/05/16 18:15 CBAKER
 ___  WEBRPT1  CICS PA Report Set                     2001/08/01 14:53 CBAKER
 ___  XSYS1    CICS PA Report Set                     2001/06/14 11:30 CBAKER
 ___  ZEM      CICS PA Report Set                     2001/07/20 10:58 CBAKER
 ******************************** End of list ********************************
```

Requesting Reports and Extracts ...

```
   File   Systems   Confirm   Options   Help
 EDIT                      Report Set - TEST1                     Row 1 of 20
 Command ===> ________________________________________________ Scroll ===> CSR

 Description . . . CICS PA Report Set ________________

 Enter "/" to select action.

 ___          ** Reports **                              Active
      +  ___  Options                                      No
      +  ___  Selection Criteria                           No
      -  ___  Performance Reports                          No
              ___  List                                    No
              ___  List Extended                           No
              ___  Summary                                 No
              ___  Totals                                  No
              ___  Wait Analysis                           No
              ___  Cross-System Work                       No
              ___  Transaction Group                       No
              ___  BTS                                     No
              ___  Workload Activity                       No
      + ___   Exception Reports                            No
      + ___   Transaction Resource Usage Reports           No
      - ___   Subsystem Reports                            No
              ___  DB2                                     No
              ___  WebSphere MQ                            No
      + ___   System Reports                               No
      + ___   Performance Graphs                           No
      + ___   Extracts                                     No
              ** End of Reports **
```

Select the reports that you wish to run

Requesting Reports and Extracts - Notes

Report Sets are where you specify, save and run your report requests. A Report Set contains a set of report and extract requests to be submitted and run as a single job. You can define any number of Report Sets and any number of reports and extracts can be included in a single Report Set. CICS PA provides a comprehensive set of reports, graphs, and data extracts:-

The **Performance List**, **List Extended** and **Summary reports** provide detailed analysis of CICS transaction activity and performance.

The **Performance Totals report** provides a comprehensive resource usage analysis of your entire CICS system, or an individual transaction.

The **Performance Wait Analysis report** provides a detailed analysis of transaction activity by wait time. This report summarizes, by transaction ID, the resources that cause a transaction to be suspended and highlights the CICS system resource bottlenecks that may be causing bad response time.

The **Cross-System Work report** combines the CICS CMF performance class records from connected CICS (via MRO or ISC) systems to produce a consolidated network unit-of-work (UOW) report.

The **Transaction Group report** accumulates data from one or more CICS systems, as long as the performance data is part of the same Transaction Group ID.

Requesting Reports and Extracts - Notes ...

The **CICS Business Transaction Services (BTS) report** combines CMF performance records from a single or multiple CICS systems to produce a consolidated BTS process (root activity id) report.

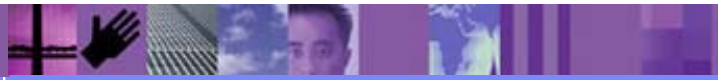
The **Workload Activity (WLM) report** provides a detailed listing and/or summary of the segments of work (transactions) performed on behalf of a single network unit-of-work id. The report highlights the MVS Workload Manager (WLM) Service Class and Report Class, and the WLM reporting and completion phase used for each transaction.

The **Exception List** and **Summary reports** provide a detailed analysis of the exception events recorded by the CICS Monitoring Facility (CMF).

The **Transaction Resource Usage reports** provide detailed analysis of the transaction resource records collected by the CICS Monitoring Facility (CMF). The Transaction Resource Usage List report shows a detailed analysis of the file and temporary storage resources used by each transaction ID.

The Transaction File Usage Summary report shows the File Resource Usage summarized for each Transaction ID and the File Usage Summary report summarizes by Filename the file resource usage by Transaction ID.

The Transaction Temporary Storage Usage Summary report shows the Temporary Storage Queue Resource Usage summarized for each Transaction ID and the Temporary Storage Usage Summary report summarizes by Tsqname the temporary storage resource usage by Transaction ID.

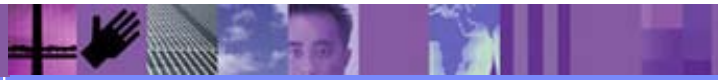


Requesting Reports and Extracts - Notes ...

For the **DB2 reports**, CICS PA processes CICS CMF (SMF 110) performance class records and DB2 Accounting (SMF 101) records to produce detail and/or summary reports of the DB2 usage by your CICS systems. The DB2 List report shows the DB2 activity of each transaction and the DB2 Summary report (Short or Long) summarizes the DB2 activity by transaction and program within APPLID.

For the **WebSphere MQ reports**, CICS PA processes WebSphere MQ Accounting (SMF 116) records to produce detail and/or summary reports of the MQ usage by your CICS systems. The MQ List reports provide a detailed analysis of the comprehensive data contained in the Class 1 (Subtype 0) and Class 3 (Subtypes 1 and 2) accounting records. The MQ Summary reports provide, summarized by either CICS Transaction ID and/or MQ queue name, an analysis of the MQ system and queue resources used and the transactions they service.

The **System Logger reports** process MVS System Logger (SMF 88) records to provide information on the MVS System Logger logstreams and coupling facility structures that are used by CICS Transaction Server for logging, recovery and backout operations.



Requesting Reports and Extracts - Notes ...

The **Cross-System Work extract** is a performance data extract consolidated by network unit-of-work id which shows the total resource usage of each transaction.

The **Export data extract** is a performance data extract formatted as a delimited text file which can be then imported into PC spreadsheet or database tools for further processing and analysis. Detail and/or Summary Data Extracts can be created and the record format can be tailored using Report Forms to include information to meet your specific reporting and analysis requirements.

The **Record Selection Extract** is a facility that allows you to create a smaller extract file containing only the CMF performance (and optionally DB2 Accounting and/or WebSphere MQ Accounting) records that are of interest to you. The Record Selection Extract filters large SMF files, that can then be used as input to CICS PA, allowing more efficient reporting and analysis.

Selection Criteria enables you to filter the CMF data for your reports and extracts using any field or combinations of fields. e.g. to include data only for a particular transaction id, user id, or only for a specific period of time.

Report Sets - Global Options

```
  File  Systems  Options  Help
                          DB2TEST1 - Global Options
Command ===> ____________________________________________________________

System Selection:
 CICS APPLID . . ________  +  Image . . ________  +  Group . . ________  +
 DB2 SSID  . . . ____  +      Image . . ________  +  Group . . ________  +
 MQ SSID . . . . ____  +      Image . . ________  +  Group . . ________  +
 Logger  . . . . ________  +  Image . . ________  +  Group . . ________  +

Report Formatting Options:
 Print Lines per Page . . 60    (1-255)
 Time Zone  . . . . . . . -8    (Blank for system default or -12 to +12 hours)
 Date Delimiter . . . . . /
 Time Delimiter . . . . . :
```

Report Sets - Global Options - Notes

The Report Set Global Options define general control information applying to all the reports and extracts in a Report Set and include System Selection and Report Formatting Options. Report-level specifications take precedence over global.

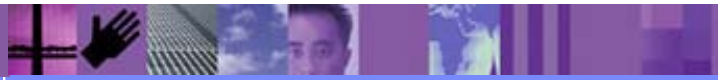
The Global System Selection Option can be specified for CICS Applids, DB2 Subsystems, MQ Subsystems, and the MVS System Logger, or for MVS Images or Groups and will be applied to all the reports and in the Report Set.

The Report Formatting Options include; Print Lines per Page, Time Zone, Date and Time Delimiters.

The Print Lines per Page is the maximum number of lines to print on each page, 60 lines per page is the default. The Date and Time delimiters of a slash '/' and a colon ':' specify the separator character for the date and time-of-day in the reports and extracts. Any character or a space can be specified.

The Time Zone can only be set at the Global Option level and specifies the number of hours east or west of GMT. For example; to synchronize the CMF and DB2 time-stamps, specify the ZONE operand to match the time zone of the SMF data. However, if you are correlating DB2 report data between CICSPA and DB2 PM, then you might like the CICS PA DB2 time-stamps to be reported in GMT so that they can be more easily matched. The Effect of ZONE(0) is to report all times (CMF and DB2) in GMT.

Note: The Global System Selection and Print Lines per Page option can be overridden for each individual Report or Extract in the Report Set.



Requesting a Performance List Report

```
  File  Systems  Options  Help
                    REPORT1 - Performance List Report
Command ===> ____________________________________________________________

System Selection:                        Report Output:
 APPLID . . CICSP1    +                   DDname . . . . . . . . . LIST0001
 Image  . . _____     +                   Print Lines per Page . . ___   (1-255)
 Group  . . _____     +

Report Format:
 Form . . . _____     +
 Title  . . ____________________________________________________________
            ____________________________________________________________

Selection Criteria:
 _  Performance
```

Specify the report options

Requesting a Performance List Report - Notes

The Performance List Report provides a detailed list of the CMF performance class records.

Each CICS PA report has a panel showing all the options available for that report.

The most common report options are:-

- **System Selection** - The APPLID, Image, or Group of Systems that are to be reported.
- **Report Output** - The DDname of the output file to contain the report. CICS PA will automatically generate a unique DDname for each report.
- **Report Format** - The Report Form that will be used to select the report columns. e.g. show the File Control (FC) request counts and elapsed times.
- **Title** - The Title of the report. Specify up to 128 characters of text to describe the report which CICS PA will print at the top of each page of the report below the heading.
- **Selection Criteria** - Filter the report based on date and time, or any CMF field values; e.g. Report Transaction IDs matching HR* with a response time greater than 0.5 seconds.

Requesting a Performance List Report - Default

V1R2M0 CICS Performance Analyzer
Performance List

LIST0001 Printed at 15:17:27 1/21/2002 Data from 11:10:29 2/04/1999 APPLID IYK2Z1V1 Page 1

Tran	SC	Term	Userid	RSID	Program	TaskNo	Stop Time	Response Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time	FC Wait Time	FCAMRq	IR Wait Time
CSSY	U		CBAKER		DFHAPATT	16	11:10:29.803	.0139	.0007	.0006	.0133	.0000	.0000	0	.0000
CSSY	U		CBAKER		DFHAPATT	17	11:10:29.809	.0185	.0010	.0014	.0175	.0001	.0000	0	.0000
CSSY	U		CBAKER		DFHAPATT	18	11:10:29.861	.0674	.0196	.0027	.0479	.0269	.0000	0	.0000
CGRP	U		CBAKER		DFHZCGRP	12	11:10:30.194	.4123	.0420	.0074	.3702	.3223	.0000	0	.0000
CSSY	U		CBAKER		DFHAPATT	15	11:10:30.207	.4204	.0568	.0100	.3636	.1744	.0000	0	.0000
CSSY	U		CBAKER		DFHAPATT	13	11:10:30.456	.6743	.0728	.0134	.6015	.4000	.0000	0	.0000
CSSY	U		CBAKER		DFHAPATT	10	11:10:30.531	.7498	.1910	.0228	.5588	.1997	.0000	0	.0000
CSSY	U		CBAKER		DFHAPATT	14	11:10:31.121	1.3344	.3202	.0378	1.0142	.2626	.0000	1	.0000
CSSY	U		CBAKER		DFHAPATT	11	11:10:31.211	1.4292	.1497	.0313	1.2794	.3461	.0000	0	.0000
CPLT	U		CBAKER		DFHSIPLT	7	11:10:45.642	15.9915	.3383	.0369	15.6532	.0155	.0000	0	.0000
CSSY	U		CBAKER		DFHAPATT	III	11:10:45.856	16.0761	9.3488	2.3435	6.7273	1.1645	.9522	2059	.0000
CWBG	S		CBAKER		DFHWBGB	24	11:10:46.196	.0262	.0248	.0041	.0013	.0012	.0000	0	.0000
CRSQ	S		CBAKER		DFHCRQ	25	11:10:46.856	.0818	.0449	.0040	.0369	.0367	.0000	0	.0000
CXRE	S		CBAKER		DFHZXRE	27	11:10:47.134	.2255	.0243	.0049	.2011	.2009	.0000	0	.0000
CLR2	TO	R11	CBAKER		DFHLUP	29	11:10:48.317	.0263	.0030	.0020	.0232	.0000	.0000	0	.0232
CSFU	S		CBAKER		DFHFCU	26	11:10:48.471	1.6968	1.5899	.1136	.1069	.0294	.0000	0	.0000
CSAC	TO	SAMA	CBAKER		DFHACP	31	11:10:51.227	.5217	.0028	.0011	.5189	.0002	.0000	0	.0000
CLQ2	U		CBAKER		DFHLUP	28	11:10:51.840	3.8259	.0818	.0068	3.7441	.0035	.0000	0	3.7344
CEMT	TO	SAMA	CBAKER		DFHEMTP	32	11:10:51.942	.1877	.1842	.0264	.0035	.0030	.0000	0	.0000
CEMT	TO	SAMA	CBAKER		DFHEMTP	33	11:10:52.549	.0091	.0068	.0026	.0023	.0001	.0000	0	.0000
CEMT	TO	SAMA	CBAKER		DFHEMTP	34	11:10:53.074	.0092	.0068	.0025	.0024	.0000	.0000	0	.0000
CSAC	TO	SAMA	CBAKER		DFHACP	35	11:10:54.113	.5109	.0042	.0012	.5067	.0001	.0000	0	.0000
CSAC	TO	SAMA	CBAKER		DFHACP	36	11:10:55.159	.5150	.0011	.0011	.5139	.0001	.0000	0	.0000

.....

Performance List Report - Default - Notes

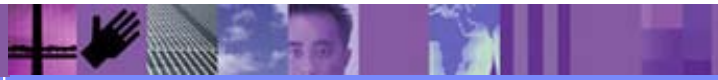
The Performance List Report provides a detailed list of the CMF performance class records.

The default report format (shown on the previous slide) details the performance related information for each transaction.

The report format can be tailored using Report Forms to include information more specific to your requirements.

Any CMF data field (including User-Defined EMPs) can be included in the Performance List Report.

Report Forms are discussed in more detail later in the presentation.



Filtering the Report

```
  File  Edit  Object Lists  Options  Help
                    WEBRPT1 - Performance Select Statement  Row 1 of 9 More: >
Command ===>                                                  Scroll ===> CSR

         Active  --------------- Report Interval ----------------
   Inc   Start   -------- From ---------  --------- To ----------
   Exc   Stop    YYYY/MM/DD  HH:MM:SS.TH  YYYY/MM/DD  HH:MM:SS.TH
_  INC   ACTIVE              09:00:00.00              16:00:00.00

-------------------------------------------------------------------------------

   Inc   Field                  ----- Value or Range -----   Object
/  Exc   Name +     Type +  Value/From        To             List +
_  INC   TRAN               WB*
S  EXC   WBTOTAL            0
_
_
*** ******
```

```
  File  Edit  Object Lists  Options  Help
 ----------------- WEBRPT1 - Performance Select Statement -------------------
|  File  Help                                                                |
|   -------------------- Select a Performance Field ----------------------
|
| C |  File  Help                                                        | |
|   |                                           Row 258   String found   | |
| N | Command ===> find wbrepwct                        Scroll ===> CSR  | |
| C |                                                                    | |
|   |     Field                                                          | |
|   | /   Name      Description                                          | |
| - | _   WBREPWCT  Shared TS Repository write requests                  | |
|   | _   WBSEND    Web SEND requests                                    | |
| * | S   WBTOTAL   Web Total requests                                   | |
|   | _   WBWRITE   Web WRITE requests                                   | |
|   | ******************************** End of list ********************** |
|
 -- |                                                                    |-
```

Filtering the Report - Notes

All the CICS PA reports and extracts can be filtered using Selection Criteria. You can specify:-

- Global Selection Criteria that applies to all the reports and extracts in a report set
- Local Selection Criteria that applies to a single report or extract.

You can also specify Selection Criteria in a Report Form in order to apply filtering that is applicable to the resources being reported.

The example shown on the visual demonstrates the power of the Selection Criteria. In this example, the transactions are only considered for reporting if:-

1. They were active between 9am and 4pm
2. Transaction ID names match the mask WB*
3. They performed at least 1 CICS Web request.

For character fields, the masking characters % and * are allowed as well as the ability to select null fields by specifying two single quotes.

Most of the CMF fields can be specified in Selection Criteria. Not knowing the field names is never a problem. Simply select from a pop-up list of the CMF field names, which includes a description, the CMF ID, and optional extended information. You can also use the FIND command to help locate the field in the list.

Filtering the Report (Scroll Right) - User Fields ...

```
  File  Edit  Object Lists  Options  Help
                    WEBRPT1 - Performance Select Statement  Row 1 of 9 More: >
Command ===> ____________________________________________________ Scroll ===> CSR

         Active  --------------- Report Interval ----------------
   Inc   Start   -------- From ---------  --------- To ----------
   Exc   Stop    YYYY/MM/DD  HH:MM:SS.TH  YYYY/MM/DD  HH:MM:SS.TH
_  INC   ACTIVE  __________  09:00:00.00  __________  16:00:00.00

------------------------------------------------------------------------------

   Inc  Field                                        - User Field -
/  Exc  Name +    Length  Dictionary Definition     Offset  Length
_  INC  TRAN           4  TRAN      DFHTASK C001     ___      ___
_  EXC  WBTOTAL        4  WBTOTWCT  DFHWEBB A235     ___      ___
_  ___  _________                                    ___      ___
_  ___  _________                                    ___      ___
_  ___  _________                                    ___      ___
******************************** End of list ********************************
```

Object Lists panel (option 4)

```
  File  Confirm  Options  Help
                                  Object Lists                    Row 1 to 2 of 2
Command ===> ____________________________________________________ Scroll ===> PAGE

Object Lists Data Set  . . . CBAKER.CICSPA.OBJL

Enter "/" to select action.

     Name              Description                Changed        ID
__ TEST      CICS PA Object List              2001/08/02 11:07 CBAKER
__ WEBRPT1   CICS PA Object List              2001/08/01 14:43 CBAKER
******************************** End of list ********************************
```

- An Object List defines a list of field values
  - Enables you to define a group of related values once

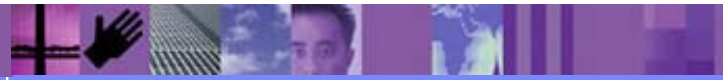
Object Lists - Notes

This panel is displayed in response to selecting option 4 from the main menu. It is used to create, modify or view Object Lists.

An Object List defines a list of field values that can be used when specifying record Selection Criteria.

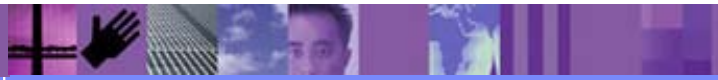
A typical use for an Object List might be to define all the Transaction IDs that belong to a particular application system.

Object Lists enable you to define a group of related values once, then you simply refer to the Object List name when specifying the record Selection Criteria in a Report Set. Object Lists can be defined hierarchically, eliminating duplication, and thereby reducing list maintenance effort and improving the integrity of lists.



Object Lists ...

```
  File   Edit   Confirm   Options   Help
                        EDIT Object List - USERS                Row 1 to 2 of 2
Command ===> ____________________________________________________ Scroll ===> CSR

Specify the Object List values:

Description  . . . . CICS Users - Group A

Enter "/" to select action.

     1st Value   2nd Value   Sublist
_    CB*         _________   ________
_    AR*         _________   ________
******************************** End of list ********************************
```



Job Submission

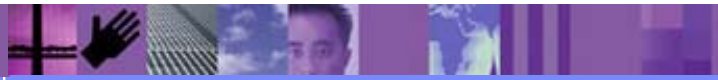
- Use the CICS PA ISPF dialog ...
  - Select from Report Sets (menu option 2)
  - Select the RUN option to build the JCL
  - Review the JCL, modify, SUBMIT the job stream for execution
    - Store the job stream(s) in a JCL library (optional)
- To view the output ...
  - Use SDSF (System Display Search Facility), or ...
  - ISPF option 3.8, Outlist Utility

Job Submission - Notes

You can use the CICS PA ISPF dialog to generate the JCL to run a CICS PA Report Set and then use the TSO SUBMIT command to submit the job stream for execution.

After the job has been executed you can then use either the SDSF (System Display Search Facility) or ISPF option 3.8, Outlist Utility, to view the reports.

You can also capture the job streams created by CICS PA and store them in your JCL library and submit them from there or as part of any job scheduling or automation process.



Job Submission - RUN Command ...

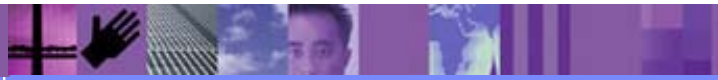
```
  File  Systems  Options  Help
                          Run Report Set DB2REPTS
Command ===> ____________________________________________________________

Specify run Report Set options then press Enter to continue submit.

System Selection:
 CICS APPLID . . CICSP1__  +  Image . . ________  +  Group . . ________  +
 DB2 SSID  . . . ____  +      Image . . ________  +  Group . . ________  +
 MQ SSID . . . . ____  +      Image . . ________  +  Group . . ________  +
 Logger  . . . . ________  +   Image . . ________  +  Group . . ________  +

 _  Override System Selections specified in Report Set

_______ Start Reporting ________     _______ Stop Reporting _________
Date  __________   (YYYY/MM/DD)     Date  __________   (YYYY/MM/DD)
Time  __________   (HH:MM:SS.TH)     Time  __________   (HH:MM:SS.TH)

Execution Mode:                     Missing SMF Files Option:
2  1. Submit Report Set             1  1. Issue error message
   2. Edit JCL before submit           2. Leave DSN unresolved in JCL
                                       3. Disregard offending reports
```

- Specifying System Selection at Run-time ...
  - Use the automatic prompt facility (F4) to select the required system

System Selection at Run-Time - Notes

When you submit a CICS PA report request using the RUN command, you are prompted to supply:-

1. **System Selection** - specify the **CICS system** or **Group of systems** that you wish to report against. Use the automatic prompt facility to select the required system or group.
2. **Override System Selections** - specify this option to override all System Selections in the Report set (Global Options and individual reports) with the System Selection specified here at run-time.
3. **Report Time Range** - optionally specify the **date and time range** of the SMF data that you wish to report. This reduces the volume of data and enables more efficient processing.



Job Submission - SDSF Utility ...

```
   Display  Filter  View  Print  Options  Help
------------------------------------------------------------------------------
 SDSF JOB DATA SET DISPLAY - JOB CBAKERX  (JOB04051)    LINE 1-10 (10)
 COMMAND INPUT ===>                                      SCROLL ===> CSR
 NP    DDNAME   StepName ProcStep DSID Owner    C Dest                Rec-Cnt PAGE
       JESMSGLG JES2                2 CBAKER   H LOCAL                    20
       JESJCL   JES2                3 CBAKER   H LOCAL                    29
       JESYSMSG JES2                4 CBAKER   H LOCAL                    81
       SYSPRINT CICSPA            102 CBAKER   H LOCAL                    78
       SYSOUT   CICSPA            103 CBAKER   H LOCAL                    30
       LIST0001 CICSPA            104 CBAKER   H LOCAL                 2,691
 S     SUMM0001 CICSPA            105 CBAKER   H LOCAL                   444
       WKLD0001 CICSPA            106 CBAKER   H LOCAL                    26
       XSUM0001 CICSPA            107 CBAKER   H LOCAL                    14
       WAIT0001 CICSPA            108 CBAKER   H LOCAL                 1,488
```

Job Submission - Outlist Utility ...

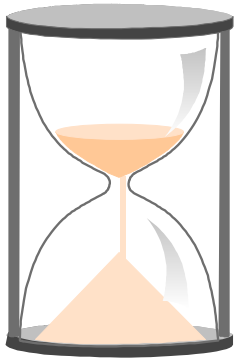
```
  Menu  Utilities  Help
                                Outlist Utility
Option ===>

    L List job names/id(s) via the TSO STATUS command
    D Delete job output from SYSOUT hold queue
    P Print job output and delete from SYSOUT hold queue
    R Requeue job output to a new output class
blank Display job output

For Job to be selected:
   Jobname  . . CBAKERX
   Class  . . . H
   JobID  . . .

For Job to be requeued:
   New Output class  . . _

For Job to be printed:
   Printer Carriage Control  . . _          (A for ANSI    )
                                            (M for machine )
                                            (Blank for none)
```

Job Submission - Outlist Utility ...

```
  Menu  Utilities  Compilers  Help
 ------------------------------------------------------------------------------------------------------------------------------------
 BROWSE    CBAKER.SPF135.OUTLIST                                                                               Line 00000262 Col 001 132
 Command ===>                                                                                                           Scroll ===> CSR
»
. V1R2M0                                                    CICS Performance Analyzer
.                                                               Cross-System Work
.                                                ___________________________________________________
.CROS0001 Printed at  7:24:46  3/27/2002 Data from 11:10:29  2/04/1999 to 08:10:06  2/16/1999                           Page       2
.
.
.                                        Request           Fcty  Conn                       UOW                R              Response
.Tran Userid   SC TranType Term  LUName   Type    Program  T/Name Name NETName               Seq APPLID      Task T   Stop Time      Time
.
.TRUE BRENNER  TO U        S208  IGCS208  AP:     CALLCB1  T/S208      GBIBMIYA.IGCS208        1 IYK2Z1V1     249 D 11:29:32.677   1.1158
.
.TRUE BRENNER  TO U        S208  IGCS208  AP:     CALLCB1  T/S208      GBIBMIYA.IGCS208        1 IYK2Z1V1     257 T 11:30:14.621   2.0967
.TRUE BRENNER  TO U        S208  IGCS208  AP:     CALLCB1  T/S208      GBIBMIYA.IGCS208        1 IYK2Z1V1     257 D 11:30:12.525    .0002
.TRUE BRENNER  TO U        S208  IGCS208  AP:     CALLCB1  T/S208      GBIBMIYA.IGCS208        1 IYK2Z1V1     257 D 11:30:12.524   1.0683
.
.TRUE BRENNER  TO U        S23C  IGCS23C  AP:     CALLCB1  T/S23C      GBIBMIYA.IGCS23C        1 IYK2Z1V3     171 T 11:17:23.394   2.0973
.TRUE BRENNER  TO U        S23C  IGCS23C  AP:     CALLCB1  T/S23C      GBIBMIYA.IGCS23C        1 IYK2Z1V3     171 D 11:17:21.297    .0002
.TRUE BRENNER  TO U        S23C  IGCS23C  AP:     CALLCB1  T/S23C      GBIBMIYA.IGCS23C        1 IYK2Z1V3     171 D 11:17:21.297   1.0325
.
.SALE BRENNER  U  U      R                AP:     DFH0SAL2             GBIBMIYA.IGCS23C        1 IYK2Z1V3     175 T 11:17:32.054    .5675
.STOC BRENNER  U  U      R                AP:     DFH0STOC             GBIBMIYA.IGCS23C        1 IYK2Z1V3     177 T 11:17:32.053    .5145
.RED1 BRENNER  U  U      R                AP:     DFH0RED1             GBIBMIYA.IGCS23C        1 IYK2Z1V3     176 T 11:17:32.050    .5333
```

Requesting Reports and Extracts - Hints and Tips

- Using Monitoring Control Table (MCT) Exclude?
  - Some CICS PA Reports require specific CMF fields ...
    - Cross-System Work, MVS Workload Activity, Transaction Group, ...
  - Review the CMF field tables in the *CICS PA Report Reference*
- Beware of potentially "LARGE" reports, particularly ...
  - Cross-System Work, MVS Workload Activity, Transaction Group, ...
  - DB2 List, and MQ List Reports, ...
  - Use the CICS PA Record Selection Extract
- Consider creating a small SMF test file ...
  - Useful for testing purposes ...
    - Report Forms, Extracts, ...
  - Use the CICS PA Record Selection Extract ...
    - Selection Criteria, ...

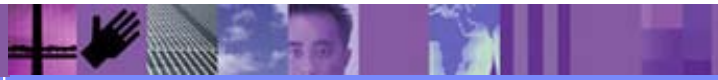


Requesting Reports and Extracts - Hints and Tips - Notes

If you are using a Monitoring Control Table (MCT) with fields excluded in order to reduce the size of the CMF performance class records this may prevent CICS PA from being able to accurately create some of the reports. For example, the CICS PA Cross-System Work (Report and Extract), MVS Workload Activity, Transaction Group, and CICS BTS Reports all require particular fields to be collected. It is recommended that you review the performance data field tables in the CICS PA Report Reference manual for these reports and extracts to ensure that the required fields are collected by the CICS Monitoring Facility (CMF).

You should be aware that even with a relatively small amount of SMF data some of the CICS PA reports can potentially be very large indeed. This is particularly the case for reports such as the Cross-System Work, Workload Activity, Transaction Group, DB2 List and MQ List reports. You might want to consider using some of the CICS PA record selection functions, such as date/time record selection or a record selection extract, to limit the amount of SMF data that is processed.

Using the CICS PA Record Selection Extract can be particularly useful in creating a small SMF data set which can make it much easier to test new report forms or data extracts before they are used in a production environment against very large SMF data sets.



Report Forms

```
  File  Options  Help
V1R3M0          CICS Performance Analyzer 1.3 - Primary Option Menu
Option ===> 3

0  CICS PA Profile        Customize your CICS PA dialog profile
1  System Definitions     Specify CICS 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
X  Exit                   Terminate CICS PA

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```
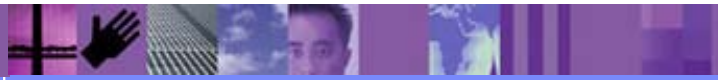

Report Forms ...

- Report Forms allow you to ..
  - Tailor the content and format of your Reports and Data Extracts
    - Report Titles and Selection Criteria may also be specified
  - Over 90 sample Report Forms provided with CICS PA
    - Every aspect of CICS transaction activity and resource usage ...
      - CPU, Storage Usage, Request Analysis, ...
      - CICS RMI Analysis, Abend Analysis, DBCTL, SOAP for CICS, ...
      - Worst CPU, File, Temporary Storage, Transient Data usage, ...
  - Supported on ..
    - Performance List, List eXtended, and Summary Reports
    - Cross-System Work Report
    - Performance Data Extract

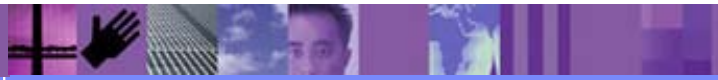


Report Forms - Notes

Report Forms are used to define the content and fomat of your reports and data extracts. The various form types can be used by different reports and data extracts, depending on whether they are compatible. i.e. Summary style reports/extracts use Summary Forms. The available form types are:-

- List
- List eXtended (Sorted)
- Summary
- Model (use an existing Report Form as a basis for a new one).

By selecting option 3 from the main menu, the Report Forms panel will be displayed. The panel shown on the next slide shows the Report Form types that have already been defined. Each report form can be selected in order to modify it as shown in the example that follows ....

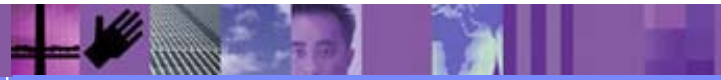


Report Forms panel (option 3)

```
  File  Confirm  Samples  Options  Help
                                Report Forms                    Row 1 to 9 of 9
Command ===> ____________________________________________________ Scroll ===> PAGE

Report Forms Data Set  . . . CBAKER.CICSPA.FORM

Enter "/" to select action.

    Name     Type                Description                  Changed        ID
__ DB2TEST1 LIST    List Report Form                    2001/07/17 12:37 CBAKER
__ DB2TEST2 LIST    List Report Form                    2001/07/17 12:44 CBAKER
__ FCLIST   LIST    List Report Form                    2001/08/02 09:30 CBAKER
__ PLIST    LIST    List Report Form                    2001/05/30 14:05 CBAKER
__ PLIST1   LIST    List Report Form                    2001/04/10 15:37 CBAKER
__ SAMPLE   LIST    List Report Form                    2001/06/14 11:28 CBAKER
__ SUMMTOD  SUMMARY Summary by Time of Day              2001/08/01 14:43 CBAKER
__ TEST     LIST    List Report Form                    2001/08/02 11:06 CBAKER
__ TEST1    LIST    List Report Form                    2001/05/16 18:13 CBAKER
******************************** End of list ********************************
```

Report Forms ...

```
---------------------------- Report Forms -----------------------------
  File  Systems  Options  Help
                            New Report Form        Enter required field
Command ===>

Specify the name of the new Report Form and its options:

Name  . . . . . . FCLIST

APPLID  . . . . . CICSP1    +  Version (VRM) . . 630
MVS Image . . . . _

                                _  Field Categories

Form Type or Model . . 1  1. List
                          2. List Extended (Sorted)
                          3. Summary
                          4. Model (specified below)

Model
```



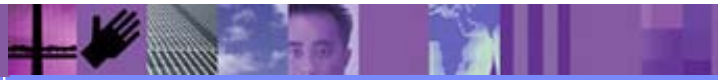
Report Forms - Notes

Report Forms allow you to tailor your reports and extracts to include the information that you want to see. You simply edit the report and/or extract format and content to meet your specific reporting or analysis requirements. In CICS PA Version 1 Release 3 the Report Forms capability has been extended to allow the inclusion of Selection Criteria to apply filtering that is applicable to the resources being reported by the Report Form.

Comprehensive online help is available for every CMF field, so that you never need to reference a manual.

When creating a report form you can edit the report or extract format by selecting fields from either a list of all the CMF data fields or just the fields from a specific field category. Some examples of the field categories that are defined in CICS PA are for a terminal-owning or application owning region, or the standard CMF field groups such as DFHCICS, DFHSTOR or DFHTASK.

These field categories are shown on the next slide ....



Report Forms - Field Categories ...

```
---------------------- Report Forms -----------------------
  File  Edit  Help
                  Select Field Categories  Row 1 to 14 of 26
Command ===> _____________________________ Scroll ===> CSR

Select one or more Categories.

    Category    Description
_   AOR         Application-owning region
_   FOR         File-owning region
_   TOR         Terminal-owning region
_   DB2         DB2 data-owning region
_   IMS DBCTL   IMS DBCTL data-owning region
_   CROSSSYS    Cross-System User Fields
_   DFHAPPL     Application naming
_   DFHCBTS     Business Transaction Services
_   DFHCICS     CICS related task information
_   DFHDATA     Data processing
_   DFHDEST     Transient Data
_   DFHDOCH     Document Handler
_   DFHEJBS     EJB server
_   DFHFEPI     Front End Programming Interface
------------------------------------------------------------
```

Report Forms - Samples

```
 ─────────────────────── Sample Report Forms ───────────────────────
|                                                  Row 1 to 16 of 99 |
| Command ===> _____________________________ Scroll ===> CSR         |
|                                                                    |
| Select one or more sample Report Forms and press Exit              |
|                                                                    |
|      Name     Type              Description                        |
|   _ ABNDLST   LIST      Transaction Abend List                     |
|   _ ABNDSUM   SUMMARY   Transaction Abend Summary                  |
|   _ BADCPU    LISTX     Top 20 Worst CPU Times                     |
|   _ BADFILE   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                 |
|   _ BADTDQ    LISTX     Top 20 Worst Tdqueue Requests              |
|   _ BADTSQ    LISTX     Top 20 Worst Tsqueue Requests              |
|   _ BTSACLST  LIST      CICS BTS Activity - Overview               |
|   _ BTSRQLST  LIST      CICS BTS Request Activity                  |
|   _ BTSRQSUM  SUMMARY   CICS BTS Request Activity                  |
|   _ COMMWLST  LIST      Transaction Comms Wait Analysis            |
|   _ COMMWSUM  SUMMARY   Transaction Comms Wait Analysis            |
|     CPULEXTR  LIST      CPU Analysis and Extract                   |
```

Tailoring the Performance LIST Report Format

```
  File  Edit  Confirm  Upgrade  Options  Help
                      EDIT LIST Report Form - FCLIST      Row 1 of 276 More: >
Command ===> _____________________________________________ Scroll ===> CSR

Description  . . . List Report Form                 Version (VRM): 630
Title  . .   Transaction File Control Usage
             ____________________________________________________________
Enter "/" to select action.

   Field
   Name +     Type      Description
__ TRAN       _____     Transaction identifier
__ USERID     _____     User ID
d  PROGRAM    _____     Program name
d  TASKNO     _____     Transaction identification number
__ STOP       TIMET     Task stop time
__ RESPONSE   _____     Transaction response time
__ DISPATCH   TIME      Dispatch time
__ CPU        TIME      CPU time
d  SUSPEND    TIME      Suspend time
d  DISPWAIT   TIME      Redispatch wait time
__ FCWAIT     TIME      File I/O wait time
a  FCAMCT     _____     File access-method requests
__ EOR        _____     ---------------- End of Report -----------
__ EOX        _____     ---------------- End of Extract ----------
mm FCADD      _____     File ADD requests
__ FCBROWSE   _____     File Browse requests
__ FCDELETE   _____     File DELETE requests
__ FCGET      _____     File GET requests
__ FCPUT      _____     File PUT requests
mm FCTOTAL    _____     File Control requests
```

6 Date/Time formats are available

Move the required fields above EOR to include in the report

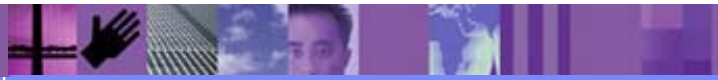
Tailoring the Performance LIST Report Format - Notes

When you request a new Report Form, a table of the CMF fields is presented that you can then edit. The Report Form initially consists of 2 sections:-

1. The top section of the Report Form shows the fields in the default report, across the page from left to right.
   The 'EOR' marker defines the page width boundary for the report and the 'EOX' marker defines the end of the record for an extract. Fields below the 'EOR' marker are not included in the report and CICS PA will automatically adjust the 'EOR' marker when you edit your Report Form, so that you are aware of where your report finishes.
2. Fields below the 'EOR' marker will not appear in the report and fields below the 'EOX' marker will not appear in the extract. To include any of these fields in the report or extract, simply move them above the 'EOR' or 'EOX' markers, and remove any unwanted report fields.

The Report Form (shown on the previous slide) shows the edit commands necessary to include File Control requests in the Performance List Report.

The Report Form also allows the inclusion of Selection Criteria to apply filtering that is applicable to the resources being reported by the Report Form.



Tailoring the Performance LIST Report Format ...

```
  File  Edit  Confirm  Upgrade  Options  Help
                      EDIT LIST Report Form - FCLIST      Row 1 of 263 More: >
Command ===>                                              Scroll ===> CSR

Description  . . . List Report Form                 Version (VRM): 630

Selection Criteria:
 _   Performance

Enter "/" to select action.

    Field
    Name +     Type      Description
__  TRAN       _____     Transaction identifier
__  USERID     _____     User ID
__  STOP       TIMET     Task stop time
__  RESPONSE   _____     Transaction response time
H_  DISPATCH   TIME      Dispatch time
__  CPU        TIME      CPU 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
__  EOR        _____     ---------------- End of Report ---
    . . .
__  EOX        _____     ---------------- End of Extract --
```

Want a detailed field description?

Ask CICS PA and receive the information directly from the CICS Performance Guide

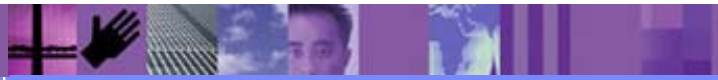
Tailoring the Performance LIST Report Format - Notes ...

The Report Form (shown on the next slide) shows the result of the edit commands from the previous slide. The Report Form has been altered to include the File Request fields.

After you have saved this Report Form, you can request it by name in as many Performance List Reports or Performance Export Extracts as you like.
Each field has a short description. You can also request (using line command H) a full explanation of each field, which is taken from the CICS Performance Guide.

Scroll right to:-

- Enter a title for the report defined by the Report Form, or ...
- To view the fields' CMF Dictionary definition, e.g. FCAMCT DFHFILE A070. CMF Clock Fields have two (2) components:-
  - Elapsed time
  - Count.
- Both can be requested from the dialog, so for Dispatch time, you can report the:-
  - Elapsed time that the transaction was dispatched by CICS
  - Number of times that the transaction was dispatched by CICS.



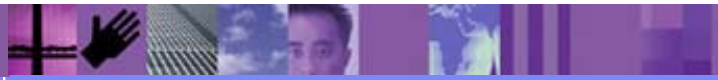
Tailoring the LIST Report Format - (Scroll Right)

```
  File  Edit  Confirm  Upgrade  Options  Help
                    EDIT LIST Report Form - FCLIST      Row 1 of 263 More: >
Command ===> _____________________________________________ Scroll ===> CSR

Description  . . . List Report Form ____________________  System:

Title  . . Transaction File Control Usage ______________________________________
           ______________________________________________________________________

Enter "/" to select action.

   Field                                                    - User Field -
   Name +     Type      Length  Dictionary Definition  Offset  Length
__ TRAN       _________      4  TRAN      DFHTASK C001   ____    ____
__ USERID     _________      8  USERID    DFHCICS C089   ____    ____
__ STOP       TIMET____     12  STOP      DFHCICS T006   ____    ____
__ RESPONSE   _________      8  RESP      CICSPA  A901   ____    ____
__ DISPATCH   TIME_____      8  USRDISPT  DFHTASK S007   ____    ____
__ CPU        TIME_____      8  USRCPUT   DFHTASK S008   ____    ____
__ FCWAIT     TIME_____      8  FCIOWTT   DFHFILE S063   ____    ____
__ FCAMCT     _________      8  FCAMCT    DFHFILE A070   ____    ____
__ FCADD      _________      8  FCADDCT   DFHFILE A039   ____    ____
__ FCBROWSE   _________      8  FCBRWCT   DFHFILE A038   ____    ____
__ FCDELETE   _________      8  FCDELCT   DFHFILE A040   ____    ____
__ FCGET      _________      8  FCGETCT   DFHFILE A036   ____    ____
__ FCPUT      _________      8  FCPUTCT   DFHFILE A037   ____    ____
__ FCTOTAL    _________      8  FCTOTCT   DFHFILE A093   ____    ____
__ EOR        _________ ---------- End of Report ----------
__ EOX        _________ ---------- End of Extract ----------
```

Tailoring the Performance LIST Report Format ...

```
  File  Systems  Options  Help
                    REPORT1 - Performance List Report
Command ===> ____________________________________________________________

System Selection:                        Report Output:
 APPLID . . CICSP1    +                   DDname . . . . . . . . . LIST0001
 Image  . . _____     +                   Print Lines per Page . . ___   (1-255)
 Group  . . _____     +

Report Format:
 Form . . . FCLIST    +
 Title  . . Transactions File Control Usage
            ____________________________________________________________

Selection Criteria:
 _  Performance
```

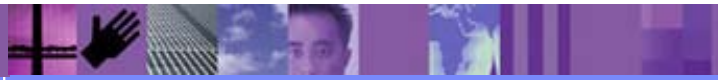
Specify the report options



Tailoring the LIST Report Format - Notes ...

Specify a Report Form to tailor the format of your report. You can select one from a list of compatible Report Forms by Prompt (F4) from the Form field.

Here we have selected the Report Form that includes the File Control request activity fields.



Performance List Report - File Requests

V1R2M0 CICS Performance Analyzer

Performance List

LIST0001 Printed at 10:32:09 2/07/2002 Data from 11:17:21 2/04/1999 APPLID IYK2Z1V3 Page 4

Transaction File Control Usage

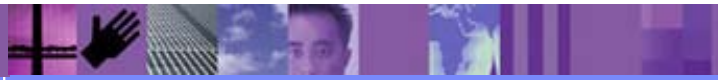
Tran	Userid	Stop Time	Response Time	Dispatch Time	User CPU Time	FC Wait Time	FCAMRq	FCADD	FCBROWSE	FCDELETE	FCGET	FCPUT	FC Total
TRUE	BRENNER	11:17:23.394	2.0973	.0014	.0010	.0000	0	0	0	0	0	0	0
MENU	BRENNER	11:17:26.064	.0019	.0019	.0015	.0000	0	0	0	0	0	0	0
SAL1	BRENNER	11:17:31.629	.1657	.0074	.0061	.0186	12	2	0	0	4	2	10
RED1	BRENNER	11:17:32.050	.5333	.0055	.0040	.0000	0	0	0	0	0	0	0
STOC	BRENNER	11:17:32.053	.5145	.0033	.0030	.0000	0	0	0	0	0	0	0
SALE	BRENNER	11:17:32.054	.5675	.0263	.0124	.0493	28	6	0	0	8	4	22
INV1	BRENNER	11:17:32.090	.0359	.0059	.0051	.0096	11	1	0	1	3	1	7
CITS	CBAKER	11:17:33.282	.0126	.0036	.0031	.0000	0	0	0	0	0	0	0
DEL1	BRENNER	11:17:33.286	1.2323	.0057	.0051	.0099	15	1	0	1	3	1	7
SALE	BRENNER	11:17:33.309	1.2198	.0086	.0047	.0130	10	0	0	1	4	2	9
SALE	BRENNER	11:17:33.366	.0800	.0091	.0084	.0378	20	1	0	1	6	3	14
SALE	BRENNER	11:17:33.417	.0519	.0083	.0076	.0203	16	1	0	1	6	3	14
STAT	CBAKER	11:17:35.081	1.8129	.0178	.0028	.0000	0	0	0	0	0	0	0
SAL1	BRENNER	11:17:37.764	.0019	.0019	.0015	.0000	0	0	0	0	0	0	0
SALE	BRENNER	11:17:38.653	.0566	.0083	.0069	.0312	18	2	0	1	6	3	15
REM1	BRENNER	11:17:38.677	.0243	.0050	.0047	.0085	9	1	0	1	3	1	7
SALE	BRENNER	11:17:38.716	.0389	.0067	.0062	.0157	16	1	0	1	6	3	14
SAL1	BRENNER	11:17:39.265	.0015	.0014	.0013	.0000	0	0	0	0	0	0	0
PAYM	BRENNER	11:17:42.168	.0014	.0014	.0013	.0000	0	0	0	0	0	0	0
SALE	BRENNER	11:17:43.924	.0826	.0082	.0073	.0563	16	1	0	1	6	3	14
REM1	BRENNER	11:17:43.960	.0367	.0054	.0052	.0181	9	1	0	1	3	1	7
SALE	BRENNER	11:17:44.042	.0824	.0072	.0069	.0561	16	1	0	1	6	3	14
SALE	BRENNER	11:17:49.129	.0463	.0074	.0068	.0189	16	1	0	1	6	3	14

Performance List Report - File Requests - Notes

The Performance List Report (shown on the previous slide) has been tailored to show the File Request activity for each transaction.

Notice the File Request counts on the right hand side of the report.

This report can be easily changed using Report Forms to display other performance related data. Many sample Report Forms are provided with CICS PA for this purpose.



Performance List Report - DBCTL

V1R2M0 CICS Performance Analyzer
Performance List

LIST0001 Printed at 11:33:27 9/11/2001 Data from 12:17:43 2/04/1999 APPLID IYK2Z1V3 Page 9
Analysis of Transaction IMS DBCTL Usage

Tran	PSB	Response Time	User CPU Time	IMS Reqs	IMS Wait Time	IMS Wait Count	SchedElp Time	PoolWt Time	IC WT Time	DBIOEl Time	PILockEl Time	ThredCPU Time	DLI Calls	DBIO Calls
DLI1	PSB001	5.9288	1.5556	3	1.5556	5	1.0004	.0000	.0000	.0023	.0000	.0041	2	1
DLI2	PSB001	3.5302	.2359	3	.2359	5	.0010	.0000	.0000	.0017	.0000	.0289	2	1
DLI3	PSB001	3.4382	.5010	3	.5010	5	.0010	.0000	.0000	.0018	.0000	.0289	2	1
DLI4	PSB001	1.0711	.7553	2	.7553	4	.0024	.0000	.0000	.0000	.0000	.0299	1	0
DLI5	PSB001	.2516	.2319	2	.2319	4	.0010	.0000	.0000	.0000	.0000	.0318	1	0
DLI6	PSB001	.3658	.3658	2	.3478	4	.0011	.0000	.0000	.0000	.0000	.0327	1	0
DLI2	PSB001	91.8213	1.8717	2	14.8960	4	.0010	.0000	.0000	.0000	.0000	.0286	1	0
DLI3	PSB001	156.501	1.9866	2	18.3825	4	.0055	.0000	.0000	.0019	.0000	.0298	1	1
DLI5	PSB001	233.355	1.9771	2	21.3535	4	.0049	.0000	.0000	.0000	.0000	.0293	1	0
DLI1	PSB001	95.2870	1.9511	2	21.4463	4	.0050	.0000	.0000	.0018	.0000	.0288	1	1

. . . .
. . . .

Performance List Report - DBCTL - Notes

The Performance List Report (shown on the previous slide) has been tailored to show the IMS DBCTL activity for each transaction.

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

The DBCTL User Field is 256 bytes long and contains a wealth of IMS information that can be requested in your reports.

This information includes:-

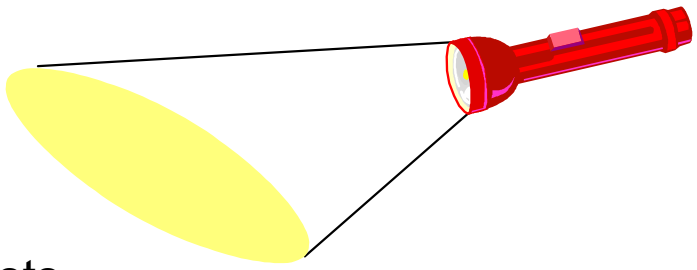
- PSB name
- various IMS DBCTL internal elapsed times
- various IMS DBCTL CPU times
- DLI and database call counts, include DEDB statistics
- Enqueue statistics.

Sample 'List' Report Forms

```
 File  Confirm  Samples  Options  Help
                              Report Forms                    Row 1 to 24 of 42
Command ===> ____________________________________________________ Scroll ===> CSR

Report Forms Data Set  . . . CBAKER.CICSPA3.FORMS

Enter "/" to select action.

    Name     Type              Description                  Changed         ID
_ ABNDLST  LIST    Transaction Abend List              2003/07/25 00:00 CICSPA
_ BTSACLST LIST    CICS BTS Activity - Overview        2003/07/25 00:00 CICSPA
_ BTSRQLST LIST    CICS BTS Request Activity           2003/07/25 00:00 CICSPA
_ COMMWLST LIST    Transaction Comms Wait Analysis     2003/07/25 00:00 CICSPA
_ CPULEXTR LIST    CPU Analysis and Extract            2003/07/25 00:00 CICSPA
_ CPULST   LIST    Transaction CPU Analysis            2003/07/25 00:00 CICSPA
_ CSWEXLST LIST    Cross-System Extract List           2003/07/25 00:00 CICSPA
_ DHLST    LIST    CICS Document Handler Analysis      2003/07/25 00:00 CICSPA
_ ENQLST   LIST    CICS ENQueue/Lock Delay Analysis    2003/07/25 00:00 CICSPA
_ FCLST    LIST    File Request Activity               2003/07/25 00:00 CICSPA
_ FCTYLST  LIST    Transaction Facility Analysis       2003/07/25 00:00 CICSPA
_ FCWTLST  LIST    File Wait Analysis                  2003/07/25 00:00 CICSPA
_ FDSPLST  LIST    First Dispatch Delay Analysis       2003/07/25 00:00 CICSPA
_ FEPILST  LIST    FEPI Request Activity               2003/07/25 00:00 CICSPA
_ ICLST    LIST    Interval Control Activity           2003/07/25 00:00 CICSPA
_ IMSDBLST LIST    Transaction DBCTL Usage Analysis    2003/07/25 00:00 CICSPA
_ IMSRQLST LIST    Transaction DBCTL Req Analysis      2003/07/25 00:00 CICSPA
_ JCLST    LIST    Journaling/Logging Activity         2003/07/25 00:00 CICSPA
_ JVMLST   LIST    Java Virtual Machine Analysis       2003/07/25 00:00 CICSPA
_ PCLST    LIST    Program Request Activity            2003/07/25 00:00 CICSPA
_ PSTORLST LIST    Program Storage Analysis            2003/07/25 00:00 CICSPA
_ RMIDBLST LIST    CICS RMI Analysis - DB2 Overview    2003/07/25 00:00 CICSPA
```

Performance List Extended Report

- Similar to the Performance List Report
  - But allows you to Sort the data for your report
- Sorting Criteria ...
  - Up to three sort fields - ascending or descending
    - Subset of the CMF data fields can be sorted upon
  - Any CMF data field can be included in the report
- For Example .... which Transaction(s) ...
  - have the longest Response time
  - have the longest Suspend time
  - used the most CPU time
  - did the most File or Temporary Storage requests



Performance List Extended Report ...

V1R3M0 CICS Performance Analyzer
Performance List Extended

LSTX0001 Printed at 10:40:11 7/24/2003 Data from 11:10:29 2/04/1999 to 11:33:51 2/04/1999

Tran	SC	Userid	RSID	Program	TaskNo	Stop Time	Response Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time	FC Wait Time	FCAMRq	IR Wait Time
AADD	TO	GBURGES		DFHúAALL	136	11:19:42.186	.0011	.0010	.0010	.0001	.0000	.0000	0	.0000
AADD	TO	GBURGES		DFHúAALL	137	11:19:46.796	.0022	.0021	.0012	.0001	.0000	.0000	0	.0000
AADD	TP	GBURGES		DFHúAALL	138	11:19:53.578	.0023	.0022	.0013	.0001	.0000	.0000	0	.0000
AADD	TO	GBURGES		DFHúAALL	183	11:21:29.153	.0022	.0022	.0012	.0001	.0000	.0000	0	.0000
AADD	TP	GBURGES		DFHúAALL	184	11:21:36.124	.0023	.0022	.0013	.0001	.0000	.0000	0	.0000
ABRW	TO	BRENNER		DFHúABRW	53	11:11:57.251	.5819	.0783	.0121	.5037	.0127	.0000	0	.4908
ABRW	TP	BRENNER		DFHúABRW	59	11:12:55.460	.0070	.0034	.0029	.0036	.0000	.0000	0	.0036
ABRW	TP	BRENNER		DFHúABRW	61	11:12:58.275	.0080	.0028	.0024	.0052	.0000	.0000	0	.0051
ABRW	TP	BRENNER		DFHúABRW	62	11:12:59.332	.0064	.0027	.0023	.0036	.0000	.0000	0	.0036
ABRW	TP	BRENNER		DFHúABRW	63	11:13:02.370	.0018	.0017	.0014	.0001	.0000	.0000	0	.0000
ABRW	TO	GBURGES		DFHúABRW	109	11:19:22.883	.0071	.0040	.0027	.0030	.0000	.0000	0	.0030
ABRW	TP	GBURGES		DFHúABRW	110	11:19:27.576	.0064	.0031	.0021	.0033	.0000	.0000	0	.0032
ABRW	TP	GBURGES		DFHúABRW	111	11:19:28.165	.0065	.0032	.0022	.0033	.0000	.0000	0	.0033
ABRW	TP	GBURGES		DFHúABRW	112	11:19:28.556	.0071	.0035	.0023	.0036	.0000	.0000	0	.0036
ABRW	TP	GBURGES		DFHúABRW	113	11:19:28.933	.0066	.0032	.0022	.0034	.0000	.0000	0	.0034
ABRW	TP	GBURGES		DFHúABRW	114	11:19:29.287	.0022	.0021	.0012	.0001	.0000	.0000	0	.0000
ABRW	TP	GBURGES		DFHúABRW	115	11:19:29.629	.0070	.0034	.0023	.0036	.0000	.0000	0	.0035
ABRW	TP	GBURGES		DFHúABRW	116	11:19:29.976	.0068	.0032	.0022	.0036	.0000	.0000	0	.0035
ABRW	TP	GBURGES		DFHúABRW	117	11:19:30.358	.0094	.0036	.0024	.0058	.0000	.0000	0	.0057
ABRW	TP	GBURGES		DFHúABRW	118	11:19:30.698	.0064	.0031	.0021	.0033	.0000	.0000	0	.0032
ABRW	TP	GBURGES		DFHúABRW	119	11:19:31.083	.0084	.0032	.0024	.0052	.0000	.0000	0	.0051
ABRW	TP	GBURGES		DFHúABRW	120	11:19:31.425	.0070	.0033	.0022	.0036	.0000	.0000	0	.0036
ABRW	TP	GBURGES		DFHúABRW	121	11:19:31.729	.0053	.0028	.0018	.0024	.0000	.0000	0	.0024
ABRW	TP	GBURGES		DFHúABRW	122	11:19:34.394	.0065	.0034	.0021	.0030	.0000	.0000	0	.0030

Performance List Extended Report - Notes

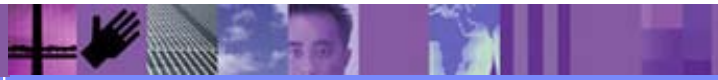
The Performance List Extended Report also provides a detailed list of the CMF performance class records.

But it differs from the Performance List Report in that you can specify the sorting criteria for the performance records.

The default report format (shown on the slide) details performance related information for each transaction, sorted by Transaction ID.

The report format can be tailored using Report Forms to include information to meet your specific reporting and analysis requirements. You can specify the sorting criteria for most of the performance class data fields and selection criteria can also be used to apply filtering that is applicable to the resources being reported by the Report Form.

Any CMF field can be included in the Performance List Extended Report.



Tailoring the LISTX Report Format

```
  File  Edit  Confirm  Upgrade  Options  Help
                    EDIT LISTX Report Form - BADDB2      Row 1 of 263 More: >
Command ===> ____________________________________________ Scroll ===> CSR

Description  . . . Bad DB2 transaction response    Version (VRM): 620

Selection Criteria:
 _   Performance

Enter "/" to select action.

   Field
   Name +     S Type     Limit      Description
a  TRAN       A _______  _________  Transaction identifier
__ USERID     * _______  _________  User ID
__ PROGRAM    * _______  _________  Program name
d  TASKNO     * _______  _________  Transaction identification number
__ STOP       * TIMET    _________  Task stop time
m  RESPONSE   D _______  20         Transaction response time
__ DISPATCH   * TIME     _________  Dispatch time
__ CPU        * TIME     _________  CPU time
__ SUSPEND    * TIME     _________  Suspend time
a  DISPWAIT   * TIME     _________  Redispatch wait time
__ EOR        _ _______  _________  ---------------- End of Report -------------
__ EOX        _ _______  _________  ---------------- End of Extract ------------
mm DB2CONWT   * TIME     _________  DB2 Connection wait time
__ DB2RDYQW   * TIME     _________  DB2 Thread wait time
__ DB2REQCT   * _______  _________  DB2 requests
__ DB2WAIT    * TIME     _________  DB2 SQL/IFI wait time
mm RMISUSP    * TIME     _________  Resource Manager Interface (RMI) suspend time
__ RMITIME    * TIME     _________  Resource Manager Interface (RMI) elapsed time
```

Tailoring the LISTX Report Format - Notes

The Report Form (shown on the slide) is being edited by the CICS PA dialog to highlight bad response times for transactions that use DB2.

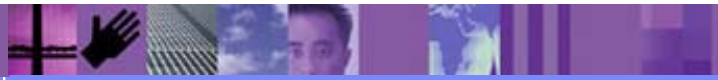
LISTX Report Forms have an additional option that allows you to Sort your report. Up to three (3) fields can be sorted in ascending or descending sequence.

The CMF performance records in this case are sorted by:-

1. Transaction ID
2. Response time in descending sequence. Only the 20 worst response times for each Transaction ID are reported.

This enables you to quickly analyze response time problems by identifying:-

- The worst performing transactions.
- The CICS internal and external resource that may have caused the problems.



Tailoring the LISTX Report Format ...

```
  File  Edit  Confirm  Upgrade  Options  Help
                    EDIT LISTX Report Form - BADDB2      Row 1 of 263 More: >
Command ===> ____________________________________________ Scroll ===> CSR

             . . . Bad DB2 transaction response    Version (VRM): 620

             eria:
             e

             select action.

             eld
    Name +     S Type     Limit      Description
__  TRAN       A _______  ________   Transaction identifier
__  RESPONSE   D _______  20         Transaction response time
__  USERID     * _______  ________   User ID
__  PROGRAM    * _______  ________   Program name
__  STOP       * TIMET    ________   Task stop time
__  DISPATCH   * TIME     ________   Dispatch time
__  CPU        * TIME     ________   CPU time
__  SUSPEND    * TIME     ________   Suspend time
__  DISPWAIT   * TIME     ________   Redispatch wait time
__  DB2CONWT   * TIME     ________   DB2 Connection wait time
__  DB2RDYQW   * TIME     ________   DB2 Thread wait time
__  DB2REQCT   * _______  ________   DB2 requests
__  DB2WAIT    * TIME     ________   DB2 SQL/IFI wait time
__  EOR        _ _______  ________   ---------------- End of Report -------------
    . . .
__  EOX        _ _______  ________   ---------------- End of Extract ------------
__  RMISUSP    * TIME     ________   Resource Manager Interface (RMI) suspend time
__  RMITIME    * TIME     ________   Resource Manager Interface (RMI) elapsed time
```

List sorted by Tran ID, then descending response time

For each Tran ID, only the worst 20 are reported

Tailoring the LISTX Report Format - Notes

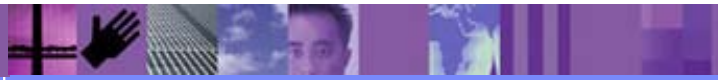
LISTX Forms have an additional option that allows you to Sort your report. Up to three (3) fields can be sorted in ascending or descending sequence.

The Report Form (shown on the slide) shows the result of the edit commands from the previous slide. The Report Form has been edited to highlight the bad response time for transactions that use DB2.

Observe:-

1. DB2 monitoring fields have been included.
2. The sorting sequence at the top of the Report Form: Transaction ID in ascending sequence, then response time in descending sequence.
3. Only the worst 20 response times for each Transaction ID are reported.

After you have saved this Report Form, you can request it by name in as many Performance List Extended Reports as you like. You can also use it to format Cross-System Work Reports or Export Extract data sets, although the specified sort order is ignored.



Performance List Extended - Worst DB2 Trans

V1R2M0 CICS Performance Analyzer
Performance List Extended

LSTX0001 Printed at 9:19:43 8/06/2001 Data from 12:10:51 2/04/1999 to 12:34:13 2/04/1999
Page 1

Bad DB2 transaction response time

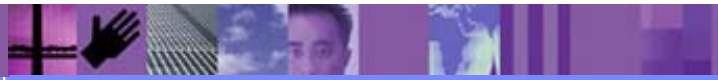
Tran	Response Time	Userid	Program	Stop Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time	DB2ConWt Time	DB2ThdWT Time	DB2 Reqs	DB2SQLWt Time
CRD4	114.574	JOHN	CORD04P	12:26:25.765	4.9961	4.6084	109.578	3.7039	.0000	90.2326	9178	19.3442
CRD4	95.2259	STEVE	CORD04P	12:26:04.243	5.1529	4.6320	90.0730	9.0971	.0000	.0000	8436	90.0727
CRD4	94.8672	CHRIS	CORD04P	12:26:04.954	5.0842	4.6390	89.7829	8.0275	.0000	.0000	8574	89.7826
CRD4	93.6422	SHIRLEY	CORD04P	12:26:01.425	5.1434	4.6228	88.4988	8.7084	.0000	.0000	8465	88.4984
CRD4	81.5987	DAVID	CORD04P	12:22:21.938	4.9596	4.5885	76.6391	6.4075	.0000	.0000	8335	76.6388
CRD4	81.2668	KATH	CORD04P	12:22:22.820	4.9766	4.5806	76.2901	6.3358	.0000	.0000	9346	76.2898
CRD4	80.0224	MIKE	CORD04P	12:22:18.958	5.2067	4.6592	74.8158	6.0739	.0000	.0000	8690	74.8154
CRD4	38.3645	JAMES	CORD04P	12:16:12.420	5.0326	4.6100	33.3319	5.4501	.0000	.0000	9124	33.3315
.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.
CRD5	102.066	JOHN	CORD05P	12:22:44.565	4.8183	4.4576	97.2478	4.4576	.0000	76.4557	6573	20.7892
CRD5	36.3721	CHRIS	CORD05P	12:16:22.814	5.0605	4.5812	31.3116	4.4883	.0000	.0000	9102	31.3103
CRD5	23.2860	DAVID	CORD05P	12:12:04.661	5.4456	4.6209	17.8404	3.9595	.0000	.0000	8221	17.7935
CRD5	1.0671	SHIRLEY	CORD05P	11:49:21.077	.4447	.0405	.6223	.0037	.0000	.0000	1	.6192
CRD5	.6346	MIKE	CORD05P	11:43:43.859	.1315	.0443	.5032	.3209	.0000	.0000	1	.1821
.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.

Performance List Extended - DB2 - Notes

The Performance List Extended Report (shown on the slide) has been tailored to show the worst performing transactions, along with DB2 activity.

This report can be easily changed using report forms to display other performance related data.

Notice the DB2 times and counts on the right hand side of the report.

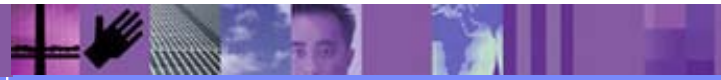


Performance Summary Report

V1R3M0 CICS Performance Analyzer
Performance Summary

SUMM0001 Printed at 12:46:48 7/23/2003 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page 1

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	Avg FCAMRq	Avg IR Wait Time	Avg SC24UHWM	Avg SC31UHWM
AADD	18	.0115	.0945	.0099	.0020	.0016	.0114	.0008	.0003	1	.0000	949	0
ABRW	1033	.0789	36.6088	.0027	.0015	.0762	36.6061	.0000	.0000	6	.0007	1008	0
ADDD	1	.0482	.0482	.0350	.0049	.0132	.0132	.0125	.0000	0	.0000	0	0
AINQ	11	.0021	.0040	.0017	.0014	.0004	.0021	.0000	.0000	1	.0001	928	0
AMNU	15	.0245	.1724	.0223	.0027	.0022	.0194	.0010	.0000	0	.0000	422	177
AUPD	17	.0183	.0665	.0118	.0032	.0065	.0505	.0010	.0017	0	.0007	968	0
B	2	.0028	.0031	.0027	.0015	.0001	.0001	.0000	.0000	0	.0000	0	0
BING	1	.0024	.0024	.0023	.0016	.0001	.0001	.0000	.0000	0	.0000	0	0
BINQ	1	.0027	.0027	.0027	.0015	.0001	.0001	.0000	.0000	0	.0000	0	0
CALL	25	2.3633	8.2455	.0074	.0021	2.3559	8.2300	.0013	.0000	0	.0000	0	1056
CATA	17	.0285	.0882	.0119	.0055	.0167	.0828	.0002	.0000	0	.0000	0	0
CATD	6	.0372	.0590	.0159	.0056	.0213	.0306	.0024	.0000	0	.0000	0	0
CATR	2	.0290	.0296	.0283	.0047	.0006	.0009	.0006	.0000	0	.0000	0	0
CBAM	11	11.2041	51.3803	.0147	.0054	11.1894	51.3196	.0016	.0000	3	.0000	0	1865
CBTR	2	.0179	.0334	.0176	.0029	.0003	.0006	.0003	.0000	0	.0000	0	0
CEBR	1	575.916	575.916	.0061	.0046	575.910	575.910	.0003	.0000	0	.0000	0	0
CECI	61	1.7234	72.8971	.0194	.0043	1.7039	72.8839	.0004	.0000	0	.0000	3	21295
CEDA	98	1.9304	51.4018	.0602	.0218	1.8702	50.2257	.0008	.0086	53	.0000	0	0
CEMT	137	19.1960	592.514	.0154	.0062	19.1806	592.359	.0043	.0000	0	.0000	0	0
CESD	12	.1128	1.2902	.0211	.0021	.0917	1.0858	.0916	.0000	0	.0000	0	0
CESF	6	.0180	.0468	.0175	.0042	.0004	.0009	.0004	.0000	0	.0000	0	0
CESN	36	.0242	.2046	.0233	.0081	.0008	.0060	.0006	.0000	0	.0000	0	0
CETR	1	.8982	.8982	.1132	.0132	.7850	.7850	.0068	.0000	0	.0000	0	0
CGRP	2	.5862	.7601	.0571	.0076	.5291	.6880	.4134	.0000	0	.0000	0	0
CITS	5	.0111	.0153	.0058	.0035	.0053	.0091	.0001	.0000	0	.0000	0	0
CLQ2	2	2.0731	3.8259	.0628	.0068	2.0103	3.7441	.0820	.0000	0	1.9054	0	0



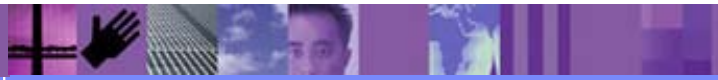
Performance Summary Report - Notes

The Performance Summary Report provides a summary of the CMF performance class records.

The default report format (shown on the previous slide) summarizes the performance class records by Transaction ID. The Task Count (#Tasks) shows the number of performance class records processed during the reporting period.

The report format can be tailored to include information more specific to your reporting requirements.

Any CMF field (including fields from User-Defined EMPs) can be included in the Performance Summary Report.



Tailoring the Performance Summary Report

Summary sorted by Stop time and Tran ID

5 Statistical functions are available

```
  File  Edit  Confirm  Upgrade  Options  Help
                    EDIT SUMMARY Report Form - SUMMTOD    Row 1 of 235 More: >
Command ===> _____________________________________________ Scroll ===> CSR

          n  . . . Summary by Time of Day          Version (VRM)

          teria:
          nce

          " to select action.

    Field
    Name +     S Type     Fn   Description
b   TRAN       A _______  ___  Transaction identifier
    TASKCNT      _______  ___  Total Task count
    RESPONSE     _______  AVE  Transaction response time
    RESPONSE     _______  MAX  Transaction response time
    DISPATCH     TIME     AVE  Dispatch time
    CPU          TIME     AVE  CPU time
    SUSPEND      TIME     AVE  Suspend time
d   SUSPEND      TIME     MAX  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
    EOR          _______  ___  ---------------- End of Report -------------
    EOX          _______  ___  ---------------- End of Extract -------------
    ABCODEC    A _______  ___  Current ABEND code
...
m   STOP       A TIMES    ___  Task stop time
```

Tailoring the Performance Summary Report - Notes

Summary Report Forms also allow you to Sort and Summarize your report.

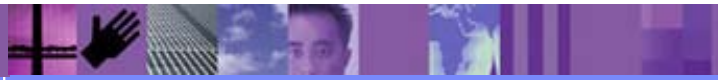
The Clock and Count fields can be summarized statistically. The statistical functions available with CICS PA are:-

- Average
- Minimum
- Maximum
- Total
- Standard deviation

The Report Form (shown on the next slide) has been edited using the CICS PA dialog to summarize transaction activity over time.

The CMF performance records are sorted by:-

1. Transaction Stop time
2. Transaction ID



Tailoring the Performance Summary Report ...

```
  File  Edit  Confirm  Upgrade  Options  Help
                    EDIT SUMMARY Report Form - SUMMTOD    Row 1 of 235 More: >
Command ===> _____________________________________________ Scroll ===> CSR

Description  . . . Summary by Time of Day          Version (VRM): 620

Selection Criteria:
 _   Performance

Enter "/" to select action.

   Field
   Name +     S Type     Fn   Description
__ STOP       A TIMES    ___  Task stop time
__ TRAN       A ________ ___  Transaction identifier
__ TASKCNT      ________ ___  Total Task count
__ RESPONSE     ________ AVE  Transaction response time
__ RESPONSE     ________ 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
__ EOR          ________ ___  ---------------- End of Report --------------
__ EOX          ________ ___  ---------------- End of Extract -------------
__ ABCODEC    A ________ ___  Current ABEND code
__ ABCODEO    A ________ ___  Original ABEND Code
```

Tailoring the Performance Summary Report - Notes ...

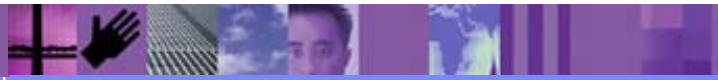
The Report Form (shown on the previous slide) shows the result of the edit commands from the previous slide. The Report Form has been altered to summarize transaction activity by time of day.

After you have saved this Report Form, you can request it by name in as many Performance Summary Reports or Performance Export Extracts as you like.

The time interval defaults to 1 minute. The Summary report options can override this, so that this Report Form may be used for multiple reports using any time interval.

Scroll right (shown on the next slide) to:-

- Enter a title for the report defined by the Report Form, or ...
- To view the fields' CMF Dictionary definition, e.g. FCAMCT DFHFILE A070. CMF Clock Fields.

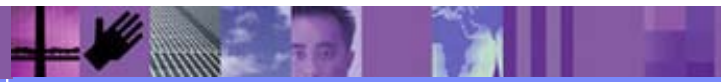


Tailoring the Performance Summary Report ...

```
  File  Edit  Confirm  Upgrade  Options  Help
                    EDIT SUMMARY Report Form - SUMMTOD    Row 1 of 235 More: >
Command ===> _____________________________________________ Scroll ===> CSR

Description  . . . Summary by Time of Day          System:

Title  . . Transaction Summary by Time of Day
           ____________________________________________________________

Enter "/" to select action.

   Field                                                          - User Field -
   Name +     S Type     Fn    Length  Dictionary Definition     Offset  Length
__ STOP       A TIMES    ___        8  STOP      DFHCICS T006      ___     ___
__ TRAN       A _____    ___        8  TRAN      DFHTASK C001      ___     ___
__ TASKCNT      _____    ___        8  TASKCNT   CICSPA  X902      ___     ___
__ RESPONSE     _____    AVE        8  RESP      CICSPA  D901      ___     ___
__ RESPONSE     _____    MAX        8  RESP      CICSPA  D901      ___     ___
__ DISPATCH     TIME     AVE        8  USRDISPT  DFHTASK S007      ___     ___
__ CPU          TIME     AVE        8  USRCPUT   DFHTASK S008      ___     ___
__ SUSPEND      TIME     AVE        8  SUSPTIME  DFHTASK S014      ___     ___
__ DISPWAIT     TIME     AVE        8  DISPWTT   DFHTASK S102      ___     ___
__ FCWAIT       TIME     AVE        8  FCIOWTT   DFHFILE S063      ___     ___
__ FCAMCT       _____    AVE        8  FCAMCT    DFHFILE A070      ___     ___
__ IRWAIT       TIME     AVE        8  IRIOWTT   DFHTERM S100      ___     ___
__ SC24UHWM     _____    AVE        8  SCUSRHWM  DFHSTOR A033      ___     ___
__ SC31UHWM     _____    AVE        8  SCUSRHWM  DFHSTOR A106      ___     ___
__ EOR          _____    ___                                       ___     ___
__ EOX          _____    ___                                       ___     ___
__ ABCODEC    A _____    ___        4  ABCODEC   DFHPROG C114      ___     ___
__ ABCODEO    A _____    ___        4  ABCODEO   DFHPROG C113      ___     ___
```

Tailoring the Performance Summary Report ...

```
  File  Systems  Options  Help
                    SUM1TEST - Performance Summary Report
Command ===> ____________________________________________________________

 System Selection:                          Report Output:
  APPLID . . ________  +                     DDname . . . . . . . . . SUMM0001
  Image  . . ________  +                     Print Lines per Page . . ___  (1-255)
  Group  . . ________  +

 Report Format:
  Form . . . SUMMTOD   +
  Title  . . ____________________________________________________________
             ____________________________________________________________


 Processing Options:                            Reporting Options:
  Time Interval  . . . 00:01:00  (hh:mm:ss)      _  Exclude Totals

 Selection Criteria:
  _  Performance
```



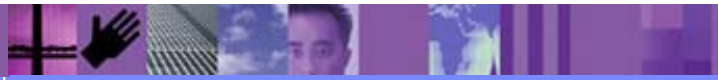
Performance Summary Report by Time-of-Day

V1R2M0 CICS Performance Analyzer

Performance Summary

SUMM0001 Printed at 16:18:47 1/21/2002 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page 1

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	Avg IR Wait Time	Avg SC24UHWM	Avg SC31UHWM
11:10:00	CEMT	6	.0608	.1877	.0579	.0105	.0029	.0011	.0000	0	.0000	0	0
11:10:00	CGRP	2	.5862	.7601	.0571	.0076	.5291	.4134	.0000	0	.0000	0	0
11:10:00	CLQ2	2	2.0731	3.8259	.0628	.0068	2.0103	.0820	.0000	0	1.9054	0	0
11:10:00	CLR2	2	.0604	.0946	.0030	.0020	.0574	.0000	.0000	0	.0135	0	0
11:10:00	CPLT	2	18.3106	20.6297	.3495	.0372	17.9611	.0176	.0000	0	.0000	0	0
11:10:00	CRSQ	2	.0731	.0818	.0416	.0039	.0315	.0313	.0000	0	.0000	0	0
11:10:00	CSAC	5	.5138	.5217	.0023	.0011	.5115	.0001	.0000	0	.0000	0	0
11:10:00	CSFU	2	2.7193	3.7417	2.2322	.1714	.4871	.0232	.0000	0	.0000	0	0
11:10:00	CSSY	18	2.5720	20.7042	1.3231	.3193	1.2489	.2908	.1534	269	.0000	0	180
11:10:00	CSTE	2	.1338	.1420	.1250	.0125	.0088	.0086	.0000	0	.0000	0	0
11:10:00	CWBG	2	.0267	.0273	.0255	.0039	.0012	.0010	.0000	0	.0000	0	0
11:10:00	CXRE	2	.1275	.2255	.0265	.0049	.1010	.1008	.0000	0	.0000	0	0
11:10:00	CZUX	1	.0344	.0344	.0331	.0078	.0013	.0016	.0000	0	.0000	0	43552
11:10:00	CZXS	1	.0907	.0907	.0340	.0078	.0567	.0016	.0000	0	.0000	0	43712
11:10:00		49	1.9914	20.7042	.6140	.1292	1.3773	.1347	.0564	99	.0783	0	1847
11:11:00	ABRW	1	.5819	.5819	.0783	.0121	.5037	.0127	.0000	0	.4908	1072	0
11:11:00	AMNU	1	.1724	.1724	.1720	.0091	.0004	.0004	.0000	0	.0000	512	0
11:11:00	CATA	4	.0409	.0537	.0253	.0084	.0156	.0003	.0000	0	.0000	0	0
11:11:00	CEMT	4	2.1512	4.3841	.0047	.0019	2.1465	.0000	.0000	0	.0000	0	0
11:11:00	CESN	8	.0319	.0806	.0304	.0094	.0015	.0014	.0000	0	.0000	0	0
11:11:00	CQRY	7	.3709	.7437	.0114	.0020	.3595	.0009	.0000	0	.0000	0	0
11:11:00	CSMI	1	.5116	.5116	.4563	.0395	.0552	.0032	.0056	6	.0246	96	0
11:11:00	CZUX	1	.0092	.0092	.0056	.0050	.0037	.0003	.0000	0	.0000	0	29792
11:11:00		27	.4776	4.3841	.0428	.0073	.4348	.0013	.0002	0	.0191	62	1103



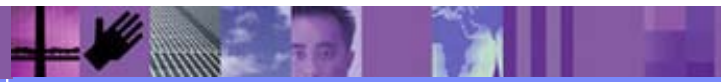
Performance Summary by Time-of-Day - Notes

The Performance Summary Report (shown on the slide) summarizes the transaction activity for each 1 minute time interval.

This report can be easily changed to display other performance related data. Many sample Report Forms are provided with CICS PA for this purpose.

You can specify the time interval anywhere from 1 second to 24 hours (rounded down to align to the hour or day).

You can also write your Performance Summary report data to an extract data set. This is done using the Export facility with a SUMMARY Report Form to define the record layout and summarization criteria. An example of using the Export facility in this way will be shown later in the presentation.



Performance Summary - Temporary Storage Activity

V1R2M0 CICS Performance Analyzer
Performance Summary

SUMM0001 Printed at 7:24:07 1/28/2002 Data from 11:10:56 2/04/1999 to 08:04:18 2/16/1999 Page 1
Summary of Transaction Temporary Storage Activity

Tran	#Tasks	Avg Response Time	Max Response Time	Avg Dispatch Time	Avg User CPU Time	Avg Suspend Time	Avg DispWait Time	Avg TSGET	Avg TSPUTAux	Avg TSPUTMai	Avg TS Total	Avg TS Wait Time	Avg TSShWait Time
CBAM	11	11.2041	51.3803	.0147	.0054	11.1894	.0016	6	2	0	9	.0005	.0000
CEBR	1	575.916	575.916	.0061	.0046	575.910	.0003	32	0	0	32	.0154	.0000
CECI	1	3.3215	3.3215	.5039	.0254	2.8175	.0043	0	0	0	1	.0000	.0000
CESD	12	.1128	1.2902	.0211	.0021	.0917	.0916	1	1	0	2	.0000	.0000
CWBA	56	.1629	1.4267	.0136	.0037	.1493	.0013	0	0	0	1	.0000	.0000
CWXN	48	46.4896	1102.23	.0076	.0026	46.4820	.0032	0	0	2	2	.0000	.0000
CZUX	23	.0122	.0344	.0064	.0043	.0058	.0005	0	50	0	50	.0050	.0000

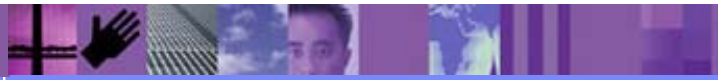
Performance Summary - Temporary Storage - Notes

The Performance Summary Report (shown on the slide) summarizes the activity of transactions using the CICS Temporary Storage Support.

Clock fields, such as SUSPEND and DISPATCH, have two components:-

- Time, e.g. the elapsed time that a transaction was suspended.
- Count, e.g. the number of times that a transaction was suspended.

The CICS PA Resource Usage reports, using the CICS CMF Resource data, can provide a more detailed analysis of the specific temporary storage queue usage of your transactions.

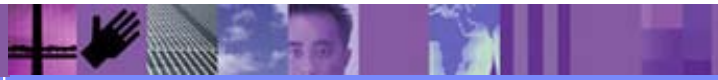


Sample 'Summary' Report Forms

```
  File  Confirm  Samples  Options  Help
                              Report Forms                  Row 1 to 22 of 44
Command ===> _____________________________________________  Scroll ===> CSR

Report Forms Data Set  . . . CBAKER.CICSPA3.FORMS

Enter "/" to select action.

    Name     Type                Description                    Changed        ID
_ ABNDSUM  SUMMARY Transaction Abend Summary          2003/07/25 00:00 CICSPA
_ BTSRQSUM SUMMARY CICS BTS Request Activity          2003/07/25 00:00 CICSPA
_ COMMWSUM SUMMARY Transaction Comms Wait Analysis    2003/07/25 00:00 CICSPA
_ CPUSEXTR SUMMARY CPU Analysis and Extract           2003/07/25 00:00 CICSPA
_ CPUSUM   SUMMARY Transaction CPU Analysis           2003/07/25 00:00 CICSPA
_ DHSUM    SUMMARY CICS Document Handler Analysis     2003/07/25 00:00 CICSPA
_ ENQSUM   SUMMARY CICS ENQueue/Lock Delay Analysis   2003/07/25 00:00 CICSPA
_ FCSUM    SUMMARY File Request Activity              2003/07/25 00:00 CICSPA
_ FCWTSUM  SUMMARY File Wait Analysis                 2003/07/25 00:00 CICSPA
_ FDSPSUM  SUMMARY First Dispatch Delay Analysis      2003/07/25 00:00 CICSPA
_ FEPISUM  SUMMARY FEPI Request Activity              2003/07/25 00:00 CICSPA
_ ICSUM    SUMMARY Interval Control Activity          2003/07/25 00:00 CICSPA
_ IMSDBSUM SUMMARY Transaction DBCTL Usage Analysis   2003/07/25 00:00 CICSPA
_ IMSRQSUM SUMMARY Transaction DBCTL Req Analysis     2003/07/25 00:00 CICSPA
_ IMSSUM   SUMMARY IMS DBCTL PSB Usage Analysis       2003/07/25 00:00 CICSPA
_ JCSUM    SUMMARY Journaling/Logging Activity        2003/07/25 00:00 CICSPA
_ JVMSUM   SUMMARY Java Virtual Machine Analysis      2003/07/25 00:00 CICSPA
_ PCSUM    SUMMARY Program Request Activity           2003/07/25 00:00 CICSPA
_ PSTORSUM SUMMARY Program Storage Analysis           2003/07/25 00:00 CICSPA
_ RMIDBSUM SUMMARY CICS RMI Analysis - DB2 Overview   2003/07/25 00:00 CICSPA
_ RMIMSSUM SUMMARY CICS RMI Analysis - IMS Overview   2003/07/25 00:00 CICSPA
_ RMIOVSUM SUMMARY CICS RMI Analysis - Overview       2003/07/25 00:00 CICSPA
```

Performance Summary Report - Application Naming ...

- CICS TS Application Naming Support ...
  - Allows more granular identification of a "transaction ID"
    - or "relate" individual transactions into a "single" application name
  - Two "special" character fields provided ...
    - Transaction ID (4 bytes) and/or Program ID (8 bytes)
      - But can be used for any "application" naming or identification data
  - New option on DFHMCT TYPE=INITIAL,APPLNAME=NO|YES
  - Uses standard User Event Monitoring Point(s) ..
    EXEC CICS MONITOR ENTRYNAME() POINT() DATA1() DATA2()
  - But, unlike other user data added via EMPs, the application naming data is preserved across performance record output(s)
  - Two "special" EMPs defined ...
    - can be used by user applications in any combination
  - Report Forms Support
    - List and Summary Reports



Performance Summary Report - Application Naming ...

```
  File  Edit  Confirm  Upgrade  Options  Help
                    EDIT SUMMARY Report Form - SUMBYATD    Row 1 of 17 More: >
Command ===> _____________________________________________ Scroll ===> CSR

Description  . . . Summary by Application Tran ID   Version (VRM): 620

Title  . . Summary by Transaction ID within Application Transaction ID by T
           ime-of-Day

Enter "/" to select action.

   Field
   Name +     S Type     Fn   Description
__ STOP       A TIMES    ___  Task stop time
__ APPLTRAN   A ________ ___  Application naming Tran ID
__ TRAN       A ________ ___  Transaction identifier
__ TASKCNT      ________ ___  Total Task count
__ RESPONSE     ________ AVE  Transaction response time
__ RESPONSE     ________ MAX  Transaction response time
__ DISPATCH     TIME     AVE  Dispatch time
__ CPU          TIME     AVE  CPU time
__ SUSPEND      TIME     AVE  Suspend time
__ SUSPEND      COUNT    AVE  Suspend time
__ DISPWAIT     TIME     AVE  Redispatch wait time
__ IRWAIT       TIME     AVE  MRO link wait time
__ IRWAIT       TIME     MAX  MRO link wait time
__ EOR          ________ ___  ---------------- End of Report ----------------
__ EOX          ________ ___  ---------------- End of Extract ----------------
```

Performance Summary - Application Naming - Notes

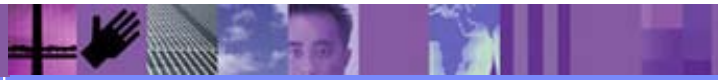
The CICS Application Naming support is an enabling function that allows your application programs to invoke special CICS event monitoring points to include an alternative Transaction ID or Program name in your CMF performance records.

Application naming can be useful for monitoring the performance of individual application programs selected from a menu and run under one menu Transaction ID. Or conversely, for amalgamating the information for one application program that runs under many different Transaction IDs.

The new fields (APPLTRAN and APPLPROG) can be included in all CICS PA reports and extracts that use Report Forms. They can also be specified in Performance Selection Criteria.

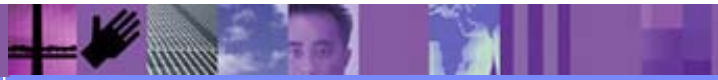
The Application Naming support was introduced in CICS Transaction Server for z/OS Version 2.2 with PTFs UQ68396 and UQ71829 (for APARs PQ63143 and PQ67561) and in CICS Transaction Server for OS/390 Version 1.3 with PTF UQ70905 (for APAR PQ63141).

The Performance Summary Report (shown on the next slide) shows the performance data summarized by Transaction ID within Application Naming Transaction ID by Time-of-Day.



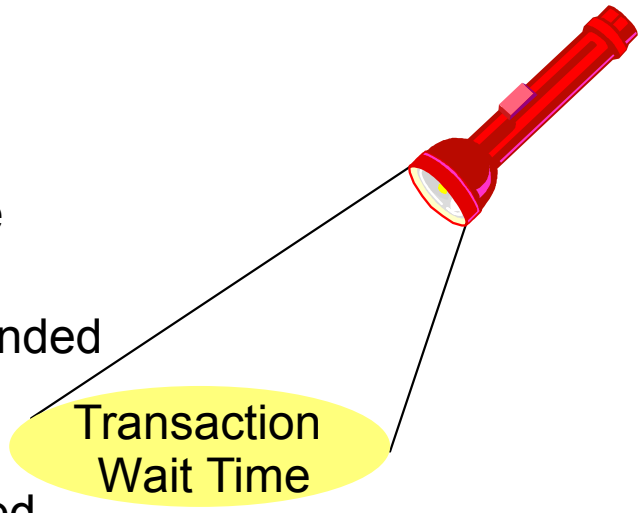
Performance Summary Report - Application Naming ...

```
 V1R2M0                                          CICS Performance Analyzer
                                                   Performance Summary

SUMM0001 Printed at 14:31:26  7/30/2002     Data from 11:07:20  7/30/2002 to 11:09:37  7/30/2002                    Page       1
Summary by Transaction ID within Application Transaction ID by Time-of-Day

                                        Avg      Max       Avg      Avg      Avg      Avg      Avg      Avg      Max
Stop     Tran     Tran       #Tasks Response Response Dispatch User CPU  Suspend  Suspend DispWait  IR Wait  IR Wait
Interval                                Time     Time      Time     Time     Time     Count     Time     Time     Time
11:07:00 MENU     NAME            1    .0246    .0246    .0243    .0035    .0003        3    .0003    .0000    .0000
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
11:07:00 MENU                     1    .0246    .0246    .0243    .0035    .0003        3    .0003    .0000    .0000
-------------------------------------------------------------------------------------------------------------------------
11:07:00                          1    .0246    .0246    .0243    .0035    .0003        3    .0003    .0000    .0000

11:08:00 MENU     PAYR            4    .0007    .0007    .0007    .0006    .0000        1    .0000    .0000    .0000
11:08:00 MENU     QPAY            6    .0007    .0008    .0007    .0005    .0000        1    .0000    .0000    .0000
11:08:00 MENU     TAXQ           12    .0008    .0010    .0008    .0006    .0000        1    .0000    .0000    .0000
11:08:00 MENU     UTXC            1    .0007    .0007    .0007    .0006    .0000        1    .0000    .0000    .0000
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
11:08:00 MENU                    23    .0008    .0010    .0007    .0006    .0000        1    .0000    .0000    .0000
-------------------------------------------------------------------------------------------------------------------------
11:08:00                         23    .0008    .0010    .0007    .0006    .0000        1    .0000    .0000    .0000

11:09:00 MENU     NAME            1    .0008    .0008    .0008    .0005    .0000        1    .0000    .0000    .0000
11:09:00 MENU     PAYR           11    .0007    .0009    .0007    .0006    .0000        1    .0000    .0000    .0000
11:09:00 MENU     QPAY            5    .0009    .0013    .0009    .0006    .0000        1    .0000    .0000    .0000
11:09:00 MENU     TAXQ            2    .0007    .0007    .0006    .0006    .0000        1    .0000    .0000    .0000
11:09:00 MENU     UTXC            6    .0007    .0008    .0007    .0006    .0000        1    .0000    .0000    .0000
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
11:09:00 MENU                    25    .0008    .0013    .0007    .0006    .0000        1    .0000    .0000    .0000

-------------------------------------------------------------------------------------------------------------------------
11:09:00                         25    .0008    .0013    .0007    .0006    .0000        1    .0000    .0000    .0000
```



Performance Wait Analysis Report

- Summary of transaction activity by wait (suspend) time
- Summarized by transaction ID (default), highlights ...
  - the resources that cause a transaction to be suspended
  - the CICS system resource bottlenecks that may be causing bad response time
- Enables a detailed analysis to be more easily performed
  - Focusing on the problem resources identified
- CICS Transaction Server Version 1.3 or later



Performance Wait Analysis Report ...

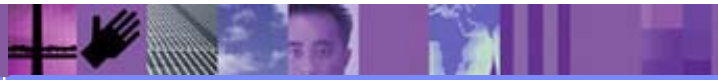
```
  File  Systems  Options  Help
                        PWATEST - Wait Analysis Report
Command ===> ____________________________________________________________

System Selection:                          Report Output:
 APPLID . . ________  +                     DDname . . . . . . . . . . WAIT0001
 Image  . . ________  +                     Print Lines per Page . . ___   (1-255)
 Group  . . ________  +

Report Ordering by:
 1 . . ________  +  2 . . ________  +  3 . . ________  +

Processing Options:
 Time Interval  . . . 00:01:00  (hh:mm:ss)

Report Format:
 Title  . . ____________________________________________________________
            ____________________________________________________________

Selection Criteria:
 _  Performance
```

Performance Wait Analysis Report - Notes

The Performance Wait Analysis Report provides a summary of the transaction activity by wait (suspend) time. This report summarizes, by transaction ID (default), the resources that cause a transaction to be suspended and highlights the CICS system resource bottlenecks that may be causing bad response time. This report enables a more detailed analysis, focusing on the problem resources identified, to be more easily performed.

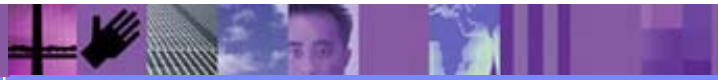
You can specify up to three sort fields and you can also specify the time interval anywhere from 1 second to 24 hours (rounded down to align to the hour or day).

The Performance Wait Analysis Report Report is only supported for CMF performance class data from CICS Transaction Server for OS/390 Version 1.3 or later.



Performance Wait Analysis Report

```
 V1R3M0                                                CICS Performance Analyzer
                                                         Wait Analysis Report

WAIT0001 Printed at 14:01:01  7/24/2003    Data from 19:26:39  7/14/2003 to 19:38:16  7/14/2003                    Page       1

------------------------------------------------------------------------------------------------------------------------------
Tran=CBM1
  Summary Data                                                 -------- Time ---------    ------ Count ------    ------ Ratio ------
                                                                     Total     Average       Total    Average
    # Tasks                                                                                   3962
    Response Time                                               39174.1585      9.8875
    Dispatch Time                                                4860.6282      1.2268      347472       87.7     12.4% of Response
    CPU Time                                                      179.7728      0.0454      347472       87.7      3.7% of Dispatch
    Suspend Wait Time                                           34313.4642      8.6606      347472       87.7     87.6% of Response
    Dispatch Wait Time                                          26770.4022      6.7568      343510       86.7     78.0% of Suspend
    Resource Manager Interface (RMI) elapsed time                4302.4135      1.0859      191768       48.4     11.0% of Response
    Resource Manager Interface (RMI) suspend time                2641.0973      0.6666       19211        4.8      7.7% of Suspend

  Suspend Detail                                               ------------------ Suspend Time ------------------ ----- Count -----
                                                                     Total     Average   %age  Graph                   Total  Average
    N/A      Other Wait Time                                    21836.2138      5.5114  63.6% |************          332847     84.0
    MAXOTDLY MAXOPENTCBS wait time                               4094.5942      1.0335  11.9% |**                      639      0.2
    LU62WTT  LU6.2 wait time                                     3035.7758      0.7662   8.8% |*                       5238      1.3
    DSPDELAY First dispatch wait time                            2398.0299      0.6053   7.0% |*                       3962      1.0
    MXTDELAY > First dispatch MXT wait time                       374.7682      0.0946   1.1% |                          87      0.0
    LMDELAY  Lock Manager (LM) wait time                         2206.6980      0.5570   6.4% |*                       2621      0.7
    GVUPWAIT Give up control wait time                            437.0868      0.1103   1.3% |                        277      0.1
    JCIOWTT  Journal I/O wait time                                305.0656      0.0770   0.9% |                       1888      0.5

------------------------------------------------------------------------------------------------------------------------------
Tran=CBPB
  Summary Data                                                 -------- Time ---------    ------ Count ------    ------ Ratio ------
                                                                     Total     Average       Total    Average
    # Tasks                                                                                     13
      ....
```



Performance Wait Analysis Report - Notes

The Performance Wait Analysis Report (shown on the previous slide) consists of two sections:-

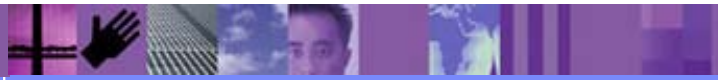
1. Summary Data

   This first section of the report provides a summary of the performance class records processed giving an overview of, summarized by the sort keys specified, the number of tasks, response time, dispatch and CPU times/counts, wait (suspend) time/count, dispatch wait time/count, and the CICS RMI elapsed and suspend times/counts.

2. Suspend Detail

   This section of the report provides a detailed analysis of the performance class records summarizing the wait (suspend) time fields sorted in descending order thereby highlighting the CICS system resource bottlenecks that may be causing bad response time.

The Performance Wait Analysis Recap Report, shown on the next slide, is always produced at the end to provide an analysis of the CICS CMF performance class (SMF 110) records processed. It provides information on the CMF field availability in each of the performance records processed in order to assist in understanding the possible impact of any anomalies in the wait analysis report that may be caused by to missing (excluded) CMF fields.



Performance Wait Analysis Recap Report

```
V1R3M0                                          CICS Performance Analyzer
                                                Wait Analysis Recap Report

WAIT0001 Printed at 13:13:01  7/23/2003    Data from 19:26:39  7/14/2003 to 19:38:16  7/14/2003                    Page       1

                                                 --------- Time --------                          ------ Ratio ------
                                                      Total     Average

# Tasks                                                4560
Response Time                                     57143.6000     12.5315
Dispatch Time                                      6606.9175      1.4489                            11.6% of Response
CPU Time                                            311.0086      0.0682                             4.7% of Dispatch
Suspend Wait Time                                 50536.5764     11.0826                            88.4% of Response
Dispatch Wait Time                                40688.4491      8.9229                            80.5% of Suspend
Resource Manager Interface (RMI) elapsed time      7492.8370      1.6432                            13.1% of Response
Resource Manager Interface (RMI) suspend time      5080.1235      1.1141                            10.1% of Suspend

                                                 ------------------ Suspend Time ------------------   Field Availability
                                                      Total     Average   Perc  Graph                 Present    Missing

N/A      Other Wait Time                          35739.2181      7.8375  70.7% |**************
DSPDELAY First dispatch wait time                  4240.4008      0.9299   8.4% |*                        4560          0
TCLDELAY   First dispatch TCLSNAME wait time        980.1794      0.2150   1.9% |                          4560          0
MXTDELAY   First dispatch MXT wait time            651.7618      0.1429   1.3% |                          4560          0
MAXOTDLY MAXOPENTCBS wait time                     4178.8802      0.9164   8.3% |*                        4560          0
LU62WTT  LU6.2 wait time                           3035.7758      0.6657   6.0% |*                        4560          0
LMDELAY  Lock Manager (LM) wait time               2213.3215      0.4854   4.4% |                          4560          0
JCIOWTT  Journal I/O wait time                      441.5376      0.0968   0.9% |                          4560          0
GVUPWAIT Give up control wait time                  437.0868      0.0959   0.9% |                          4560          0
 ....
DB2CONWT DB2 Connection wait time                     0.0000         N/C   0.0% |                          4560          0
DB2RDYQW DB2 Thread wait time                         0.0000         N/C   0.0% |                          4560          0
IMSWAIT  IMS (DBCTL) wait time                        0.0000         N/C   0.0% |                          4560          0

*Total*   (All Suspend Wait events)               50536.5764     11.0826 100.0% |********************
```

Performance Totals Report - CICS System

```
 V1R3M0                                                 CICS Performance Analyzer
                                                            Performance Totals
                                             __________________________________________________

TOTL0001 Printed at 15:14:41  1/20/2004    Data from 11:10:29  2/04/1999 to 11:33:51  2/04/1999                        Page       1

                                        Dispatched Time          CPU Time
                                      DD HH:MM:SS    Secs    DD HH:MM:SS    Secs

Total Elapsed Run Time                   00:23:22    1402


From Selected Performance Records

QR Dispatch/CPU Time                     00:00:20      20       00:00:13      13
MS Dispatch/CPU Time                     00:00:12      12       00:00:01       1
                                         --------   -----       --------  ------
 TOTAL (QR + MS)                         00:00:32      32       00:00:14      14

L8 CPU Time                                                     00:00:00       0
J8 CPU Time                                                     00:00:00       0
S8 CPU Time                                                     00:00:00       0
                                         --------   -----       --------  ------
 TOTAL (L8 + J8 + S8)                    00:00:00       0       00:00:00       0

J9 CPU Time                                                     00:00:00       0
                                         --------   -----       --------  ------
 TOTAL (J9)                              00:00:00       0       00:00:00       0

                                         --------   -----       --------  ------
 Total CICS TCB Time                     00:00:32      32       00:00:14      14


Total Performance Records (Type C)                    338
Total Performance Records (Type D)                     36
Total Performance Records (Type F)                      0
Total Performance Records (Type S)                      0
Total Performance Records (Type T)                    270
                                                 --------                                                          --------
Total Performance Records (Selected)                  644           Total Performance Records                          644
```

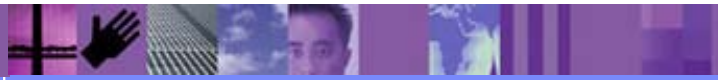
Performance Totals Report - CICS System - Notes

The Performance Totals Report (the first of 4 parts is shown on the slide) gives a comprehensive analysis of the resource usage of your CICS system and can be used to gain a system-wide perspective of CICS system performance.

Alternatively, you can use Selection Criteria to narrow down the scope of the report, e.g. "Show me the resource usage for a particular group of Transaction IDs or a single Transaction ID or a single Transaction Number".

Part 1 shows the overall CICS System Usage. It reports the CMF data about the CICS system as a whole, including:-

- CPU and Dispatch times, broken down by TCB Modes
- Performance Record and Task counts.



Performance Totals Report - CPU and Dispatch

V1R3M0 CICS Performance Analyzer
Performance Totals

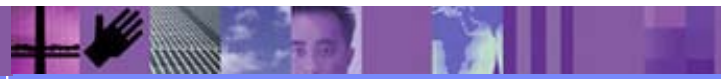
TOTL0001 Printed at 15:14:41 2/04/2002 Data from 11:10:29 2/04/1999 to 11:33:51 2/04/1999 Page 2

From Selected Performance Records	..... C O U N T S ..... Total	Avg/Task	Max/Task	..... T I M E ..... Total	Avg/Task	Max/Task
Dispatch Time	31294	48.6	3171	32	.049	9.349
CPU Time				14	.022	2.343
RLS CPU (SRB) Time				0	.000	.000
Suspend Time	30921	48.0	3170	6587	10.229	1385.297
Dispatch Wait Time	30650	47.6	3170	5	.008	1.165
Dispatch Wait Time (QR Mode)	30223	46.9	3170	4	.006	1.086
Response (-TCWait for Type C)				24	.070	2.139
Response (All Selected Tasks)				5124	7.956	1386.703
QR Dispatch Time	30831	47.9	3171	20	.030	3.705
MS Dispatch Time	307	.5	64	12	.019	5.643
RO Dispatch Time						
QR CPU Time				13	.021	1.905
MS CPU Time				1	.002	.438
RO CPU TIME						
L8 CPU Time				0	.000	.000
J8 CPU Time				0	.000	.000
J9 CPU TIME						
S8 CPU Time				0	.000	.000

Performance Totals - CPU and Dispatch - Notes

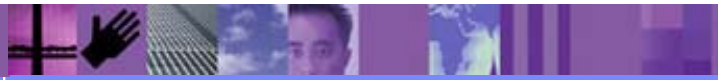
Part 2 of the Performance Totals Report shows the CPU and Dispatch statistics. It provides a breakdown of the CPU, Dispatch and Suspend counts and elapsed time. The CPU time is broken down by each CICS Dispatcher TCB Mode:-

- QR - There is always one quasi-reentrant mode TCB. It is used to run quasi-reentrant CICS code and non-threadsafe application code.
- FO - There is always one file-owning TCB. It is used for opening and closing user data sets.
- RO - There is always one resource-owning TCB. It is used for opening and closing CICS data sets, loading programs, issuing RACF calls, etc.
- CO - The optional concurrent mode TCB is used for processes which can safely run in parallel with other CICS activity such as VSAM requests.
- SZ - The single optional SZ mode TCB is used by the FEPI interface.
- RP - The single optional RP mode TCB is used to make ONC/RPC calls.
- J8 - A task has a J8 mode TCB for its sole use if it needs to run a JVM.
- J9 - A task has a J9 mode TCB for its sole use if it needs to run a JVM.
- L8 - L8 mode TCBs are not in use for CICS Transaction Server for OS/390 Release 3. In CICS Transaction Server for z/OS Version 2.2 with DB2 Version 6.1 or later, L8 Mode TCBs are used by the CICS-DB2 attachment.
- SO - The SO mode TCB is used to make calls to the sockets domain interface for TCP/IP.
- SL - The SL mode TCB is used to wait for activity on a set of listening sockets.
- S8 - A task has an S8 TCB for its sole use if it needs to use the system Secure Sockets Layer (SSL).



Performance Totals Report - Resource Utilization

```
V1R2M0                                          CICS Performance Analyzer
                                                  Performance Totals

TOTL0001 Printed at 12:33:59  1/21/2002    Data from 11:10:29  2/04/1999 to 11:33:51  2/04/1999                    Page       3

                                                    ..... C  O  U  N  T  S .....   ........... T  I  M  E ...........
From Selected Performance Records                     Total   Avg/Task   Max/Task       Total    Avg/Task     Max/Task

FCWAIT   File I/O wait time                             293         .5        214           1        .002         .952
RLSWAIT  RLS File I/O wait time                          1         .0          1           0        .000         .068
TSWAIT   VSAM TS I/O wait time                          0         .0          0           0        .000         .000
TSSHWAIT Asynchronous Shared TS wait time               0         .0          0           0        .000         .000
JCWAIT   Journal I/O wait time                         12         .0          1           0        .000         .025
TDWAIT   VSAM transient data I/O wait time              0         .0          0           0        .000         .000

IRWAIT   MRO link wait time                           429         .7          7           9        .013        3.734

CFDTWAIT CF Data Table access requests wait time        0         .0          0           0        .000         .000
CFDTSYNC CF Data Table syncpoint wait time              0         .0          0           0        .000         .000
 ......
 ......
TCMSGIN1 Messages received count                      537         .8          2
TCCHRIN1 Terminal characters received count          6996       10.9        225
TCMSGOU1 Messages sent count                          541         .8          2
TCCHROU1 Terminal characters sent count            358311      556.4       1865
 ......
 ......
TCM62IN2 LU6.2 messages received count                  0         .0          0
TCC62IN2 LU6.2 characters received count                0         .0          0
TCM62OU2 LU6.2 messages sent count                      0         .0          0
TCC62OU2 LU6.2 characters sent count                    0         .0          0

FCADD    File ADD requests                              0         .0          0
FCBROWSE File Browse requests                        6556       10.2       1767
FCDELETE File DELETE requests                           0         .0          0
FCGET    File GET requests                            177         .3        137
FCPUT    File PUT requests                              0         .0          0
```

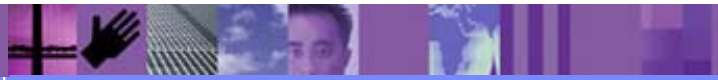


Performance Totals - Resource Utilization - Notes

Part 3 of the Performance Totals Report shows the Resource Utilization statistics.

Each data field in the performance record is summarized into Total, Avg/Task and Max/Task:-

- For Clock fields, the count and time components are broken down.
- For Count fields, the count values are reported.

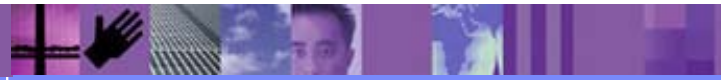


Performance Totals Report - User Fields

V1R2M0 CICS Performance Analyzer
Performance Totals

TOTL0001 Printed at 12:33:59 1/21/2002 Data from 11:10:29 2/04/1999 to 11:33:51 2/04/1999 Page 8

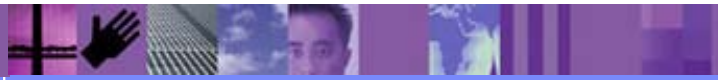
From Selected User Records			..... C O U N T S ..... Total	Avg/Task	Max/Task	..... T I M E ..... Total	Avg/Task	Max/Task
TEST	TEST	S001	54	.1	1	20	.032	1.329
TEST	TEST	S002	54	.1	1	0	.000	.002
RMITOTAL	ECPRMI	A001	0	.0	0			
RMIOTHER	ECPRMI	A002	0	.0	0			
RMIDB2	ECPRMI	A003	0	.0	0			
RMIDBCTL	ECPRMI	A004	0	.0	0			
RMIEXDLI	ECPRMI	A005	0	.0	0			
RMIMQM	ECPRMI	A006	0	.0	0			
RMITCPIP	ECPRMI	A007	0	.0	0			
ICTOTAL	IC	A001	0	.0	0			
ASKTIME	IC	A002	0	.0	0			
CANCEL	IC	A003	0	.0	0			
DELAY	IC	A004	0	.0	0			
INTERVAL	IC	A005	0	.0	0			
POST	IC	A006	0	.0	0			
RETRIEVE	IC	A007	0	.0	0			
START	IC	A008	0	.0	0			



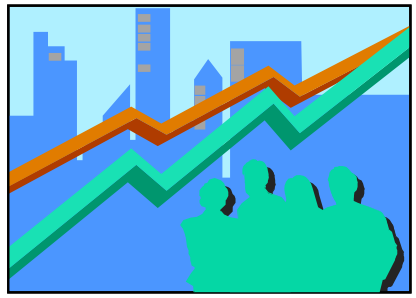
Performance Totals Report - User Fields - Notes

Part 4 of the Performance Totals Report shows the User Field statistics.

It reports the statistics for the User Fields (from any User-defined EMPs in the MCT) in the CMF performance class records.



Cross-System Work Report



- Provides a report that correlates the CMF data by Network Unit-of-Work id ...
  - Default report includes only the performance class records that have the same network unit-of-work in multiple records in a single or multiple systems
- Report can be tailored using Report Forms
- Records sorted by ...
  - Network Unit-of-Work Prefix
  - Network Unit-of-Work Suffix
  - Syncpoint count concatenated with the task stop time (descending order)
  - Generic APPLID

Cross-System Work Report - Notes

The Cross-System Work Report processes CMF performance class data from a single or multiple CICS systems and correlates the data by network unit-of-work id. Each line is printed from a single CMF performance class record. Records that are part of the same network unit-of-work are printed sequentially in groups separated by blank lines.

The report content includes a transaction Request Type field which gives an indication of the type function performed by the transaction:-

AP:	Application program request, including Distributed Program Link (DPL)
FS:----	Function shipping request:-
FS:F---	File Control
FS:-I--	Interval Control
FS:--D-	Transient Data
FS:---S	Temporary Storage
TR:xxxx	Transaction routing request from a Terminal-Owning Region (TOR), where "xxxx" is the connection name of the system to which the transaction was routed.

The default Cross-System Work report format is shown on the next slide ....

Cross-System Work Report - Default ...

```
 V1R2M0                                               CICS Performance Analyzer
                                                          Cross-System Work
                                                   ___________________________________________________

CROS0001 Printed at 12:09:28  1/24/2002 Data from 11:10:51  2/04/1999 to 08:10:28  2/16/1999                           Page       3

                                          Request              Fcty  Conn                          UOW                    R                Response A
Tran Userid   SC TranType Term  LUName     Type    Program  T/Name Name NETName                   Seq APPLID       Task T   Stop Time       Time  B

ABRW BRENNER  TP U        S23D IGCS23D  AP:     DFHúABRW T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1     61 T 11:13:20.275    .0080
CSMI CBAKER   TO UM       R11  IYK2Z1V1 FS:F--- DFHMIRS  T/R11  CJB1 GBIBMIYA.IGCS23D    1 IYK2Z1V3     57 T 11:13:20.274    .0044

ABRW BRENNER  TP U        S23D IGCS23D  AP:     DFHúABRW T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1     62 T 11:13:21.332    .0064
CSMI CBAKER   TO UM       R11  IYK2Z1V1 FS:F--- DFHMIRS  T/R11  CJB1 GBIBMIYA.IGCS23D    1 IYK2Z1V3     58 T 11:13:21.331    .0039

CEDA BRENNER  TO U        S23D IGCS23D  AP:     DFHEDAP  T/S23D      GBIBMIYA.IGCS23D    3 IYK2Z1V1     72 T 11:16:28.284   1.1025
CEDA BRENNER  TO U        S23D IGCS23D  AP:     DFHEDAP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1     72 C 11:16:27.181   3.0046
CEDA BRENNER  TO U        S23D IGCS23D  AP:     DFHEDAP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1     72 C 11:16:24.177   2.2127
CEDA BRENNER  TO U        S23D IGCS23D  AP:     DFHEDAP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1     72 C 11:16:21.964  46.5125
CEDA BRENNER  TO U        S23D IGCS23D  AP:     DFHEDAP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1     72 C 11:15:35.451    .6794

CEMT BRENNER  TO U        S23D IGCS23D  AP:     DFHEMTP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    140 T 11:21:24.062  51.3442
CEMT BRENNER  TO U        S23D IGCS23D  AP:     DFHEMTP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    140 C 11:20:32.718   8.3481
CEMT BRENNER  TO U        S23D IGCS23D  AP:     DFHEMTP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    140 C 11:20:24.370    .0042

CEMT BRENNER  TO U        S23D IGCS23D  AP:     DFHEMTP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    174 T 11:21:28.662   1.1930
CEMT BRENNER  TO U        S23D IGCS23D  AP:     DFHEMTP  T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    174 C 11:21:27.469    .0041

RMST BRENNER  TO U        S23D IGCS23D  TR:CJB3          T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    178 T 11:22:38.447  48.9210
STAT CBAKER   TO U        R11  IYK2Z1V1 AP:     DFH0STAT S/S23D CJB1 GBIBMIYA.IGCS23D    1 IYK2Z1V3    349 T 11:22:38.433  66.7720
RMST BRENNER  TO U        S23D IGCS23D  TR:CJB3          T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    178 C 11:21:49.526  10.0524
RMST BRENNER  TO U        S23D IGCS23D  TR:CJB3          T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    178 C 11:21:39.473   7.8027
RMST BRENNER  TO U        S23D IGCS23D  TR:CJB3          T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    178 C 11:21:31.671    .0110

STAT BRENNER  TO U        S23D IGCS23D  AP:     DFH0STAT T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    195 T 11:22:52.663   2.0203
STAT BRENNER  TO U        S23D IGCS23D  AP:     DFH0STAT T/S23D      GBIBMIYA.IGCS23D    1 IYK2Z1V1    195 C 11:22:50.642   8.9745
```

Tailoring the Cross-System Work Report

```
  File  Systems  Options  Help
                    XSYS - Cross-System Work Report
Command ===> _____________________________________________________________

System Selection:                        Report Output:
 APPLID . . ________  +                   DDname . . . . . . . . . CROS0001
 Image  . . ________  +                   Print Lines per Page . . ___  (1-255)
 Group  . . ________  +

Processing Options:
 1  1. UOWs with more than one record
    2. UOWs with a single record
    3. All UOWs

Report Format:
 Form . . . ________  +
 Title  . . ___________________________________________________________________
            ___________________________________________________________________

Selection Criteria:
 _  Performance
```

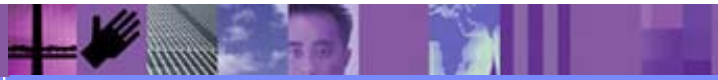
Specify the report options

Tailoring the Cross-System Work Report - Notes

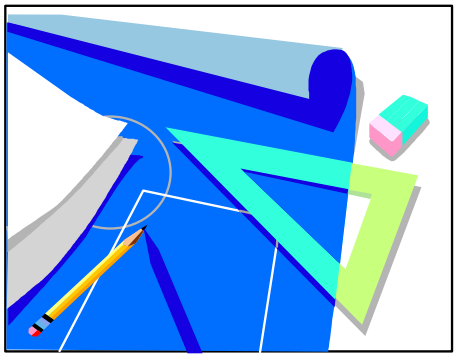
The Cross-System Work Report can be tailored by specifying report options, Report Forms, and record selection criteria. The network unit-of-work (UOW) option provides the ability to include:-

1. UOWs with more than one performance record
2. UOWs with a single performance record
3. All UOWs.

Report Forms can also be used to tailor the format and content of the Cross-System Work Report.



MVS Workload Activity Reports



- Provides a List Report that correlates the CMF performance class data by Network Unit-of-Work id, highlighting ...
  - MVS WLM Service Class and Report Class
  - WLM Reporting and completion phase (BTE or EXE)
- Summary Report ...
  - by MVS WLM Service Class and Report Class
    - average response time, peak percentile, ...
- Tailoring Workload Activity Reports
  - List, Summary, ...
  - Include EXEcution phase records, peak percentile, ...

MVS Workload Activity Reports - Notes

The MVS Workload Activity Report provides a detailed List and/or Summary of the segments of work (transactions) 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.

The report highlights the MVS Workload Manager (WLM) Service Class and Report Class, and the WLM reporting and completion phase used for each transaction.

The Workload Activity Summary report summarizes response time by WLM service and report classes.

The Workload Activity Reports are only supported for CMF performance class data from CICS Transaction Server for OS/390 Version 1.1 or later.

MVS Workload Activity Reports ...

```
  File  Systems  Options  Help
                    WLMTEST - Workload Activity Report
Command ===> ____________________________________________________________

System Selection:                          Report Output:
 APPLID . . ________  +                     DDname . . . . . . . . . WKLD0001
 Image  . . ________  +                     Print Lines per Page . . ___  (1-255)
 Group  . . ________  +

Reports Required:                          Processing Options:
 _  List                                    Peak Percentile . . . 90  (50-100)
 /  Summary   _  Include EXE Y tasks

Report Format:
 Title  . . ____________________________________________________________
            ____________________________________________________________

Selection Criteria:
 _  Performance
```

Showing Defaults

MVS Workload Activity Reports - List

```
V1R2M0                                               CICS Performance Analyzer
                                                   Workload Manager Activity List

WKLD0001 Printed at  7:33:50 12/10/2002 Data from 14:18:57 11/05/2002 to 15:04:59 11/05/2002                       Page     1918

                                        Request            Fcty   Conn Service  Report                       R                  Response A
Tran Userid   SC TranType Term  LUName   Type    Program  T/Name Name Class    Class     APPLID     Task T  P   C  Stop Time    Time    B

TS1  CICSUSER TP U          P199 SCSTP199 TR:PAA4          T/P199      CICSDFLT WASC     SCSCPTA2  15918 T BTE    14:59:33.90   .0037
TS1  CICSUSER TP U          T21  SCSCPTA2 AP:     DSWTS1VV S/P199 PTA2 CICSDFLT WASC     SCSCPAA4  24448 T EXE Y  14:59:33.90   .0024

/FOR CICSUSER TO U          P199 SCSTP199 TR:PAA4          T/P199      CICSDFLT WASC     SCSCPTA2  15929 T BTE    14:59:35.91   .0138
/FOR CICSUSER TO U          T21  SCSCPTA2 AP:     DSWFORVV S/P199 PTA2 CICSDFLT WASC     SCSCPAA4  24472 T [illegible] 14:59:35.90   .0027

PS3  CICSUSER TP U          P199 SCSTP199 TR:PAA4          T/P199      CICSDFLT WASC     SCSCPTA2  [illegible]31 T BTE    14:59:36.32   .0133
PS3  CICSUSER TP U          T21  SCSCPTA2 AP:     DSWPS3VV S/P199 PTA2 CICSDFLT WASC     SCSCPA[illegible] [illegible]4478 T EXE Y  14:59:36.31   .0085

/FOR CICSUSER TO U          P199 SCSTP199 TR:PAA4          T/P199      CICSDFLT WASC     SC[illegible]A2  15944 T BTE    14:59:37.92   .0030
/FOR CICSUSER TO U          T21  SCSCPTA2 AP:     DSWFORVV S/P199 PTA2 CICSDFLT WASC     [illegible]PAA4  24504 T EXE Y  14:59:37.92   .0014

TX1  CICSUSER TP U          P199 SCSTP199 TR:PAA4          T/P199      CICSDFLT WASC     SCSCPTA2  15946 T BTE    14:59:38.33   .0067
TX1  CICSUSER TP U          T21  SCSCPTA2 AP:     DSWTX1VV S/P199 PTA2 CICSDFLT WASC     SCSCPAA4  24509 T EXE Y  14:59:38.33   .0019

/FOR CICSUSER TO U          P199 SCSTP199 TR:PAA4          T/P199      CICSDFLT WASC     SCSCPTA2  15956 T BTE    14:59:40.34   .0024
/FOR CICSUSER TO U          T21  SCSCPTA2 AP:     DSWFORVV S/P199 PTA2 CICSDFLT WASC     SCSCPAA4  24534 T EXE Y  14:59:40.34   .0013

IX8  CICSUSER TP U          P199 SCSTP199 TR:PAA4          T/P199      CICSDFLT WASC     SCSCPTA2  15957 T BTE    14:59:40.85   .1108
IX8  CICSUSER TP U          T21  SCSCPTA2 AP:     DSWIX8VV S/P199 PTA2 CICSDFLT WASC     SCSCPAA4  24537 T EXE Y  14:59:40.85   .1094

/FOR CICSUSER TO U          P199 SCSTP199 TR:PAA4          T/P199      CICSDFLT WASC     SCSCPTA2  15963 T BTE    14:59:42.87   .0115
/FOR CICSUSER TO U          T21  SCSCPTA2 AP:     DSWFORVV S/P199 PTA2 CICSDFLT WASC     SCSCPAA4  24553 T EXE Y  14:59:42.87   .0039
```

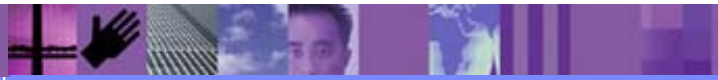
MVS Workload Activity Reports - Summary

V1R3M0 CICS Performance Analyzer
Workload Manager Activity Summary by Service Class

WKLD0001 Printed at 16:43:42 6/18/2003 Data from 14:18:57 11/05/2002 to 15:04:59 11/05/2002
Page 1920

Service Class	APPLID	Phase	#Tasks	Response Time Average	Std Dev	90% Peak	Maximum
CICSDFLT	SCSCPAA1	BTE	51	.0377	.1073	.1753	.5600
	SCSCPAA1	EXE	1533	.0316	.0781	.1316	1.1133
	SCSCPAA4	BTE	17	111.043	457.767	697.900	1887.44
	SCSCPAA4	EXE	8239	.0204	.0569	.0934	1.2754
	SCSCPJA7	EXE	810	.0035	.0043	.0090	.0297
	SCSCPLA1	BTE	8816	.3441	20.0989	26.1108	1887.18
	SCSCPLA2	BTE	6954	.4033	22.6318	29.4172	1887.33
	SCSCPTA1	BTE	6624	.0356	.0792	.1371	1.2963
	SCSCPTA2	BTE	4680	.0412	.0891	.1555	1.1289
CICSDFLT	*Total*	BTE	27142	.3005	19.8410	25.7367	1887.44
	Total	EXE	10582	.0207	.0587	.0960	1.2754
CICSWORK	SCSCPJA7	BTE	32	58.9871	333.661	486.741	1887.47
* Grand Total	*	BTE	27174	.3696	22.8968	29.7233	1887.47
* Grand Total	*	EXE	10582	.0207	.0587	.0960	1.2754

- by MVS WLM Service Class and Report Class
  - Applid, WLM Completion phase, Number of tasks, ...
  - Response time ...
    - Average, Std Deviation, Peak percentile, Maximum, ...



Transaction Group Report

- Used to understand the correlation of the performance class records that are attached in a CICS assigned transaction group ...
  - Correlate the transactions belonging to the same work request
    - Such as the CWXN (Web Attach) and CWBA (Alias transaction)
  - Grouped by Transaction Group ID 'TRNGRPID' field
    - CICS Web Support (CWS)
    - Internet Inter-ORB Protocol (IIOP)
    - External Call Interface (ECI) over TCP/IP
    - 3270 Bridge - "two task model"

Transaction Group Report ...

```
  File   Systems   Options   Help
                    TEST - Transaction Group Report
Command ===> ____________________________________________________________

System Selection:                        Report Output:
 APPLID . . _________ +                   DDname . . . . . . . . . TRGP0001
 Image  . . _________ +                   Print Lines per Page . . ___   (1-255)
 Group  . . _________ +

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
```

Showing Defaults

Transaction Group Report ...

V1R2M0 CICS Performance Analyzer

Transaction Group

TRGP0001 Printed at 12:03:17 11/12/2002 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page 14

Tran	Userid	SC	Origin	Brdg Tran	Client IP Address	Request Type	Program	Term	LUName	Fcty T/Name	Conn Name	APPLID	Task	R T	Stop Time	Response Time
CWXN	CBAKER	U	SOCKET		9.20.45.17	AP:	DFHWBXN					IYK2Z1V3	617	T	11:30:11.47	.2545
CWBA	CBAKER	U	WEB		9.20.45.17	AP:	DFHWBTTA					IYK2Z1V3	618	T	11:30:11.51	.0385
CWXN	CBAKER	U	SOCKET		9.20.45.17	AP:	DFHWBXN					IYK2Z1V3	619	T	11:30:21.65	.3538
CWBA	CBAKER	U	WEB		9.20.45.17	AP:	DFHWBTTA					IYK2Z1V3	620	T	11:30:21.67	.0289
CWXN	CBAKER	U	SOCKET		9.20.45.17	AP:	DFHWBXN					IYK2Z1V3	621	T	11:30:28.02	.3097
CWBA	CBAKER	U	WEB		9.20.45.17	AP:	DFHWBTTA					IYK2Z1V3	622	T	11:30:29.44	1.4267
CWXN	CBAKER	U	SOCKET		9.20.45.17	AP:	DFHWBXN					IYK2Z1V3	623	T	11:30:33.46	.2828
CWBA	CBAKER	U	WEB		9.20.45.17	AP:	DFHWBTTA					IYK2Z1V3	624	T	11:30:34.63	1.1731
CWXN	CBAKER	U	SOCKET		9.20.45.17	AP:	DFHWBXN					IYK2Z1V3	625	T	11:30:42.85	.0023
CWBA	CBAKER	U	WEB		9.20.45.17	AP:	DFHWBTTA					IYK2Z1V3	626	T	11:30:43.18	.3228
CEDA	CBAKER	TO	BRIDGE	CWBA		AP:	DFHEDAP	}AAJ	}AAJ	B/}AAJ		IYK2Z1V3	627	T	11:31:26.83	43.9778
CWXN	CBAKER	U	SOCKET		9.20.45.17	AP:	DFHWBXN					IYK2Z1V3	674	T	11:31:01.84	.2718
CWBA	CBAKER	U	WEB		9.20.45.17	AP:	DFHWBTTA					IYK2Z1V3	675	T	11:31:01.92	.0769
CWXN	CBAKER	U	SOCKET		9.20.45.17	AP:	DFHWBXN					IYK2Z1V3	676	T	11:31:15.03	.2997
CWBA	CBAKER	U	WEB		9.20.45.17	AP:	DFHWBTTA					IYK2Z1V3	677	T	11:31:15.06	.0376
CWXN	CBAKER	U	SOCKET		9.20.45.17	AP:	DFHWBXN					IYK2Z1V3	678	T	11:31:17.75	.2561
CWBA	CBAKER	U	WEB		9.20.45.17	AP:	DFHWBTTA					IYK2Z1V3	679	T	11:31:17.93	.1787

Transaction Group Report - Notes

The transaction group ID (TRNGRPID) is assigned internally by CICS at transaction attach time, and is used to correlate the transactions that CICS executes in a single CICS system for the same incoming work request. e.g. For transactions using the CICS Web Support, the CWXN (Web attach transaction) and CWBA (alias transaction) transactions.

This transaction group ID relationship is useful in understanding the flow of transactions through a CICS system when applied to transaction requests that originate through the CICS Web Support (CWS), Internet Inter-ORB Protocol (IIOP), External Call Interface (ECI) over TCP/IP, or the 3270 bridge interface, as indicated by the transaction "Origin" field on the report which has been interpreted from byte 4 of the transaction flags TRANFLAG field (group name: DFHTASK, field id 164) in the CMF performance record.

Performance record selection criteria can be specified for the ORIGIN field so that CICS Web Support, IIOP, ECI, or the 3270 bridge interface transactions can be specifically selected for the transaction group report.

The transaction group id (TRNGRPID) field is supported by CICS Transaction Server for OS/390 Version 1.3 or later.

At the end of the detail report is a Transaction Group Summary Report which summarizes and groups the transactions by their "origin"; an example of this report is shown on the next slide ....

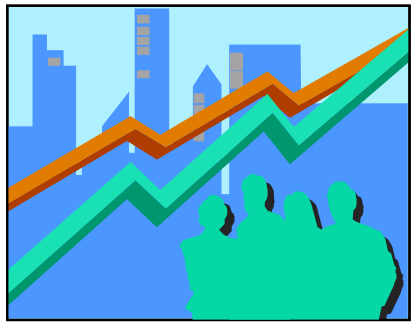
Transaction Group Report - Summary

V1R2M0 CICS Performance Analyzer
Transaction Group - Summary

TRGP0001 Printed at 11:46:14 1/24/2002 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page 16

Origin Type	Transactions	Average Response	Average Dispatch	Average CPU Time	Average Suspend	Average DispWait	Average IR Wait	Average RMI Susp	Average FC Wait	Average SO Wait
BRIDGE	17	10.140	.000	.000	.010	.000	.000	.000	.000	.000
MRO SESS	163	.634	.000	.000	.001	.000	.001	.000	.000	.000
NONE	69	362.022	.301	.000	.061	.000	.000	.000	.000	.000
SCHEDULE	62	.280	.000	.000	.000	.000	.000	.000	.000	.000
SOCKET	50	44.630	.000	.000	.045	.000	.000	.000	.000	.045
START	28	.261	.000	.000	.000	.000	.000	.000	.000	.000
TDQUEUE	23	.012	.000	.000	.000	.000	.000	.000	.000	.000
TERM START	17	.011	.000	.000	.000	.000	.000	.000	.000	.000
TERMINAL	1818	2.468	.000	.000	.002	.000	.000	.000	.000	.000
WEB	60	.154	.000	.000	.000	.000	.000	.000	.000	.000
XM RUN	16	.424	.000	.000	.000	.000	.000	.000	.000	.000
TOTAL	2323	13.781	.009	.000	.005	.000	.000	.000	.000	.001

Business Transaction Services Report

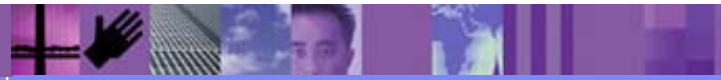


- Provides a detailed report of the transactions performed by the same or different CICS systems on behalf of a single CICS Business Transaction Services (BTS) process
- Records sorted by ...
  - BTS Process ID (Root Activity ID)
  - Transaction Sequence Number
  - Transaction Stop Time (ascending order)
- CICS Transaction Server Version 1.3 or later

Business Transaction Services Report ...

```
  File   Systems   Options   Help
                              SOAPTEST - BTS Report
Command ===> ____________________________________________________________

System Selection:                          Report Output:
 APPLID . . _________ +                     DDname . . . . . . . . . CBTS0001
 Image  . . _________ +                     Print Lines per Page . . ___   (1-255)
 Group  . . _________ +

Report Format:
 Title  . . ____________________________________________________________
            ____________________________________________________________

Selection Criteria:
 _  Performance
```

Showing Defaults



Business Transaction Services Report ...

V1R2M0 CICS Performance Analyzer
CICS Business Transaction Services (BTS)

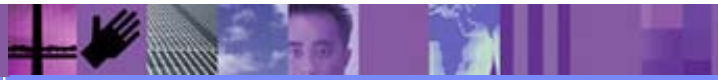
CBTS0001 Printed at 11:43:56 1/24/2002 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page 1

Tran	SC	TranType	Process Name	Process Type	Activity Name	Pro/Act Reqs	Cont'er Reqs	Event Reqs	Task	T	Stop Time	Response Time
SAL1	TP	U				2	2	0	211	T	11:18:25.27	.1222
SAL1	TP	U				2	2	0	239	T	11:19:18.33	.1835
PAY1	TP	U				2	0	0	294	T	11:19:42.20	.1390
PAY1	TP	U				2	0	0	305	T	11:19:57.64	.0747
RED1	U	U	R SALES111111	ORDER	CREDIT-CHECK	0	2	1	176	T	11:17:32.05	.5333
STOC	U	U	R SALES111111	ORDER	STOCK-CHECK	0	2	1	177	T	11:17:32.05	.5145
SALE	U	U	R SALES111111	ORDER	DFHROOT	10	5	4	175	T	11:17:32.05	.5675
INV1	U	U	SALES111111	ORDER	INVOICE-BUILD	0	1	1	178	T	11:17:32.09	.0359
DEL1	U	U	SALES111111	ORDER	DELIV-NOTE	0	1	1	179	T	11:17:33.29	1.2323
SALE	U	U	SALES111111	ORDER	DFHROOT	0	0	0	180	T	11:17:33.31	1.2198
SALE	U	U	SALES111111	ORDER	DFHROOT	1	3	2	183	T	11:17:33.37	.0800
SALE	U	U	SALES111111	ORDER	DFHROOT	1	3	5	184	T	11:17:33.42	.0519
SALE	U	U	SALES111111	ORDER	DFHROOT	2	2	1	186	T	11:17:38.65	.0566
REM1	U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	187	T	11:17:38.68	.0243
SALE	U	U	SALES111111	ORDER	DFHROOT	1	0	3	188	T	11:17:38.72	.0389
SALE	U	U	SALES111111	ORDER	DFHROOT	2	2	1	191	T	11:17:43.92	.0826
REM1	U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	192	T	11:17:43.96	.0367
SALE	U	U	SALES111111	ORDER	DFHROOT	1	0	3	193	T	11:17:44.04	.0824
SALE	U	U	SALES111111	ORDER	DFHROOT	2	2	1	194	T	11:17:49.13	.0463
REM1	U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	195	T	11:17:49.16	.0282
SALE	U	U	SALES111111	ORDER	DFHROOT	1	0	3	196	T	11:17:49.20	.0437
SALE	U	U	R SALES111111	ORDER	DFHROOT	0	1	3	198	T	11:17:52.42	.0821
SALE	U	U	SALES111111	ORDER	DFHROOT	0	0	0	199	T	11:17:53.03	.6101

Business Transaction Services Report - Notes

The Business Transaction Services Report is similar to the Cross-System Work and Transaction Group Reports in that it is a detailed report, but this report shows the correlation of the transactions performed by the same or different CICS systems on behalf of a single CICS Business Transaction Services (BTS) process (root activity id).

The Business Transaction Services Report is only supported for CMF performance class data from CICS Transaction Server for OS/390 Version 1.3 or later.



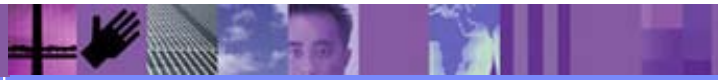
Performance Graph Reports

- Performance Graph Reports ...
  - Transaction Rate Graph
    - Average Response Time in seconds
    - Number of Transactions Completed
  - Transaction Response Time Graph
    - Average Response Time in seconds
    - Maximum Response Time in seconds

Performance Graph Reports - Transaction Rate ...

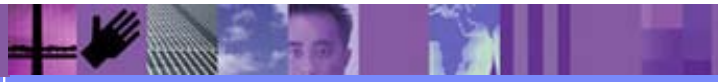
```
  File  Systems  Options  Help
                    TEST - Transaction Rate Graph
Command ===> ____________________________________________________________

System Selection:                        Report Output:
 APPLID . . _________ +                   DDname . . . . . . . . . GRTE0001
 Image  . . _________ +                   Print Lines per Page . . ___  (1-255)
 Group  . . _________ +

Graph Options:
 Time Interval  . . . . . . . . . . . . 5____  (minutes)
 Average Response Time  . . . . . . . . _____  (seconds)
 Number of Transactions Completed . . . _____

Report Format: ____________________________________________________________
 Title  . .    ____________________________________________________________


Selection Criteria:
 _  Performance
```

Specify the report options



Performance Graph Reports

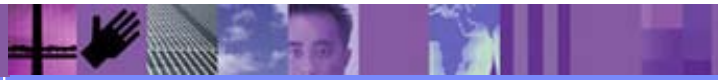
```
 V1R2M0                                                CICS Performance Analyzer
                                                          Transaction Rate

GRTE0001 Printed at  9:16:07  1/22/2002    Data from  11:10:29  2/04/1999 to 11:34:00  2/04/1999                        Page       1
  2/04/1999

  Time     Value |       Average Response Time in  Secs                |     Value |     Number of Transactions completed                |
HH.MM.SS         |    8   16   24   32   40   48   56   64   72   80              |    8   16   24   32   40   48   56   64   72   80
11:10:30         |----|----|----|----|----|----|----|----|----|----|              |----|----|----|----|----|----|----|----|----|----|
11:15:00     4.2 |***                                                        52 |**********************************
11:20:00     2.8 |**                                                         70 |*********************************************
11:25:00     4.0 |***                                                        76 |**************************************************
11:30:00     3.6 |**                                                         37 |************************
11:34:00    75.0 |**********************************************            35 |************************


------------------------------------------------------------------------------------------------------------------------------------------


 V1R2M0                                                CICS Performance Analyzer
                                                          Response Time

GRSP0001 Printed at  9:16:07  1/22/2002    Data from  11:10:29  2/04/1999 to 11:34:00  2/04/1999                        Page       1
  2/04/1999

  Time     Value |       Average Response Time in  Secs                |     Value |     Maximum Response Time in  Secs                  |
HH.MM.SS         |    8   16   24   32   40   48   56   64   72   80              |  140  280  420  560  700  840  980 1120 1260 1400
11:10:30         |----|----|----|----|----|----|----|----|----|----|              |----|----|----|----|----|----|----|----|----|----|
11:15:00     4.2 |***                                                      81.3 |***
11:20:00     2.8 |**                                                       95.1 |***
11:25:00     4.0 |***                                                     308.9 |***********
11:30:00     3.6 |**                                                       61.0 |**
11:34:00    75.0 |**********************************************        1,386.7 |**************************************************
```



Performance Graph Reports - Notes

CICS PA provides two tabular Performance Graph Reports, the Transaction Rate Graph and the Transaction Response Time Graph.

The Transaction Rate Graph shows, over the requested time interval, the average response time and the number of completed transactions. The Transaction Response Time Graph shows the average and maximum response time.



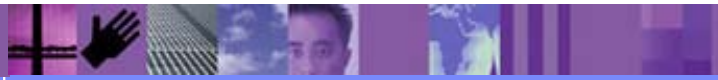
Exception List and Summary Reports

- The Exception Reports provide a detailed analysis of the CMF Exception class data
- Reports are Fixed Format
- The Exception Reports are ...
  - Exception List Report
  - Exception Summary Report
    - Summarized by Transaction ID

Exception List Report

```
  File  Systems  Options  Help
                      TEST - Exception List Report
Command ===> ____________________________________________________________

System Selection:                          Report Output:
 APPLID . . _________ +                     DDname . . . . . . . . . XLST0001
 Image  . . _________ +                     Print Lines per Page . . ___  (1-255)
 Group  . . _________ +

Report Format:
 Title  . . ____________________________________________________________
            ____________________________________________________________

Selection Criteria:
 _  Exception
```

Specify the report options



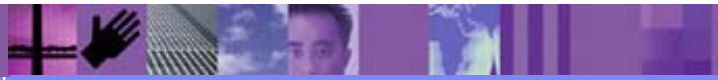
Exception List Report ...

V1R2M0 CICS Performance Analyzer

Exception List

XLST0001 Printed at 9:51:50 1/22/2002 Data from 08:08:15 2/16/1999 APPLID IYK2Z1V3 Page 1

Tran	Term	LUName	Userid	SC	Tran Class	Service Class	Report Class	Taskno	Exp Seq	Time ..... Start	Elapsed	Current Program	Resource Type	Resource ID	Exception Type
ABRW	P045	IG2ZP045	CBAKER	TP				834	1	08:08:15	10.189	DFHúABRW	FILE	FILEA	STRING
ABRW	S205	IGCS205	BRENNER	TP				835	1	08:08:25	7.245	DFHúABRW	FILE	FILEA	STRING
ABRW	S220	IGCS220	BRENNER	TP				837	1	08:08:30	2.996	DFHúABRW	FILE	FILEA	STRING
CECI	S220	IGCS220	BRENNER	TO				1151	1	08:11:48	.005	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO				1151	2	08:11:48	.002	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO				1151	3	08:11:48	.002	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	1	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	2	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	3	08:11:48	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	4	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	5	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	6	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	7	08:11:48	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	8	08:11:48	.003	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	9	08:11:48	.003	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	10	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	11	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	12	08:11:49	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	13	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	14	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	15	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	16	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO				1149	17	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER

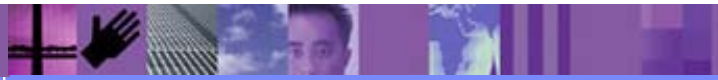


Exception List Report - Notes

The Exception List Report provides detailed analysis of the exception class records collected by the CICS Monitoring Facility (CMF).

The Exception List Report (shown on the slide) 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.



Exception Summary Report ...

V1R2M0 CICS Performance Analyzer
Exception Summary

XSUM0001 Printed at 9:57:34 1/22/2002 Data from 08:08:15 2/16/1999 to 08:12:14 2/16/1999 Page 1

Tran ID	Total Excepts	TS-Buffer-Wait Average	TS-Buffer-Wait Count	TS-String-Wait Average	TS-String-Wait Count	Pool-Buffr-Wait Average	Pool-Buffr-Wait Count	Pool-Strng-Wait Average	Pool-Strng-Wait Count	File-Strng-Wait Average	File-Strng-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				

- Summarized by Transaction ID
  - Total number of exceptions
  - Average time and count for each exception type

Exception Summary Report - Notes

The Exception Summary Report summarizes the exception class records collected by the CICS Monitoring Facility (CMF).

The exception class records are summarized by transaction ID.

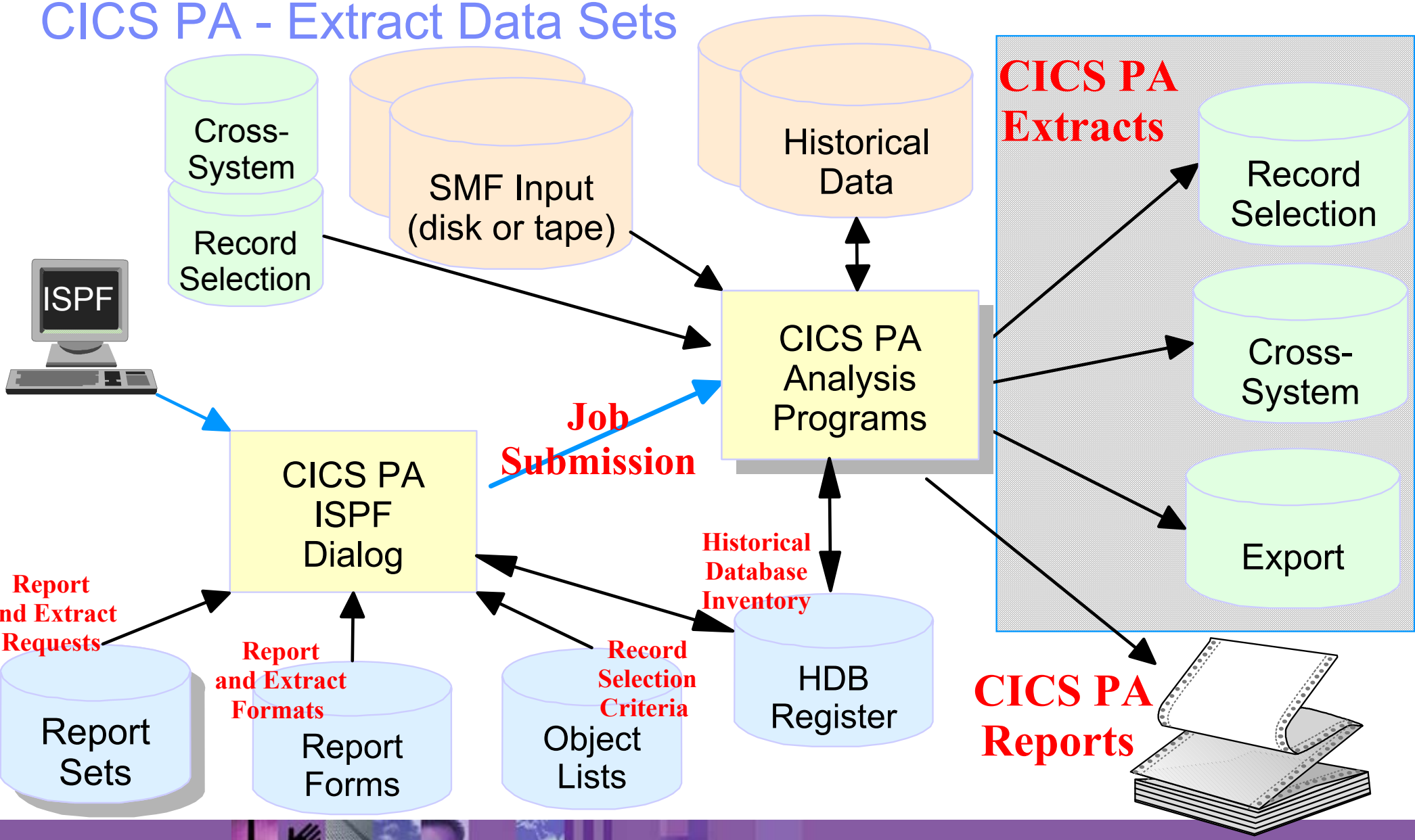
The report provides the total number of exceptions for each transaction, according to the following:-

- Auxiliary Temporary Storage VSAM buffer and string wait conditions
- VSAM LSRPOOL buffer and string wait conditions
- VSAM file string wait conditions
- Temporary Storage wait conditions
- Main Storage wait conditions
- Coupling Facility data table pool wait conditions.

CICS Performance Analyzer for z/OS

Extract Data Sets

CICS PA - Extract Data Sets



CICS PA Extract Data Sets

- Performance Data Export
  - Extract the CMF Peformance Class data as a CSV file
    - Input into PC spreadsheet or database tools for further analysis and reporting
- Record Selection Extract
  - Creates a new SMF Data Set
    - SMF Data volume reduction - filter large SMF files
- Cross-System Work Extract
  - Consolidates the CMF performance class records from the same network UOW into a single CMF performance record ...
    - Provides a complete view of CICS resource usage

Performance Data Export

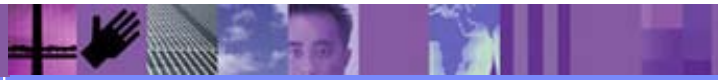
- Extract of the CMF Performance Class data formatted as a delimited text file that can be imported into PC spreadsheet or database tools for further analysis or reporting ...
  - Detail and/or Summary Data Extracts
    - Format can be tailored using Report Forms
  - CICS PA supplies the column headings (optional)
  - Each field separated by a delimiter character
    - Field delimiter defaults to a semi-colon (;)
  - Import examples in CICS PA Report Reference
    - Lotus 123, Lotus Approach, ...

Performance Data Export - Notes

An Exported 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 analysis and reporting. The default Export Performance Data Extract detail record format contains the following fields:-

APPLID	Generic APPLID
Tran	Transaction ID
Term	Terminal ID
Userid	User ID
Taskno	Transaction sequence number
Stop Date	Transaction stop date (yyyy-mm-dd)
Stop Time	Transaction stop time (hh:mm:ss.thm)
Response	Transaction response time
Clocks	All 70 clocks as defined by CICS Transaction Server for z/OS, Version 2.3

The Extract record format can be tailored using report forms to include information to meet your specific reporting and analysis requirements. CICS PA supplies the column headings (optional) and each field is separated by a delimiter character which can be specified to override the default semi-colon (;).



Performance Data Export ...

```
  File   Systems   Options   Help
                              EXTRSAMP - Export
Command ===> ____________________________________________________________

System Selection:                          Extract Recap:
 APPLID . . ________   +                     DDname  . . . EXPT0002
 Image  . . ________   +
 Group  . . ________   +

Output Data Set:
 Data Set Name  . . ____________________________________________________
 Disposition  . . . _  1. OLD   2. MOD   (If cataloged)

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

Selection Criteria:                        Summary Processing Options:
 _  Performance                             Time Interval 00:01:00  (hh:mm:ss)
```

Specify the extract options

Performance Data Export - Notes

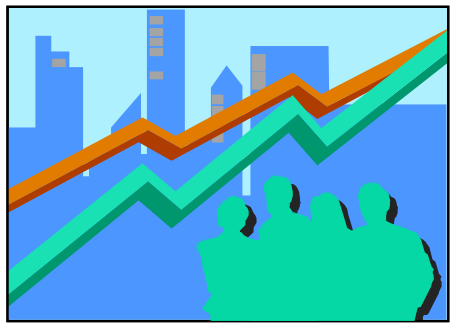
The Exported Performance Data Extract facility creates a delimited text file of CMF Performance class data which can then be imported by database or PC spreadsheet tools for further processing and analysis.

Detail and/or Summary Performance Data Export Extracts can be created and the record format can be tailored using Report Forms to include information to meet your specific reporting and analysis requirements. You can select one from a list of compatible Report Forms by Prompt (F4) from the Form field.

By default, numeric fields will be written in a mixture of integer, real and exponential using character digits and this format is suitable when importing the extract into a PC spreadsheet tool. If you plan to import the extract into a DB2 table, select (/) the FLOAT format option to cause numeric fields in the extract to be written in S390 FLOAT format. When the DB2 Load Utility is then used, it will interpret all numerical fields reliably and consistently in FLOAT format. Note that Float format is only available when you use a Report Form.

The next slide shows an example of the default record layout for the performance data extract.

Performance Data Export - List



Optional Labels record

```
APPLID  ;TRAN;TERM;USERID  ;  TASKNO; STOP DATE;  STOP TIME ;RESPONSE;DISPATCH;CPU     ;SUSPEND ;DISPWAIT;QRDISPT ;QRCPU   ;MSDISPT

IYK2Z1V1;CSSY;    ;CBAKER  ;      16;1999-02-04;11:10:29.803;   .0139;   .0007;   .0006;   .0133;   .0000;   .0007;   .0006;   .0000
IYK2Z1V1;CSSY;    ;CBAKER  ;      17;1999-02-04;11:10:29.809;   .0185;   .0010;   .0014;   .0175;   .0001;   .0010;   .0014;   .0000
IYK2Z1V1;CSSY;    ;CBAKER  ;      18;1999-02-04;11:10:29.861;   .0674;   .0196;   .0027;   .0479;   .0269;   .0047;   .0019;   .0149
IYK2Z1V1;CGRP;    ;CBAKER  ;      12;1999-02-04;11:10:30.194;   .4123;   .0420;   .0074;   .3702;   .3223;   .0177;   .0037;   .0243
IYK2Z1V1;CSSY;    ;CBAKER  ;      15;1999-02-04;11:10:30.207;   .4204;   .0568;   .0100;   .3636;   .1744;   .0177;   .0064;   .0391
IYK2Z1V1;CSSY;    ;CBAKER  ;      13;1999-02-04;11:10:30.456;   .6743;   .0728;   .0134;   .6015;   .4000;   .0215;   .0029;   .0512
IYK2Z1V1;CSSY;    ;CBAKER  ;      10;1999-02-04;11:10:30.531;   .7498;   .1910;   .0228;   .5588;   .1997;   .0673;   .0089;   .1237
IYK2Z1V1;CSSY;    ;CBAKER  ;      14;1999-02-04;11:10:31.121;  1.3344;   .3202;   .0378;  1.0142;   .2626;   .1978;   .0282;   .1224
IYK2Z1V1;CSSY;    ;CBAKER  ;      11;1999-02-04;11:10:31.211;  1.4292;   .1497;   .0313;  1.2794;   .3461;   .0595;   .0216;   .0903
IYK2Z1V1;CPLT;    ;CBAKER  ;       7;1999-02-04;11:10:45.642; 15.9915;   .3383;   .0369; 15.6532;   .0155;   .0143;   .0108;   .3240
IYK2Z1V1;CSSY;    ;CBAKER  ;     III;1999-02-04;11:10:45.856; 16.0761;  9.3488;  2.3435;  6.7273;  1.1645;  3.7054;  1.9054;  5.6434
IYK2Z1V1;CWBG;    ;CBAKER  ;      24;1999-02-04;11:10:46.196;   .0262;   .0248;   .0041;   .0013;   .0012;   .0016;   .0010;   .0232
IYK2Z1V1;CRSQ;    ;CBAKER  ;      25;1999-02-04;11:10:46.856;   .0818;   .0449;   .0040;   .0369;   .0367;   .0012;   .0008;   .0438
IYK2Z1V1;CXRE;    ;CBAKER  ;      27;1999-02-04;11:10:47.134;   .2255;   .0243;   .0049;   .2011;   .2009;   .0037;   .0016;   .0206
IYK2Z1V1;CLR2;R11 ;CBAKER  ;      29;1999-02-04;11:10:48.317;   .0263;   .0030;   .0020;   .0232;   .0000;   .0030;   .0020;   .0000
IYK2Z1V1;CSFU;    ;CBAKER  ;      26;1999-02-04;11:10:48.471;  1.6968;  1.5899;   .1136;   .1069;   .0294;   .2971;   .0253;  1.2928
IYK2Z1V1;CSAC;SAMA;CBAKER  ;      31;1999-02-04;11:10:51.227;   .5217;   .0028;   .0011;   .5189;   .0002;   .0028;   .0011;   .0000
IYK2Z1V1;CLQ2;    ;CBAKER  ;      28;1999-02-04;11:10:51.840;  3.8259;   .0818;   .0068;  3.7441;   .0035;   .0034;   .0025;   .0784
IYK2Z1V1;CEMT;SAMA;CBAKER  ;      32;1999-02-04;11:10:51.942;   .1877;   .1842;   .0264;   .0035;   .0030;   .0041;   .0028;   .1801
IYK2Z1V1;CEMT;SAMA;CBAKER  ;      33;1999-02-04;11:10:52.549;   .0091;   .0068;   .0026;   .0023;   .0001;   .0068;   .0026;   .0000
IYK2Z1V1;CEMT;SAMA;CBAKER  ;      34;1999-02-04;11:10:53.074;   .0092;   .0068;   .0025;   .0024;   .0000;   .0068;   .0025;   .0000
```

Performance Data Export - Summary

```
  File  Systems  Options  Help
                              EXTRSAMP - Export
Command ===>

System Selection:                          Extract Recap:
 APPLID . . ________  +                     DDname  . . . EXPT0001
 Image  . . ________  +
 Group  . . MROGROUP  +

Output Data Set:
 Data Set Name  . . EXPORT.TESTFILE
 Disposition  . . . 1  1. OLD   2. MOD   (If cataloged)

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

Selection Criteria:                        Summary Processing Options:
 _  Performance  *                          Time Interval 00:15:00  (hh:mm:ss)
```

SUMMARY Report Form

Start or Stop Time Interval

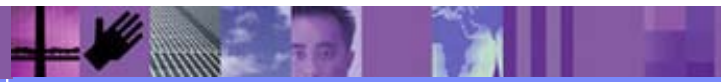
Performance Data Export - Notes

The Performance Summary Export data set is a delimited text file which can be analyzed further by a program such as DB2 or PC tools such as Lotus 1-2-3 or Lotus Approach.

Time Interval applies when you want to summarize transaction activity over time. It is used when you specify a SUMMARY Report Form which has one or both of the sort fields START or STOP included.

The time interval defaults to 1 minute. The Performance Summary report and export options can override this, so that a Report Form can be used for many reports and extracts using any time interval from 1 second to 24 hours (rounded down to align to the hour or day).

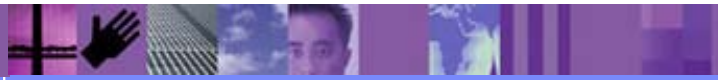
The Performance Data Export Recap Report, shown on the next slide, provides information on the Extract data set name and the CICS CMF performance class (SMF 110) record processing statistics.



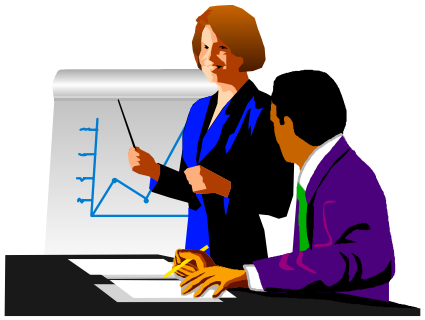
Performance Data Export - Recap

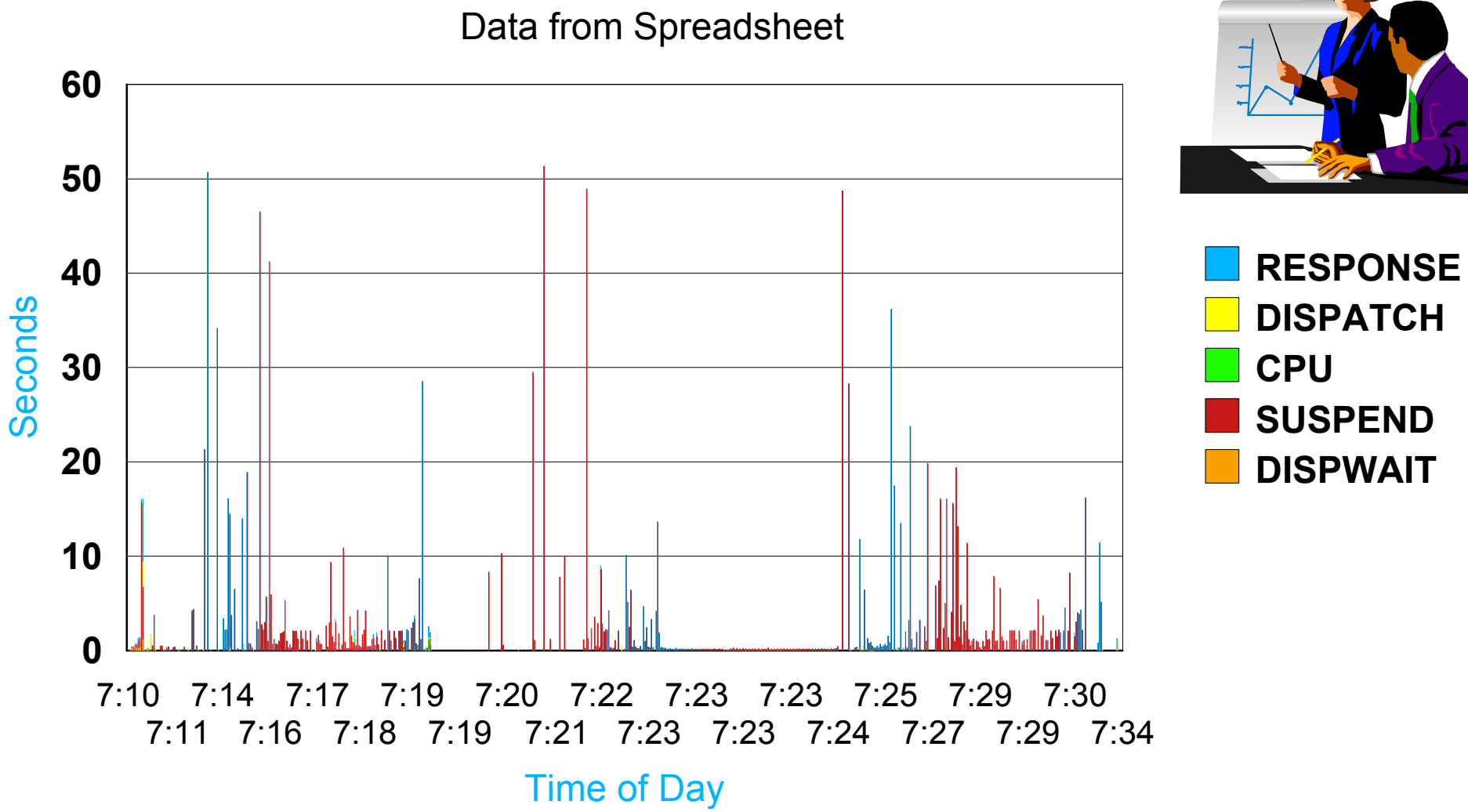
```
 V1R2M0                                          CICS Performance Analyzer
                                                        Export

EXPT0001 Printed at 14:01:50  1/17/2002     Data from 11:10:29  2/04/1999 to 08:10:06  2/16/1999


CPAOEX01 Extract has completed successfully
         Data Set Name   . . . . . CBAKER.EXPORT.TESTFILE
         Record count  . . . . . .        2,323
```

- For each Performance Data Export Extract ...
  - Data set name
  - Record count



Performance Data Export ...





Performance Data Export - Notes

To create a simple worksheet using Lotus 1-2-3, download the Performance Data Export Extract data set to your PC, and then to import the performance data extract into a blank worksheet perform the following:-

- Select "New Workbook"
- Select "Blank Workbook"
- Select "OK"
- Select "File->Open"
- Select "Files of type: Text (TXT;...;OUT;...)"
- Select the file and then "Open"
- Select "Start a new column at each Semicolon"
- Select "OK"

Once loaded, you can then use Lotus 1-2-3 or other PC tools to analyse the performance data extract, create pie charts, line charts, or combine with other data.

Performance Data Export ...

- Importing into DB2 tables ...
  - Define the DB2 table layout
  - Define DB2 CREATE TABLE and LOAD SQL statements
  - Use the DB2 Interactive SPUFI application
- Access to DB2 Tools, such as ...
  - Query Management Facility (QMF)
    - Query and Reporting tool
- Access to other DB2 Tools, such as ...
  - DB2 Web Query Tool ...
    - Complex querying, data comparisons, and customized presentation
    - Convert query results to diverse file formats for use on other desktop applications ...
      - including HTML, XML/XSL, .TXT, and .CSV files

Performance Data Export - Notes

Performance Data Export Extracts can also be imported into DB2 tables allowing more extensive analysis of the CMF performance class data.

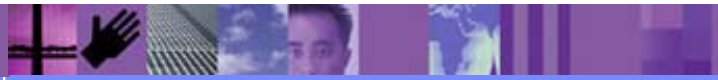
Importing CMF performance extract into DB2 tables allows access to DB2 Reporting tools, such as Query Management Facility (QMF for OS/390 or QMF for Windows). The QMF Family is an integrated, powerful, query and reporting toolset for any DB2 relational data management system. QMF coupled with IBM DB2 DataJoiner also allows access to non-relational and other vendor data sources as well.

With other DB2 data management tools, such as the IBM DB2 Web Query Tool you can:-

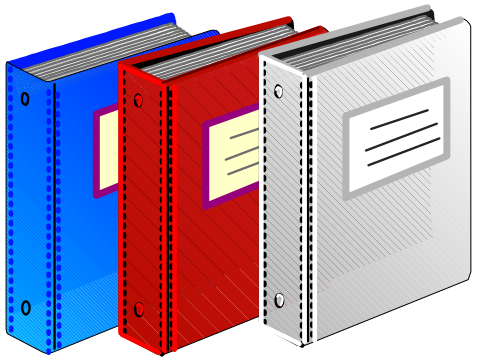
- Enable complex querying, data comparisons, and customized presentation
- Make it easy to view, download, import, and convert query results to diverse file formats, including HTML, XML/XSL, .TXT, .CSV files for use on other databases and desktop applications.

For more information on the DB2 data management tools ...

http://www.ibm.com/software/data/db2imstools/



Record Selection Extract

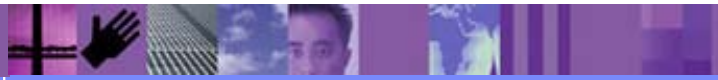


- Creates a new SMF Data Set
  - CICS SMF 110 Performance Records
  - DB2 SMF 101 Accounting Records
  - WebSphere MQ SMF 116 Accounting Records
- SMF Data volume reduction
  - Filter large SMF files, ...
- Record selection ...
  - CICS, DB2 and MQ System Selection
  - Performance Selection Criteria
  - Run-time SMF reporting interval
- Extracts can be played back into CICS PA
  - All CICS PA Reports and Extracts are available

Record Selection Extract ...

```
  File  Systems  Options  Help
                    EXTRSAMP - Record Selection Extract
Command ===>

System Selection:
 CICS APPLID . . _________  +  Image . . _________  +  Group . . _________  +
 DB2 SSID  . . . ____  +       Image . . _________  +  Group . . _________  +
 MQ SSID . . . . ____  +       Image . . _________  +  Group . . _________  +

Extract Recap:
 DDname  . . . RSEL0002

Output Data Set:
 Data Set Name  . . ____________________________________________________
 Disposition  . . . _  1. OLD   2. MOD   (If cataloged)

Selection Criteria:
 _  Performance
```

Specify the extract options

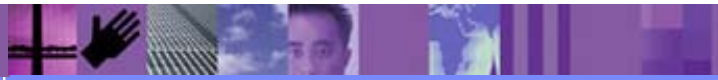


Record Selection Extract - Notes

The Record Selection Extract is a facility that allows you to create a smaller extract file containing only the CMF performance (and optionally DB2 Accounting and/or WebSphere MQ Accounting) records that are of interest to you.

The Record Selection Extract can be used to filter large SMF files, that can then be used as input to CICS PA, allowing more efficient reporting and analysis.

The Record Selection Extract Recap Report, shown on the next slide, is always produced at the end to provide an analysis of the Extract Data Set Name and the records extracted.

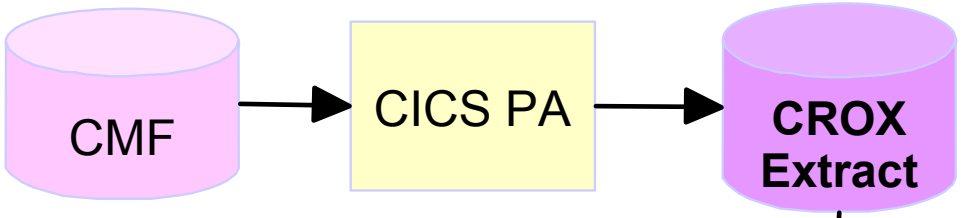


Record Selection Extract - Extract Recap

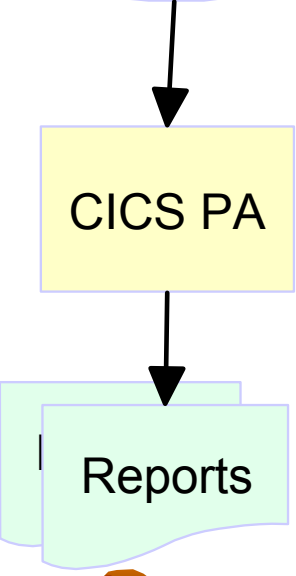
```
 V1R3M0                                                  CICS Performance Analyzer
                                                          Record Selection Extract

RSEL0001 Printed at 15:31:00  7/21/2003     Data from 06:27:22  7/17/2003 to 08:05:08  7/17/2003


CPAORS01 Extract has completed successfully
         Data Set Name   . . . . . CBAKER.SELECT.EXTRACT
         Record Counts:
           Performance Dictionary  .            0
           Performance Class     . .        2,166
           DB2 Accounting  . . . . .          660
           MQ Accounting   . . . . .            0
           SMF Records . . . . . .            774
```

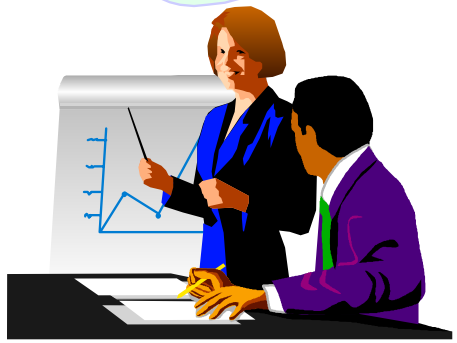
- For each Record Selection Extract ...
  - Data set name
  - Record counts ...
    - CMF - Dictionary, Performance
    - DB2 Accounting
    - WebSphere MQ Accounting
    - SMF Records

Cross-System Work Extract



- Consolidates the CMF performance class records from the same network UOW into a single CMF performance record ...
  - Transactions are identified by the originating task
  - All CMF fields are available ...
    - User fields can also be added to the performance record
  - Counters and elapsed times are combined
    - Provides a complete view of CICS resource usage
  - Extracts can be played back into CICS PA ...
    - The records produced are valid CMF performance records
    - All CICS PA Reports and Extracts are available





Cross-System Work Extract ...

```
  File  Systems  Options  Help
                    EXTRSAMP - Cross-System Work Extract
Command ===>

System Selection:                          Extract Recap:
 APPLID . .          +                      DDname  . . . CROX0001
 Image  . .          +
 Group  . . MROGROUP +

Output Data Set:
 Data Set Name  . . CSW.EXTRACT.FILE
 Disposition  . . . 1  1. OLD   2. MOD   (If cataloged)

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
```

Showing Defaults

Cross-System Work Extract - Notes

The Cross-System Work Extract combines the CMF performance class records belonging to the same network unit-of-work into a single CMF record in order to provide a complete view of a transaction's CICS resource usage. The Cross-System Work Extract can then be used as input to other CICS PA reports or extracts such as a Performance List report or a Performance Data Extract.

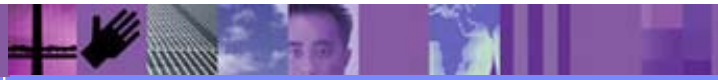
User fields can also be specified for inclusion in the Cross-System Work Extract records.

The Cross-System Work Extract Recap Report, shown on the next slide, provides information on the extract data set name and the CICS CMF performance class (SMF 110) record processing statistics.

Cross-System Work Extract - Recap

```
 V1R2M0                                                CICS Performance Analyzer
                                                          Cross-System Work

CROX0001 Printed at  7:12:12  1/17/2002 Data from 11:10:29  2/04/1999 to 11:33:51  2/04/1999


CPAOXS01 Extract has completed successfully
         Data Set Name   . . . . . CBAKER.CICSPA12.CSW.TESTFILE
         Record count  . . . . . .           64
```

- For each Cross-System Work Extract ...
  - Data set name
  - Record count



Cross-System Work Extract - CICS System

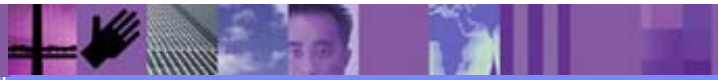
```
 File  Edit  Filter  View  Confirm  Options  Help
                           System Definitions
  File  Edit  Dictionary  View  Options  Help
                              CICS System            Row 1 of 2 Groups: >
Command ===> ___________________________________________  Scroll ===> DATA

Specify CICS System definition settings:
 APPLID . . . . . . . . . MULTIPLE  MVS Image . . CICS
 Description  . . . . . . Cross-System Work Extract System
 CICS Version (VRM) . . . 630
 MCT Suffix . . . . . . . __
 MCT Load Library . . . . ______________________________________________
 SDFHLOAD Library . . . . ______________________________________________
 Dictionary DSN . . . . . ______________________________________________

  Exc              SMF Data Set Name +                 UNIT +  SEQ VOLSER +
_     CSW.EXTRACT.FILE
********************************* End of list ****************************
```

- Example default CICS System Definition ...
  - Applid - 'MULTIPLE', Image - 'CICS', Release - '630'
  - Associate Cross-System Work Extract SMF file

Cross-System Work Extract - Notes

The Cross-System Work Extract data set can be input into CICS PA for further analysis. This slide shows an example of the CICS System Definition for the default Cross-System Work Export extract using the APPLID of "MULTIPLE".

The next three slides show an example of the CICS PA System Definition, a List Report Form, and Report Set using the Cross-System Work Extract as input into CICS PA for further analysis.

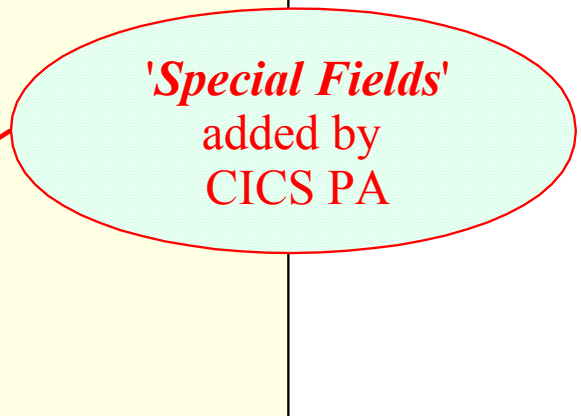


Cross-System Work Extract - System Definition

```
  File  Edit  Filter  View  Options  Help
 
                              System Definitions                    Row 1 from 2
Command ===> ________________________________________________ Scroll ===> DATA

Enter "/" to select action.
                                                                    SMF Files
    System   Type     Image                 Description             System
_   MULTIPLE CICS     CICS     Cross-System Work Extract System     CICS
_   CICS     Image             Image inserted by System MULTIPLE    CICS
******************************** End of list ********************************
```

Cross-System Work Extract - Report Form ...

```
  File  Edit  Confirm  Upgrade  Options  Help
                      EDIT LIST Report Form - CSWELST      Row 1 of 16 More: >
Command ===> _____________________________________________ Scroll ===> CSR

Description  . . . Cross-System Extract List        System:

Title  . . Cross-System Work Extract - Detail
           ____________________________________________________________

Enter "/" to select action.

   Field
   Name +     Type      Description
__ TRAN       ________  Transaction identifier
__ USERID     ________  User ID
__ START      TIMET     Task start time
__ STOP       TIMET     Task stop time
__ RESPONSE   ________  Transaction response time
__ DISPATCH   TIME      Dispatch time
__ CPU        TIME      CPU time
__ IRWAIT     TIME      MRO link wait time
__ IRWAIT     COUNT     MRO link wait time
__ TOTRECS    ________  Cross-System Total record count
__ APPLRECS   ________  Cross-System Application records
__ TRANROUT   ________  Cross-System Transaction Routing records
__ FUNCSHIP   ________  Cross-System Function Shipping records
__ DPLRECS    ________  Cross-System DPL records
__ EOR        ________  ---------------- End of Report ---------------
__ EOX        ________  ---------------- End of Extract ---------------
******************************** End of list ********************************
```



Cross-System Work Extract - Report Set ...

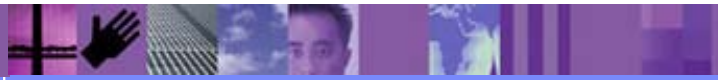
```
  File   Systems   Options   Help
                      CSWELIST - Performance List Report
Command ===> ____________________________________________________________

System Selection:                          Report Output:
 APPLID . . MULTIPLE  +                     DDname . . . . . . . . . . LIST0001
 Image  . . CICS      +                     Print Lines per Page . . ___   (1-255)
 Group  . . _______   +

Report Format:
 Form . . . CSWELST   +
 Title  . . Cross-System Work Extract - Detail
            ____________________________________________________________

Selection Criteria:
 _  Performance
```

Specify the report options

Cross-System Work Extract - List Report - Notes

The Performance List Report (shown on this slide) has been tailored to show the *special fields* that are added by CICS PA when creating the Cross-System Work Extract data set. These *special fields* indicate the number of input records that were added to produce the performance record.

Notice the CICS PA *special fields* on the right hand side of the report.

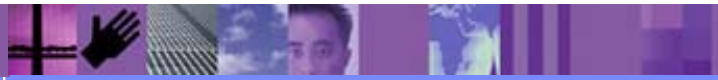


Cross-System Work Extract - List Report ...

V1R2M0 CICS Performance Analyzer
Performance List

LIST0001 Printed at 8:01:28 9/27/2002 Data from 11:11:28 2/04/1999 APPLID MULTIPLE Page 1
Cross-System Work Extract - Detail

Tran	Userid	Start Time	Stop Time	Response Time	Dispatch Time	User CPU Time	IR Wait Time	IR Wait Count	TotlRecs	APPLRecs	TranRout	FuncShip	DPL Recs
CQRY	CBAKER	11:11:27.707	11:11:28.470	.7623	.0462	.0056	.0000	0	2	2	0	0	0
CEMT	BRENNER	11:14:52.395	11:20:31.072	338.677	.0223	.0135	.0000	0	6	6	0	0	0
CQRY	CBAKER	11:24:53.770	11:24:54.445	.6748	.0030	.0017	.0000	0	2	2	0	0	0
CEDA	BRENNER	11:25:12.664	11:25:29.665	17.0013	.6801	.2568	.0000	0	17	17	0	0	0
TRUE	BRENNER	11:29:53.561	11:29:56.775	3.2135	.0026	.0018	.0000	0	3	3	0	0	0
TRUE	BRENNER	11:30:33.456	11:30:36.621	3.1652	.0028	.0018	.0000	0	3	3	0	0	0
CQRY	CBAKER	11:11:29.172	11:11:29.871	.6987	.0025	.0017	.0000	0	2	2	0	0	0
CEDA	BRENNER	11:15:34.772	11:16:28.284	53.5116	.7704	.1159	.0000	0	5	5	0	0	0
CEMT	BRENNER	11:20:24.365	11:21:24.062	59.6965	.0091	.0079	.0000	0	3	3	0	0	0
CEMT	BRENNER	11:21:27.465	11:21:28.662	1.1971	.0053	.0047	.0000	0	2	2	0	0	0
RMST	BRENNER	11:21:31.660	11:22:38.447	66.7871	.0182	.0048	.9860	8	4	0	4	0	0
STAT	BRENNER	11:22:41.666	11:22:52.663	10.9966	.3805	.3564	.0000	0	3	3	0	0	0
TRUE	BRENNER	11:22:59.147	11:23:02.325	3.1783	.0029	.0018	.0000	0	3	3	0	0	0
STAT	BRENNER	11:23:03.761	11:24:18.271	74.5100	.0340	.0286	.0000	0	6	6	0	0	0
CEMT	BRENNER	11:25:37.459	11:25:59.313	21.8541	.0194	.0172	.0000	0	6	6	0	0	0
CBAM	BRENNER	11:26:11.161	11:26:14.776	3.6153	.0528	.0069	.0000	0	3	3	0	0	0
CEMT	BRENNER	11:27:43.371	11:29:13.143	89.7718	.0688	.0462	.0000	0	18	18	0	0	0
CEMT	BRENNER	11:29:20.273	11:29:28.376	8.1022	.0128	.0064	.0000	0	3	3	0	0	0
TRUE	BRENNER	11:29:36.356	11:29:39.477	3.1210	.0032	.0017	.0000	0	3	3	0	0	0
TRUE	BRENNER	11:29:55.571	11:29:58.872	3.3011	.0026	.0021	.0000	0	3	3	0	0	0
CEMT	BRENNER	11:30:20.956	11:30:30.060	9.1040	.0165	.0065	.0000	0	3	3	0	0	0
TRUE	BRENNER	11:30:36.355	11:30:39.767	3.4120	.0032	.0025	.0000	0	3	3	0	0	0
TRUE	BRENNER	11:30:47.558	11:30:51.564	4.0058	.0033	.0027	.0000	0	3	3	0	0	0
STAT	BRENNER	11:30:57.608	11:31:15.062	17.4547	.0321	.0290	.0000	0	6	6	0	0	0
CQRY	CBAKER	11:12:32.373	11:12:53.669	21.2958	.0020	.0014	.0000	0	2	2	0	0	0
RMST	CBAKER	11:17:55.265	11:17:57.090	1.8248	.0117	.0038	.0212	4	2	0	2	0	0



CICS Performance Analyzer for z/OS

Transaction Resource Usage Reports

Transaction Resource Usage Reports

- Transaction Resource Usage Reports ...
  - Transaction Resource Usage List
    - File and Temporary Storage Queue
  - Transaction File Usage Summary
  - Transaction Temporary Storage Usage Summary
  - File Usage Summary
    - File Usage by Transaction ID
  - Temporary Storage Usage Summary
    - Tsqueue Usage by Transaction ID
- Transaction Resource Usage Reports ...
  - CMF Resource Data and Performance Data - SMF 110 subtype 1
- CMF Resource Class ...
  - CICS TS for z/OS Version 2.2 with PTFs UQ68396 and UQ79266
  - CICS TS for OS/390 Version 1.3 with PTFs UQ70905 and UQ79397

Transaction Resource Usage Reports - Notes

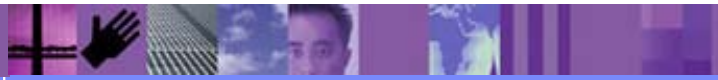
The CICS PA Transaction Resource Usage Reports provide a detailed analysis of the Resource Class records collected by the CICS Monitoring Facility (CMF). The reports include:-

- Transaction Resource Usage List
- Transaction File Usage Summary
- Transaction Temporary Storage Usage Summary
- File Usage Summary
- Temporary Storage Usage Summary

The Transaction Resource Usage List report 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 File and Temporary Storage Queue usage.

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

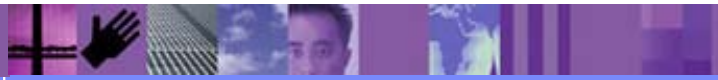
The Transaction Temporary Storage Usage Summary report summarizes Temporary Storage Queue usage by Transaction ID. For each Transaction ID, it gives Transaction information and Temporary Storage statistics followed by a breakdown of Tsqname usage for each Temporary Storage Queue used.



Transaction Resource Usage Reports - Notes ...

The File Usage Summary report summarizes File activity. For each File, it gives a breakdown of File usage by Transaction ID.
The Temporary Storage Usage Summary report summarizes Tsqueue activity. For each Tsqueue, it gives a breakdown of Temporary Storage Queue usage by Transaction ID.

The new CMF Resource Class was introduced and enhanced in CICS Transaction Server for z/OS Version 2.2 with PTFs UQ68396, UQ71829 and UQ79266 (for APARs PQ63143, PQ67561 and PQ76703) and in CICS Transaction Server for OS/390 Version 1.3 with PTF UQ70905 and UQ79397 (for APARs PQ63141 and PQ76698).



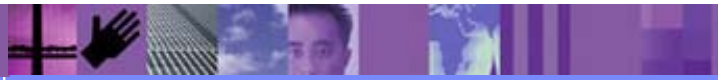
Transaction Resource Usage Reports ...

```
  File  Systems  Confirm  Options  Help
EDIT                        Report Set - SAMPLE                      Row 1 of 21
Command ===> ____________________________________________________ Scroll ===> CSR

Description  . . . . CICS PA Resource Usage Reports

Enter "/" to select action.

___             ** Reports **                                  Active
     +  ___     Options                                          No
     +  ___     Selection Criteria                               No
     -  ___     Performance Reports                              No
                ___   List                                       No
                ___   List Extended                              No
                ___   Summary                                    No
                ___   Totals                                     No
                ___   Wait Analysis                              No
                ___   Cross-System Work                         No
                ___   Transaction Group                         No
                ___   BTS                                        No
                ___   Workload Activity                         No
     +  ___     Exception Reports                                No
     -  ___     Transaction Resource Usage Reports               Yes
                ___   File Usage Summary                        Yes
                ___   Temporary Storage Usage Summary           Yes
                ___   Resource Usage List                       Yes
     +  ___     Subsystem Reports                                No
     +  ___     System Reports                                   No
     +  ___     Performance Graphs                               No
     +  ___     Extracts                                         No
                ** End of Reports **
```

Transaction Resource Usage Reports - List ...

```
  File   Systems   Options   Help
                  RESTEST - Transaction Resource Usage Report
Command ===> ____________________________________________________________

System Selection:                          Report Output:
 APPLID . .  ________ +                     DDname . . . . . . . . . . RESU0001
 Image  . .  ________ +                     Print Lines per Page . .  ___   (1-255)
 Group  . .  ________ +

Detailed List Report Required:
 /  File Usage
 /  Temporary Storage Usage

Report Format:
 Title  . .  ____________________________________________________________
             ____________________________________________________________

Selection Criteria:
 _  Performance
```

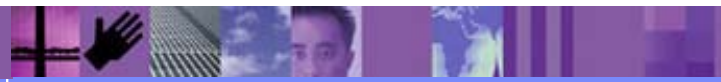
Showing Defaults



Transaction Resource Usage Reports - List - Notes

The Transaction Resource Usage Report panel shows the options available when requesting Transaction Resource Usage List Reports:-

- **CICS System Selection** identifies the CICS Systems (APPLIDs) that you want to report against.
- You can request a detailed **File Usage List** report and/or a **Temporary Storage List** report.
- Select **File Usage** to request a detailed **Transaction Resource Usage List** report. This report provides a list of all Transaction resource class records and consists of transaction information from the Task Identification section. In addition, there is one sub-section for each File entry. For those transactions which access more than one file, resource sub-totals will also be included in the report.
- Select **Temporary Storage Usage** to request a detailed **Transaction Resource Usage List** report. This report provides a list of all Transaction resource class records and consists of transaction information from the Task Identification section. In addition, there is one sub-section for each Temporary Storage Queue entry. For those transactions which access more than one temporary storage queue, resource sub-totals will also be included in the report.
- Specify **Selection Criteria** to Include or Exclude:-
  - CMF Performance records based on (a) specified time intervals and/or (b) particular field values.
  - CMF Resource records based on (a) specified time intervals and/or (b) particular field values, including filename and tsqueue name.



Transaction Resource Usage Reports - Usage List

```
 V1R3M0                                     CICS Performance Analyzer
                                         Transaction Resource Usage List

RESU0001 Printed at 15:18:36  6/19/2003    Data from 14:49:42  6/19/2003                                 Page       7

                                          Request           Fcty  Conn                                UOW R                 Response
Tran  Userid   SC TranType Term   LUName   Type    Program  T/Name Name      NETName        APPLID     Task Seq T   Stop Time    Time
---- -------- -- -------- ----  -------- ------- -------- ------ ---- ----------------- --------    ---- --- - ------------ --------
AUPD CBAKER   TO U        TC28  IYCWTC28 AP:     DFHúAALL T/TC28      GBIBMIYA.IYCWTC28 IYK2Z1V1      89   1 T 15:13:27.113    .0015

                                ******************** FC Calls ******************** ******* I/O Waits ******** AccMeth
     File                        Get      Put      Browse   Add      Delete   Total     File     RLS      CFDT   Requests
    --------                    -------- -------- -------- -------- -------- -------- -------- -------- -------- --------
    FILEA              Elapse    .0001    .0000    .0000    .0000    .0000    .0001    .0000    .0000    .0000
                       Count         1        0        0        0        0        1        0        0        0        2

---- -------- -- -------- ----  -------- ------- -------- ------ ---- ----------------- --------    ---- --- - ------------ --------
AUPD CBAKER   TO U        TC28  IYCWTC28 AP:     DFHúAALL T/TC28      GBIBMIYA.IYCWTC28 IYK2Z1V1      90   1 T 15:13:34.041    .2065

                                ******************** FC Calls ******************** ******* I/O Waits ******** AccMeth
     File                        Get      Put      Browse   Add      Delete   Total     File     RLS      CFDT   Requests
    --------                    -------- -------- -------- -------- -------- -------- -------- -------- -------- --------
    FILEA              Elapse    .0000    .0000    .0000    .0000    .0000    .0000    .0000    .0000    .0000
                       Count         1        0        0        0        0        1        0        0        0        1

---- -------- -- -------- ----  -------- ------- -------- ------ ---- ----------------- --------    ---- --- - ------------ --------
AUPD CBAKER   TP U        TC28  IYCWTC28 AP:     DFHúAALL T/TC28      GBIBMIYA.IYCWTC28 IYK2Z1V1      91   1 T 15:13:39.474    .0072

                                ******************** FC Calls ******************** ******* I/O Waits ******** AccMeth
     File                        Get      Put      Browse   Add      Delete   Total     File     RLS      CFDT   Requests
    --------                    -------- -------- -------- -------- -------- -------- -------- -------- -------- --------
    FILEA              Elapse    .0001    .0047    .0000    .0000    .0000    .0048    .0032    .0000    .0000
                       Count         1        1        0        0        0        2        1        0        0        4
```

Transaction Resource Usage Reports - Usage List

```
 V1R3M0                                                   CICS Performance Analyzer
                                                       Transaction Resource Usage List

RESU0001 Printed at 15:18:36  6/19/2003    Data from 14:49:42  6/19/2003                                                       Page       7

                                            Request            Fcty  Conn                                        UOW R                 Response
Tran  Userid   SC TranType Term   LUName    Type    Program  T/Name Name      NETName          APPLID    Task Seq T   Stop Time     Time
---- -------- -- -------- ----   -------- ------- -------- ------ ---- ----------------- --------   ---- --- - ------------ --------
AUPD CBAKER   TP U        TC28   IYCWTC28 AP:     DFHúAALL T/TC28      GBIBMIYA.IYCWTC28 IYK2Z1V1     91   1 T 15:13:39.474    .0072

                             ********************* FC Calls ******************** ******* I/O Waits ********  AccMeth
   File                         Get      Put     Browse    Add     Delete   Total     File     RLS      CFDT   Requests
  --------                   -------- -------- -------- -------- -------- -------- -------- -------- -------- --------
  FILEA               Elapse   .0001    .0047    .0000    .0000    .0000    .0048    .0032    .0000    .0000
                      Count        1        1        0        0        0        2        1        0        0        4

---- -------- -- -------- ----   -------- ------- -------- ------ ---- ----------------- --------   ---- --- - ------------ --------
CECI CBAKER   TO U        TC05   IYCWTC05 AP:     DFHECIP  T/TC05      GBIBMIYA.IYCWTC05 IYK2Z1V1     69   1 T 15:14:26.435 266.7346

                             ********************* FC Calls ******************** ******* I/O Waits ********  AccMeth
   File                         Get      Put     Browse    Add     Delete   Total     File     RLS      CFDT   Requests
  --------                   -------- -------- -------- -------- -------- -------- -------- -------- -------- --------
  FILEA               Elapse   .0000    .0000    .0001    .0000    .0000    .0002    .0000    .0000    .0000
                      Count        0        0        5        0        0        6        0        0        0        7

                             ************* TS Calls ************ *** I/O Waits ***          ********* TS Item ********
   TSQueue                      Get    Put_Aux Put_Main  Total      TS      Shr_TS              Get    Put_Aux Put_Main
  ----------------           -------- -------- -------- -------- -------- --------          -------- -------- --------
  TESTQ1              Elapse   .0000    .0000    .0017    .0017    .0000    .0000
                      Count        0        0        3        3        0        0  Length         0        0      360

  TESTQ2              Elapse   .0000    .0000    .0000    .0000    .0000    .0000
                      Count        0        2        0        2        0        0  Length         0      120        0

  Total               Elapse   .0000    .0000    .0017    .0017    .0000    .0000
                      Count        0        2        3        5        0        0  Length         0      120      360
```

Resource Usage Reports - File Usage Summary

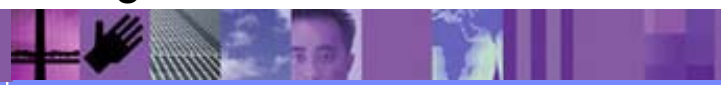
```
  File   Systems   Options   Help
                    RESTEST - File Usage Summary Report
Command ===> ____________________________________________________________

System Selection:                          Report Output:
 APPLID . .  ________ +                     DDname . . . . . . . . . . FILE0001
 Image  . .  ________ +                     Print Lines per Page . .  ___   (1-255)
 Group  . .  ________ +

File Summary Reports Required:
 /  Transaction File Usage
 /  File Usage
    /  Break down by Transaction ID
    /  Include Transaction Totals

Report Format:
 Title  . .  ____________________________________________________________
             ____________________________________________________________

Selection Criteria:
 _  Performance
```

Showing Defaults

Transaction Resource Usage Summary Reports - Notes

The Transaction Resource File Usage Report panel shows the options available when requesting a Transaction Resource Usage Summary Report:-

- **CICS System Selection** identifies the CICS Systems (APPLIDs) that you want to report against.
- You can request a **Transaction File Usage Summary** report and/or a **File Usage Summary** report.
- The **Transaction File Usage Summary** report summarizes the transactions that use Files. The report consists of Transaction Identification and File Control statistics from the CMF Performance records. In addition, there is one sub-section for each File that this transaction has used. For those transactions which access more than one file, resource sub-totals will also be included in the report.
- The **File Usage Summary** report summarizes File activity, breaking down individual File usage by Transaction ID.
  - Select **Break down by Transaction ID** to include individual Transaction statistics.
  - Select **Include Transaction Totals** to include total Transaction statistics.
- Specify **Selection Criteria** to Include or Exclude:-
  - CMF Performance records based on (a) specified time intervals and/or (b) particular field values.
  - CMF Resource records based on (a) specified time intervals and/or (b) particular field values, including filename.



Transaction File Usage Summary Report ...

V1R3M0 CICS Performance Analyzer
Transaction File Usage Summary

FILE0001 Printed at 16:55:16 7/15/2003 Data from 14:49:42 6/19/2003 to 15:15:57 6/19/2003 APPLID IYK2Z1V1 Page 1

Tran	#Tasks		FC Calls Get	Put	Browse	Add	Delete	Total	I/O Waits File	RLS	CFDT	AccMeth Requests
AUPD	3	Elapse Avg							.0011	.0000	.0000	
		Max							.0032	.0000	.0000	
		Count Avg	1	0	0	0	0	1	0	0	0	2
		Max	1	1	0	0	0	2	1	0	0	4

File	#Tasks		FC Calls Get	Put	Browse	Add	Delete	Total	I/O Waits File	RLS	CFDT	AccMeth Requests
FILEA	3	Elapse Avg	.0001	.0016	.0000	.0000	.0000	.0016	.0011	.0000	.0000	
		Max	.0001	.0047	.0000	.0000	.0000	.0048	.0032	.0000	.0000	
		Count Avg	1	0	0	0	0	1	0	0	0	2
		Max	1	1	0	0	0	2	1	0	0	4

Transaction Resource Usage Reports - Notes

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

The File Usage Summary report (shown on the next slide) summarizes File activity. For each File, it gives a breakdown of File usage by Transaction ID.

You can specify Performance Selection Criteria to provide record selection for Transaction Resource Class data, including Filename.

The Transaction Resource Usage List, File Usage Summary, and Temporary Storage Usage Summary reports process Transaction Resource Class data only. However, the Transaction File Usage Summary and Transaction Temporary Storage Usage Summary reports process both Transaction Resource class data and Performance class data. This report uses the Performance Selection Criteria to filter both types of records.

Resource Usage Reports - File Usage Summary

V1R3M0 CICS Performance Analyzer
File Usage Summary

FILE0001 Printed at 16:55:16 7/15/2003 Data from 14:49:42 6/19/2003 to 15:15:57 6/19/2003 APPLID IYK2Z1V1 Page 3

File	Tran	#Tasks			FC Calls Get	FC Calls Put	FC Calls Browse	FC Calls Add	FC Calls Delete	FC Calls Total	I/O Waits File	I/O Waits RLS	I/O Waits CFDT	AccMeth Requests
FILEA	ABRW	4	Elapse	Avg	.0000	.0000	.0000	.0000	.0000	.1077	.0048	.0000	.0000	
				Max	.0000	.0000	.0001	.0000	.0000	.4307	.0191	.0000	.0000	
			Count	Avg	0	0	4	0	0	5	0	0	0	6
				Max	0	0	5	0	0	6	2	0	0	7
	AUPD	3	Elapse	Avg	.0001	.0016	.0000	.0000	.0000	.0016	.0011	.0000	.0000	
				Max	.0001	.0047	.0000	.0000	.0000	.0048	.0032	.0000	.0000	
			Count	Avg	1	0	0	0	0	1	0	0	0	2
				Max	1	1	0	0	0	2	1	0	0	4
	CECI	1	Elapse	Avg	.0000	.0000	.0001	.0000	.0000	.0002	.0000	.0000	.0000	
				Max	.0000	.0000	.0001	.0000	.0000	.0002	.0000	.0000	.0000	
			Count	Avg	0	0	5	0	0	6	0	0	0	7
				Max	0	0	5	0	0	6	0	0	0	7
	Totl	8	Elapse	Avg	.0000	.0006	.0000	.0000	.0000	.0545	.0028	.0000	.0000	
				Max	.0001	.0047	.0001	.0000	.0000	.4307	.0191	.0000	.0000	
			Count	Avg	0	0	3	0	0	4	0	0	0	5
				Max	1	1	5	0	0	6	2	0	0	7

Resource Usage Reports - Temp Storage Usage Summary

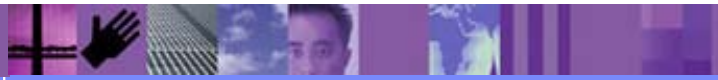
```
  File   Systems   Options   Help
                    RESTEST - Temporary Storage Summary Report
Command ===> ____________________________________________________________

System Selection:                          Report Output:
 APPLID . .  ________ +                     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
```

Showing Defaults

Transaction Resource Usage Reports - Notes

The Transaction Resource Temporary Storage Usage Report panel shows the options available when requesting a Transaction Resource Usage Summary Report:-

- **CICS System Selection** identifies the CICS Systems (APPLIDs) that you want to report against.
- You can request a **Transaction Temporary Storage Usage Summary** report and/or a **Temporary Storage Usage Summary** report.
- The **Transaction Temporary Storage Usage Summary** report summarizes the transactions that use Temporary Storage Queues. The report consists of Transaction Identification and Temporary Storage statistics from the CMF Performance records. In addition, there is one sub-section for each Temporary Storage Queue that this transaction has used. For those transactions which access more than one temporary storage queue, resource sub-totals will also be included in the report.
- The **Temporary Storage Usage Summary** report summarizes Temporary Storage activity, breaking down individual Temporary Storage Queue usage by Transaction ID.
  - Select **Break down by Transaction ID** to include individual Transaction statistics.
  - Select **Include Transaction Totals** to include total Transaction statistics.
- Specify **Selection Criteria** to Include or Exclude:-
  - CMF Performance records based on (a) specified time intervals and/or (b) particular field values.
  - CMF Resource records based on (a) specified time intervals and/or (b) particular field values, including temporary storage queue name.



Transaction Temporary Storage Usage Summary Report

V1R3M0 CICS Performance Analyzer
Transaction Temporary Storage Usage Summary

TEMP0001 Printed at 16:55:16 7/15/2003 Data from 14:49:42 6/19/2003 to 15:16:15 6/19/2003 APPLID IYK2Z1V1 Page 1

Tran	#Tasks		TS Calls Get	TS Calls Put_Aux	TS Calls Put_Main	TS Calls Total	I/O Waits TS	I/O Waits Shr_TS
CECI	2	Elapse Avg					.0000	.0000
		Max					.0000	.0000
		Count Avg	0	1	1	3	0	0
		Max	0	2	3	5	0	0

TSQueue	#Tasks		TS Calls Get	TS Calls Put_Aux	TS Calls Put_Main	TS Calls Total	I/O Waits TS	I/O Waits Shr_TS		TS Item Get	TS Item Put_Aux	TS Item Put_Main
SHAR1	1	Elapse Avg	.0000	.0070	.0000	.0070	.0000	.0044				
		Max	.0000	.0070	.0000	.0070	.0000	.0044				
		Count Avg	0	2	0	2	0	3		0	600	0
		Max	0	2	0	2	0	3	Length	0	600	0
TESTQ1	2	Elapse Avg	.0000	.0000	.0008	.0009	.0000	.0000				
		Max	.0000	.0000	.0017	.0017	.0000	.0000				
		Count Avg	0	0	1	2	0	0		0	0	180
		Max	0	0	3	3	0	0	Length	0	0	360
TESTQ2	1	Elapse Avg	.0000	.0000	.0000	.0000	.0000	.0000				
		Max	.0000	.0000	.0000	.0000	.0000	.0000				
		Count Avg	0	2	0	2	0	0		0	120	0
		Max	0	2	0	2	0	0	Length	0	120	0
Total	4	Elapse Avg	.0000	.0018	.0004	.0022	.0000	.0011				
		Max	.0000	.0070	.0017	.0070	.0000	.0044				
		Count Avg	0	1	0	2	0	0		0	180	90
		Max	0	2	3	3	0	3	Length	0	600	360

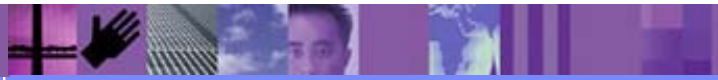
Transaction Resource Usage Reports - Notes

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

The Temporary Storage Usage Summary report (shown on the next slide) summarizes Temporary Storage Queue activity. For each Temporary Storage Queue, it gives a breakdown of Temporary Storage Queue usage by Transaction ID.

You can specify Performance Selection Criteria to provide record selection for Transaction Resource Class data, including Temporary Storage Queue Name.

The Transaction Resource Usage List, File Usage Summary, and Temporary Storage Usage Summary reports process Transaction Resource Class data only. However, the Transaction File Usage Summary and Transaction Temporary Storage Usage Summary reports process both Transaction Resource class data and Performance class data. This report uses the Performance Selection Criteria to filter both types of records.



Resource Usage Reports - Temp Storage Usage Summary

V1R3M0 CICS Performance Analyzer
Temporary Storage Usage Summary

TEMP0001 Printed at 16:55:16 7/15/2003 Data from 14:49:42 6/19/2003 to 15:16:15 6/19/2003 APPLID IYK2Z1V1 Page 4

TSQueue	Tran	#Tasks			TS Calls Get	TS Calls Put_Aux	TS Calls Put_Main	TS Calls Total	I/O Waits TS	I/O Waits Shr_TS		TS Item Get	TS Item Put_Aux	TS Item Put_Main
SHAR1	CEBR	1	Elapse	Avg	.0035	.0000	.0000	.0035	.0000	.0000				
				Max	.0035	.0000	.0000	.0035	.0000	.0000				
			Count	Avg	16	0	0	16	0	0		24228	0	0
				Max	16	0	0	16	0	0	Length	24228	0	0
	CECI	1	Elapse	Avg	.0000	.0070	.0000	.0070	.0000	.0044				
				Max	.0000	.0070	.0000	.0070	.0000	.0044				
			Count	Avg	0	2	0	2	0	3		0	600	0
				Max	0	2	0	2	0	3	Length	0	600	0
	Totl	2	Elapse	Avg	.0017	.0035	.0000	.0052	.0000	.0022				
				Max	.0035	.0070	.0000	.0070	.0000	.0044				
			Count	Avg	8	1	0	9	0	1		12114	300	0
				Max	16	2	0	16	0	3	Length	24228	600	0
STATTC28CBAKER	STAT	1	Elapse	Avg	.0000	.0000	.0000	.0000	.0000	.0000				
				Max	.0000	.0000	.0000	.0000	.0000	.0000				
			Count	Avg	0	1	0	1	0	0		0	69	0
				Max	0	1	0	1	0	0	Length	0	69	0

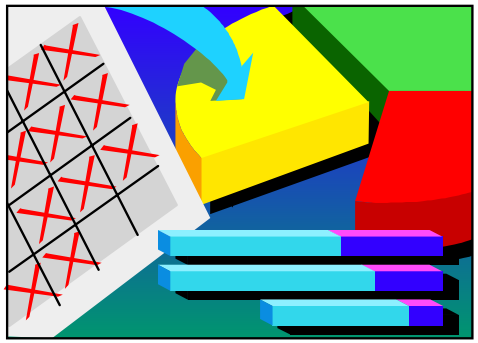
CICS Performance Analyzer for z/OS

DB2, WebSphere MQ, and MVS System Logger Reports

e business software

DB2 Reports

- DB2 Reports ...
  - CMF Performance Data - SMF 110
  - DB2 Accounting Data - SMF 101
  - List, Long Summary, Short Summary, Recap
  - Class 1, Class 2 and Class 3 Timing, ...
  - Buffer Manager Summary, Locking Summary, ...
  - SQL Data Manipulation Language (DML), ...
  - Provide a 'link' to DB2 PE or DB2 PM Reports ...
    - Timestamps, Thread Correlation, ...
    - UOWID, UOWSEQ, ... LUWID, LUWSEQ
- Tailoring DB2 Reports
  - List, Summary (Short or Long)



DB2 Reports - Notes

The CICS PA DB2 Reports combine the CICS CMF performance class records (SMF 110) with the DB2 Accounting records (SMF 101) belonging to the same network unit-of-work that includes some DB2 activity to produce detail and/or summary reports showing DB2 usage for your CICS systems.

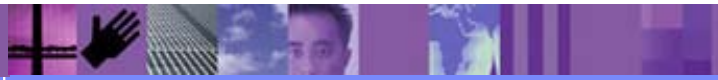
The CICS PA DB2 Reports are:-

- List
- Summary (Long or Short)
- Recap (record processing statistics).

To produce the DB2 Reports, you need to accumulate DB2 Accounting statistics (SMF 101 records) and define your CICS-DB2 resources with **ACCOUNTREC(TASK)** or **ACCOUNTREC(UOW)**. CICS PA Version 1 Release 3 supports the DB2 Accounting statistics data from DB2 Version 5, Version 6, Version 7 and Version 8.

The information provided in the CICS PA DB2 Reports can be used to assist in further analysis using DB2 performance reporting tools such as the IBM DB2 Performance Expert (DB2 PE) or DB2 Performance Monitor (DB2 PM).

The CICS PA DB2 List report is at its most effective when used in conjunction with the CICS PA Cross-System Work report.



Requesting a DB2 Report

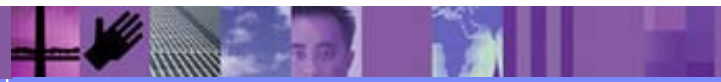
```
  File  Systems  Options  Help
                          DB2SAMP1 - DB2 Report
Command ===> ____________________________________________________________

CICS System Selection:                    Report Output:
 APPLID . .  ________ +                    DDname . . . . . . . . . DB2R0001
 Image  . .  ________ +                    Print Lines per Page . .  ___  (1-255)
 Group  . .  ________ +

DB2 System Selection:                     Reports Options:
 SSID . . .  ____  +                       /  Process DB2 accounting records
 Image  . .  ________  +                   _  List records with no DB2 activity
 Group  . .  ________  +                   /  Long Summary with DB2 maximums

Reports              ——— DB2 Accounting data to include in reports ———
Required:          Class1  Class2  Class3  Buffer  Locking  DML 1  DML 2
 _  List             /       /       _       /       /       _      _
 _  Long Summary     /       /       _       /       /       _      _
 /  Short Summary

Report Format:
 Title  . . ____________________________________________________________
            ____________________________________________________________

Selection Criteria:
 _  Performance
```

Showing Defaults

Requesting a DB2 Report - Notes

The DB2 Report panel shows the options available when requesting a DB2 Report:-

- You can request a detailed **List** report, a **Long Summary** report and/or a **Short Summary** report.
- **CICS System Selection** identifies the CICS Systems (APPLIDs) that you want to report against.
- **DB2 System Selection** identifies the DB2 Subsystems (used by the specified CICS systems) that you want to report against. You do not need to specify this if:-
  - Your CICS System Selection specifies a Group that contains DB2 SSIDs, or
  - The DB2 Accounting records are contained in the same files as the CICS System's CMF performance records.
- Select **Process DB2 Accounting records** to process DB2 Accounting (SMF 101) records. Otherwise, CICS PA reports only the DB2 statistics contained in the CMF performance records.
- Select **List records with no DB2 activity** to report CMF performance records with DB2REQCT=0 provided they are part of a network unit-of-work that has some DB2 activity. This option applies only to the DB2 List report.
- Select **Long Summary with DB2 maximums** to include average and maximum values in the DB2 Accounting detail lines of the long Summary report. Otherwise, only average values are reported.
- Specify **Selection Criteria** to Include or Exclude:-
  - CMF Performance records based on (a) specified time intervals and/or (b) particular field values.
  - DB2 Accounting records based on (a) whether the DB2 thread Begin-End times are within the specified time intervals and/or (b) UOWID field values.



DB2 Reports - List

```
 V1R2M0                                          CICS Performance Analyzer
                                                        DB2 - List

DB2R0001 Printed at 10:14:46  2/13/2002    Data from 13:31:17  1/24/2002 to 13:32:08  1/24/2002                    Page       1


Tran/ Userid/ Program/                 UOW R                ..DB2 Wait Time..    DB2     User CPU                              Response A
SSID  Authid  Planname  APPLID    Task Seq T Term  LUName   Connect  Thread    ReqCnt     Time      Start Time    Stop Time     Time   B

WROS RAIMAN   CRWWPPOS STM4IRA1  34695   1 T <ADQ STM4IRT1    .0000    .0000       18     .3112  13:31:23.053 13:31:34.349  11.2956

CH1G STM4IRA1 CRWWPPOS STM4IRA1  34695  Thread Identification   ID=ENTRWROS0037  NETName=USIBMSY.LE000081   UOWID=16372A6C7E14
                                        Begin Time: 13:31:23.056  1/24/02  End Time: 13:31:35.378  1/24/02
                                        Class1: Thread Time     Elapsed= 12.3218  CPU= .310480
                                        Class2: In-DB2 Time     Elapsed= 11.2359  CPU= .309914
                                        Class3: Suspend Time    Total  =  6.5988  I/O=  2.3726  Lock/Latch=  4.2262  Other=   .0000
                                        Buffer Manager Summary  GtPgRq=    8120  SyPgUp=       8
                                        Locking Summary         Suspnd=      11  DeadLk=       0  TmeOut=       0  MxPgLk=       1
                                        SQL DML Query/Update    Sel=         2  Ins=          0  Upd=          0  Del=          0
                                        SQL DML 'Other'         Des=         0  Pre=          0  Ope=          3  Fet=         13  Clo=       0

WRNO RAIMAN   CRWWPPNO STM4IRA1  34869   1 T <ACY STM4IRT1    .0000    .0000       67     .0114  13:31:38.853 13:31:45.875   7.0220

CH1G STM4IRA1 CRWWPPNO STM4IRA1  34869  Thread Identification   ID=ENTRWRNO0051  NETName=USIBMSY.LE000081   UOWID=1637397E8927
                                        Begin Time: 13:31:38.854  1/24/02  End Time: 13:31:45.808  1/24/02
                                        Class1: Thread Time     Elapsed=  6.9534  CPU= .010208
                                        Class2: In-DB2 Time     Elapsed=  6.8909  CPU= .008283
                                        Class3: Suspend Time    Total  =  6.3783  I/O=   .0000  Lock/Latch=  6.3783  Other=   .0000
                                        Buffer Manager Summary  GtPgRq=     173  SyPgUp=      36
                                        Locking Summary         Suspnd=      2  DeadLk=       0  TmeOut=       0  MxPgLk=      15
                                        SQL DML Query/Update    Sel=         1  Ins=         12  Upd=         11  Del=          0
                                        SQL DML 'Other'         Des=         0  Pre=          0  Ope=         12  Fet=         21  Clo=      10
```

CMF performance data

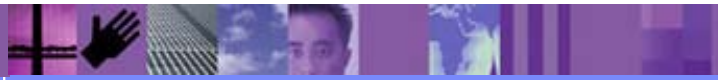
Associated DB2 Accounting data

DB2 Reports - List - Notes

The DB2 List report provides a detailed list by transaction of all network units-of-work with DB2 activity. Records that are part of the same network unit-of-work are printed sequentially in groups with a blank line separator. A data line (column format) is presented for each CMF performance class record, and a block of data lines (row format) is presented for each associated DB2 Accounting record.

The report includes the following DB2 information (depending on the selected options):-

1. DB2 Thread Identification, for easy cross-reference to DB2 PE or DB2 PM reports
2. Class 1 Thread elapsed and CPU times
3. Class 2 In-DB2 elapsed and CPU times
4. Class 3 Suspend times
5. Buffer Manager statistics
6. Locking statistics
7. SQL DML statistics.



DB2 Reports - Long Summary

```
 V1R2M0                                          CICS Performance Analyzer
                                                    DB2 - Long Summary

DB2R0001 Printed at 10:14:46  2/13/2002    Data from 13:31:17  1/24/2002 to 13:32:08  1/24/2002    APPLID STM4IRA1     Page       1

                              Avg      Max       Avg      Max       Avg      Max       Avg      Max       Avg      Max
Tran/  Program/  #Tasks/   DB2ConWt DB2ConWt  DB2ThdWt DB2ThdWt   DB2Rqst  DB2Rqst   UserCPU  UserCPU  Response Response   #Abends
SSID   Planname #Threads      Time     Time      Time     Time      Count    Count      Time     Time      Time     Time

WRCI   CRWWPPCI       10     .0000    .0000     .0000    .0000       1.0        1   .001112  .001312     .1085    .4716         0

CH1G   CRWWPPCI        6  Thread Utilization       Entry=       6  Pool=       0  Command=       0
                          Class1: Thread Time      Avg: Elapsed=  5.4859  CPU= .000439
                                                   Max: Elapsed= 13.2979  CPU= .000485
                          Class2: In-DB2 Time      Avg: Elapsed=   .0037  CPU= .000327
                                                   Max: Elapsed=   .0088  CPU= .000360
                          Class3: Suspend Time     Avg: Total  =     N/P  I/O=     N/P  Lock/Latch=     N/P  Other=     N/P
                                                   Max: Total  =     N/P  I/O=     N/P  Lock/Latch=     N/P  Other=     N/P
                          Buffer Manager Summary   Avg: GtPgRq=     3.0  SyPgUp=      .0
                                                   Max: GtPgRq=       3  SyPgUp=       0
                          Locking Summary          Avg: Suspnd=      .0  DeadLk=      .0  TmeOut=      .0  MxPgLk=      .0
                                                   Max: Suspnd=       0  DeadLk=       0  TmeOut=       0  MxPgLk=       0
                          SQL DML Query/Update     Avg: Sel=     1.0  Ins=       .0  Upd=       .0  Del=       .0
                                                   Max: Sel=       1  Ins=        0  Upd=        0  Del=        0
                          SQL DML 'Other'          Avg: Des=      .0  Pre=       .0  Ope=       .0  Fet=       .0  Clo=       .0
                                                   Max: Des=       0  Pre=        0  Ope=        0  Fet=        0  Clo=        0
```

DB2 Reports - Long Summary Totals

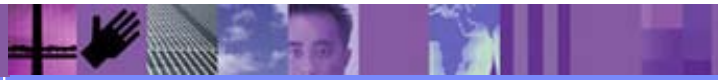
```
 V1R3M0                                          CICS Performance Analyzer
                                                      DB2 - Long Summary

DB2R0001 Printed at  9:07:57  1/19/2004    Data from 18:28:32  1/24/2002 to 18:34:39  1/24/2002    APPLID STM4IRA2     Page       8

                             Avg      Max       Avg      Max       Avg      Max       Avg      Max       Avg      Max
Tran/ Program/ #Tasks/    DB2ConWt DB2ConWt  DB2ThdWt DB2ThdWt   DB2Rqst  DB2Rqst   UserCPU  UserCPU  Response Response   #Abends
SSID  Planname #Threads       Time     Time       Time     Time     Count    Count      Time     Time      Time     Time

*** Total ***      2336     .0000    .0000     .0000    .0000      26.4       67   .006671  .066704    1.9644  23.3695         0

CH1G               2216  Thread Utilization       Entry=    2140  Pool=      76  Command=       0
                         Class1: Thread Time      Avg: Elapsed=  3.0187  CPU= .005208
                                                  Max: Elapsed= 48.9052  CPU= .499978
                         Class2: In-DB2 Time      Avg: Elapsed=  1.9274  CPU= .004944
                                                  Max: Elapsed= 23.3587  CPU= .065350
                         Class3: Suspend Time     Avg: Total  =2.604409  I/O= .099095  Lock/Latch=2.244423  Other= .260891
                                                  Max: Total  =45.45591  I/O=8.525344  Lock/Latch=23.31835  Other=13.61221
                         Buffer Manager Summary   Avg: GtPgRq=   167.8  SyPgUp=    14.6
                                                  Max: GtPgRq=    5253  SyPgUp=    1948
                         Locking Summary          Avg: Suspnd=     1.4  DeadLk=      .0  TmeOut=      .0  MxPgLk=      5.3
                                                  Max: Suspnd=      52  DeadLk=       0  TmeOut=       0  MxPgLk=       19
                         SQL DML Query/Update     Avg: Sel=      1.1  Ins=      3.6  Upd=      3.6  Del=       .0
                                                  Max: Sel=        3  Ins=       12  Upd=       11  Del=        2
                         SQL DML 'Other'          Avg: Des=       .0  Pre=       .0  Ope=      4.6  Fet=     10.0  Clo=      3.7
                                                  Max: Des=        0  Pre=        0  Ope=       12  Fet=       21  Clo=       12
```

DB2 Reports - Long Summary - Notes

The DB2 Long Summary report summarizes DB2 activity by transaction and program (CMF performance records) and SSID and Plan name (DB2 accounting records) within APPLID. Average and maximum values a reported for each.

The DB2 Long Summary report represents a subset of the total data presented in the DB2 List report. It includes DB2 data that can be matched within network unit-of-work to a single task, or to multiple tasks for the same transaction and program.

The DB2 Short Summary report (shown on the next slide) is an abridged version of the Long Summary report. It provides averages only (no maximums). Both the CMF performance and
DB2 accounting record details are presented in column format.



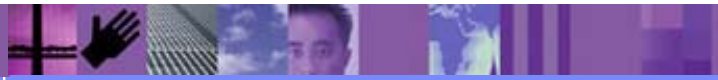
DB2 Reports - Short Summary

```
 V1R2M0                                          CICS Performance Analyzer
                                                   DB2 - Short Summary

DB2R0001 Printed at 10:14:46  2/13/2002    Data from 13:31:17  1/24/2002 to 13:32:08  1/24/2002    APPLID STM4IRA1     Page       1


Tran/ Program/ #Tasks/  ............Average Elapsed Time............  .....Average CPU Time.....  .....Average Count....... #Abends
SSID  Planname #Threads Response  Thread   In-DB2  DB2ConWt DB2ThdWt    User    Thread   In-DB2   DB2Reqs  GetPage SysPgUpd

WRCI  CRWWPPCI        10    .1085                      .0000    .0000   .001112                        1.0                          0
CH1G  CRWWPPCI         6            5.4859    .0037                                    .000439  .000327              3.0       .0

WRDF  CRWWPPDF         9   1.2535                      .0000    .0000   .006832                       46.0                          0
CH1G  CRWWPPDF         5            6.5634    .9419                                    .006247  .004860             61.2     28.0

WRDI  CRWWPPDI         3    .3111                      .0000    .0000   .001578                        4.0                          0
CH1G  CRWWPPDI         2          12.1418    .2181                                    .000811  .000593              8.0       .0
```

```
 V1R3M0                                          CICS Performance Analyzer
                                                   DB2 - Short Summary

DB2R0001 Printed at  9:07:57  1/19/2004    Data from 13:31:17  1/24/2002 to 13:32:08  1/24/2002    APPLID STM4IRA1     Page       1

Tran/ Program/ #Tasks/  ............Average Elapsed Time............  .....Average CPU Time.....  .....Average Count....... #Abends
SSID  Planname #Threads Response  Thread   In-DB2  DB2ConWt DB2ThdWt    User    Thread   In-DB2   DB2Reqs  GetPage SysPgUpd

*** Total ***      2336   1.9644                      .0000    .0000   .006671                       26.4                          0
CH1G               2216            3.0187   1.9274                                    .005208  .004944             167.8     14.6
```

Tailoring DB2 Reports

- CICS and DB2 System Selection ...
  - APPLID, DB2 Subsystem, MVS Image, Group, ...
- List and Long Summary ...
  - Class 1 (Thread time), Class 2 (In-DB2 time), ...
  - Class 3 Timing (Suspend), ...
  - Buffer Manager Summary, Locking Summary, ...
  - SQL Data Manipulation Language (DML), ...
- Report Options ...
  - Include Records with no DB2 activity
  - Long Summary with DB2 maximums
- CMF Performance Record Selection Criteria

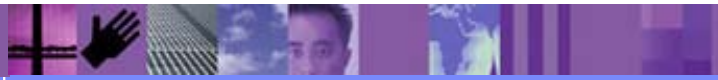


Tailoring DB2 Reports - Notes

You can specify various report options and record selection criteria for the CICS PA DB2 Reports. These options include:-

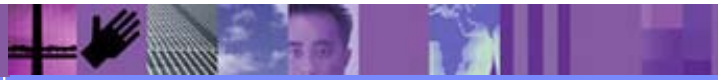
1. System Selection
2. Reports Required:-
   a. List
   b. Long Summary
   c. Short Summary.
3. The DB2 Accounting data to include in reports
4. Report Options:-
   a. Process DB2 Accounting records
   b. List record with no DB2 activity
   c. Long Summary with DB2 maximums.

The DB2 Recap Report, shown over the next two slides, is always produced at the end to provide an analysis of the CICS CMF performance class (SMF 110) and the DB2 Accounting (SMF 101) records processed.



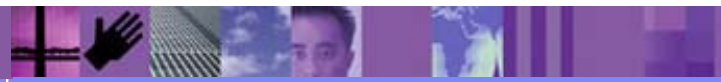
DB2 Recap Report

```
 V1R2M0                                          CICS Performance Analyzer
                                                        DB2 - Recap

DB2R0001 Printed at 10:14:46  2/13/2002    Data from 13:31:17  1/24/2002 to 13:32:08  1/24/2002

Records processed by the DB2 report processor:
                                                        Count      % of Total
  CMF performance class records:                      ---------   ----------
    Included  . . . . . . . . . . . . . . . . . . .         739       34.1%
    Excluded:
      CICS PA record selection  . . . . . . . . . .           0         .0%
      No DB2 activity . . . . . . . . . . . . . . .       1,427       65.9%
      Other . . . . . . . . . . . . . . . . . . . .           0         .0%
    Total . . . . . . . . . . . . . . . . . . . . .       2,166

  DB2 accounting records:
    Included  . . . . . . . . . . . . . . . . . . .         660       40.5%
    Excluded:
      CICS PA record selection  . . . . . . . . . .         968       59.4%
      Not CICS Attach . . . . . . . . . . . . . . .           3         .2%
      Accounting Token not set  . . . . . . . . . .           0         .0%
      Other . . . . . . . . . . . . . . . . . . . .           0         .0%
    Total . . . . . . . . . . . . . . . . . . . . .       1,631


Network units-of-work with DB2 activity:


 ..............
 ..............
```



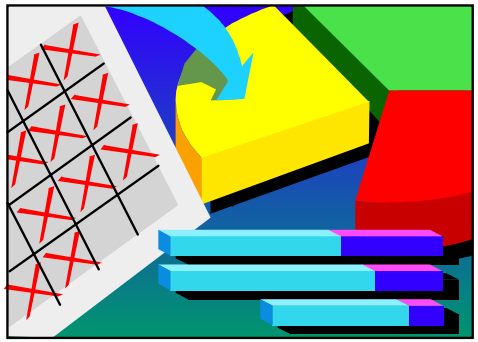
DB2 Recap Report ...

```
 V1R2M0                                          CICS Performance Analyzer
                                                      DB2 - Recap

DB2R0001 Printed at 10:14:46  2/13/2002    Data from 13:31:17  1/24/2002 to 13:32:08  1/24/2002

 ..............
 ..............


Network units-of-work with DB2 activity:
                                                        Count      % of Total
  Network units-of-work where:                        ---------   ----------
    DB2 accounting records were resolved  . . . . .       636        86.1%
    DB2 accounting records were not resolved  . . .         0          .0%
    DB2 accounting records were not present . . . .       103        13.9%
    Total . . . . . . . . . . . . . . . . . . . . .       739

  CMF performance class records with DB2 activity:
    Matched to a DB2 accounting record  . . . . . .       636        86.1%
    Not matched to any DB2 accounting records . . .       103        13.9%
    Total . . . . . . . . . . . . . . . . . . . . .       739

  CMF performance class records with no DB2 activity:
    Total . . . . . . . . . . . . . . . . . . . . .       N/A

  DB2 accounting records:
    Eligible for summary reporting  . . . . . .           636       100.0%
    Matched to a single CICS task   . . . . . .           636       100.0%
    Matched to two or more CICS tasks . . . . .             0          .0%
    Not matched to any CICS tasks . . . . . . .             0          .0%
    Total . . . . . . . . . . . . . . . . . . .           636
```



WebSphere MQ Reports

- WebSphere MQ Reports ...
  - WebSphere MQ Accounting Data - SMF 116
    - Class 1 (Subtype 0), Class 3 (Subtypes 1 and 2) records
      - Accounting data for each task, at thread and queue level
  - List ...
    - Class 1, Class 3, ...
  - Summary ...
    - Class 1, Class 3, ...
    - Summarized by ...
      - CICS Transaction ID and/or MQ queue name
- Tailoring WebSphere MQ Reports
  - Queue Name, ...
    - Masking characters % and * are supported



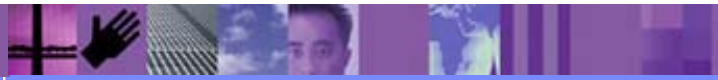
WebSphere MQ Reports - Notes

The new CICS PA MQ reports use the WebSphere MQ Accounting data (SMF 116 records) to provide a detailed performance analysis of the CICS transactions that access an MQ queue manager.

The CICS PA MQ List reports provide a detailed trace of the WebSphere MQ accounting records, reporting the comprehensive performance data contained in the Class 1 (Subtype 0) and Class 3 (Subtypes 1 and 2) records. The MQ Summary reports provide, summarized by either CICS Transaction ID or by MQ queue name, an analysis of the MQ system and queue resources used and the transactions they service.

To produce the CICS PA MQ Reports, you need to accumulate WebSphere MQ Accounting statistics (SMF 116 records). CICS PA Version 1 Release 3 supports the WebSphere MQ Accounting statistics data from MQSeries for OS/390 Version 5.2, IBM WebSphere MQ for z/OS Version 5.3, and IBM WebSphere MQ for z/OS Version 5.3.1.

The WebSphere MQ SupportPac "MP1B: MQSeries for OS/390 V5.2 - Interpreting accounting and statistics data" provides information on the use and interpretation of the accounting and statistics available in MQSeries for OS/390 Version 5.2 (and later) and also provides information about the layout of the SMF records and suggests ways of analysing the data.



Requesting an WebSphere MQ Report

```
  File  Systems  Options  Help
                        MQRPTS - 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. 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
```

Showing Defaults

Requesting an WebSphere MQ Report - Notes

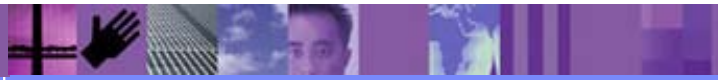
The CICS PA MQ reports use the WebSphere MQ Accounting data (SMF 116 records) to provide a detailed performance analysis of the CICS transactions that access an MQ queue manager.

The CICS PA MQ List reports provide a detailed trace of the WebSphere MQ accounting records, reporting the comprehensive performance data contained in the Class 1 (Subtype 0) and Class 3 (Subtypes 1 and 2) records. The MQ Summary reports provide, summarized by either CICS Transaction ID and/or by MQ queue name, an analysis of the MQ system and queue resources used and the transactions they service.

Class 1 (Subtype 0) - Message manager accounting records, record how much CPU was spent processing WebSphere MQ API calls and the number of MQGET and MQPUT calls. This information is produced when the named task disconnects from WebSphere MQ, and so the information contained in the record might cover many hours.

Class 3 (Subtype 1) - Accounting data for each task, at thread and queue level

Class 3 (Subtype 2) - Additional queue-level accounting data (if the task used more queues than could fit in the subtype 1 record).

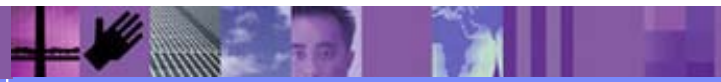


WebSphere MQ Reports - Class 1 (Subtype 0) List

V1R3M0 CICS Performance Analyzer
WebSphere MQ Class 1 List

MQ000001 Printed at 12:06:24 6/18/2003 Data from 10:45:00 1/10/2003 Page 1

APPLID	SSID	Tran	Time	Task	CPU	GET Counts				PUTx Counts			
						<=99	<=999	<=9999	>=10000	<=99	<=999	<=9999	>=10000
CICSPTST	CBA1	CKBP	10:45:00.11	13458	0.001069	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.11	13459	0.000999	0	1	0	0	0	1	0	0
CICSPRD2	CBP1	CKBP	10:45:00.11	37690	0.000518	1	0	0	0	0	0	0	0
CICSPTST	CBA1	CKBP	10:45:00.37	13463	0.001086	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.38	13465	0.000978	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.38	13461	0.000909	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.38	13464	0.000824	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.38	13462	0.000875	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.42	13466	0.000940	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.42	13467	0.001077	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.47	13471	0.001014	0	1	0	0	0	1	0	0
CICSPRD2	CBP1	CKBP	10:45:00.50	37693	0.000492	1	0	0	0	0	0	0	0
CICSPTST	CBA1	CKBP	10:45:00.50	13469	0.000863	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.50	13468	0.000877	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.50	13474	0.000914	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.50	13470	0.000996	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.51	13473	0.000899	0	1	0	0	0	1	0	0
CICSPTST	CBA1	CKBP	10:45:00.51	13472	0.000934	0	1	0	0	0	1	0	0
CICSPRD2	CBP1	Q412	10:45:00.57	37694	0.001148	0	1	0	0	0	1	0	0
CICSPRD2	CBP1	Q431	10:45:00.60	37695	0.001271	0	1	0	0	0	0	0	1
CICSPRD2	CBP1	Q411	10:45:00.61	37696	0.000948	0	1	0	0	0	1	0	0

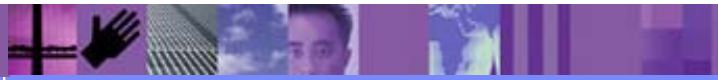


WebSphere MQ Reports - Notes

The MQ Class 1 List report (shown on the previous visual) provides a detailed trace of the WebSphere accounting records for each task showing how much CPU was spent processing WebSphere MQ API calls and the number of MQGET and MQPUTx calls.

The MQ Class 1 Summary report (shown on the next visual) summarizes the MQ activity by transaction and/or queue name within MQ Subsystem ID (SSID) and APPLID. Average values are reported for CPU time, MQGET and MQPUTx calls.

On the following visual is an example of the MQ Class 3 Summary report summarizing the MQ activity by transaction at the thread and queue level.

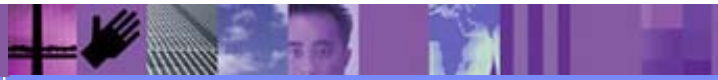


WebSphere MQ Reports - Class 1 (Subtype 0) Summary

V1R3M0 CICS Performance Analyzer
WebSphere MQ Class 1 Summary

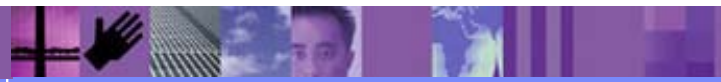
MQ000003 Printed at 12:06:25 6/18/2003 Data from 10:45:00 01/10/2003 to 11:00:59 01/10/2003 Page 1

Key				Average		Average GET Counts				Average PUTx Counts			
SSID	APPLID	TRAN	Count	CPU	Calls	<=99	<=999	<=9999	>=10000	<=99	<=999	<=9999	>=10000
CBA1	CICSPTST	CKBP	45319	0.001099	2.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
CBP1	CICSPRD2	CKBP	123	0.000548	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CBP1	CICSPRD2	Q451	8	0.138772	110.6	0.0	0.0	0.0	55.8	54.4	0.1	0.0	0.4
CBP1	CICSPRD2	Q401	79	0.001141	2.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0
CBP1	CICSPRD2	Q411	1044	0.001012	2.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
CBP1	CICSPRD2	Q412	1187	0.001206	2.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
CBP1	CICSPRD2	Q413	4	0.000885	2.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
CBP1	CICSPRD2	Q428	284	0.001060	2.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
CBP1	CICSPRD2	Q430	818	0.000976	2.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
CBP1	CICSPRD2	Q431	635	0.001346	2.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0
CBP1	CICSPRD2	Q444	327	0.001068	2.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
CBT1	CICSTST2	CKBP	4	0.001235	2.0	0.0	0.8	0.3	0.0	0.0	0.8	0.3	0.0



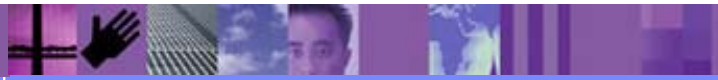
MQ Reports - Class 3 (Subtype 1/2) Summary

```
 V1R3M0                                                CICS Performance Analyzer
                                                  WebSphere MQ Class 3 Summary      (By TRAN)

MQ000002 Printed at 14:39:28  7/23/2003  Data from 18:05:59 07/09/2003 to 19:34:42 07/09/2003

SSID: KML0  APPLID: ANKCL0    TRAN: AOPC  Threads:          3
  COMMIT    Avg Count             5491.7   Avg Elapsed    35.08398  Avg CPU      0.312663
  BACKOUT   Avg Count                4.0   Avg Elapsed    33.73157  Avg CPU      0.000000
  P/S 0     Avg Count                0.7   Avg Elapsed    0.030944
  Other     Avg Count             5492.7   Avg Elapsed    54.80571  Avg CPU      0.467525
            Avg #Old Pages       54055.0   Avg #New Pages    5807.3
  Jnl/Log   Avg Bytes           505233.3   Avg FORCEs         5491.7  Avg WAIT Elp 31.80120   Avg SUSPEND Elp  34.74149

SSID: KML0  APPLID: ANKCL0    TRAN: AOPD  Threads:          1
  Other     Avg Count                1.0   Avg Elapsed    0.000054  Avg CPU      0.000053

SSID: KML0  APPLID: ANKCL0    TRAN: AOQ1  Threads:      2,838
  COMMIT    Avg Count                1.0   Avg Elapsed    0.013155  Avg CPU      0.000067
  BACKOUT   Avg Count                0.0   Avg Elapsed    0.000002  Avg CPU      0.000000
  Other     Avg Count                1.5   Avg Elapsed    0.007837  Avg CPU      0.000095
            Avg #Old Pages          32.9   Avg #New Pages       2.4
  Jnl/Log   Avg Bytes              160.7   Avg FORCEs           1.0  Avg WAIT Elp 0.012470   Avg SUSPEND Elp  0.013137

SSID: KML0  APPLID: ANKCL0    TRAN: CKTI  Threads:          3

SSID: KML0  APPLID: ANKCL0    TRAN: OS6D  Threads:          1
  Other     Avg Count                1.0   Avg Elapsed    0.000062  Avg CPU      0.000061

SSID: KML0  APPLID: ANKCL0    TRAN: OS6E  Threads:         29
  Other     Avg Count                1.0   Avg Elapsed    0.000057  Avg CPU      0.000057
```



Tailoring WebSphere MQ Reports

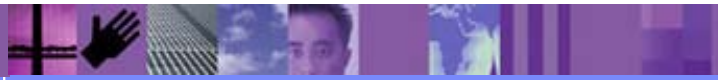
- CICS and WebSphere MQ System Selection ...
  - APPLID, MQ Queue Manager, MVS Image, Group, ...
- Reports Required ...
  - List and Summary
- Report Options ...
  - Process Class 1 or Class 3 Accounting records
- Sort Options ...
  - Transaction, Queue, Transaction/Queue or Queue/Transaction
- Report Filter ...
  - Queue Name
    - Masking characters % and * are supported



Tailoring WebSphere MQ Reports - Notes

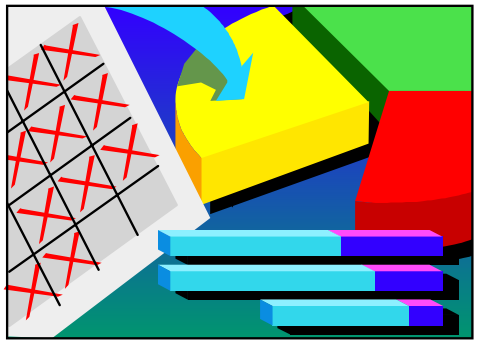
You can specify various report options and record selection criteria for the CICS PA MQ Reports. These options include:-

1. System Selection
2. Reports Required:-
   a. List and/or Summary.
3. Process MQ Accounting records:-
   a. Class 1 records (Subtype 0)
   b. Class 3 records (Subtypes 1 and 2).
4. Sort Options:-
   a. Transaction, Queue, Transaction/Queue or Queue/Transaction.
5. Report Filter:-
   a. The MQ Accounting (SMF 116) records can be filtered by Queue name patterns; masking characters % and * are also supported.



MVS System Logger Reports

- MVS System Logger Reports
  - SMF 88 - Subtype 1 and Subtype 11 (ALTER)
  - List and Summary by Logstream Name
  - Summary by Structure Name
  - List Structure ALTER events
- More extensive and flexible System Logger reporting
  - Alternative to the IXGRPT1 sample program
- Tailoring MVS System Logger Reports
  - Logstream Name, Structure Name, ...
    - Masking characters % and * are supported



MVS System Logger Reports - Notes

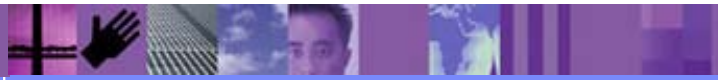
The CICS PA MVS System Logger reports process the System Logger (SMF 88) records to provide information on the System Logger logstreams and coupling facility structures that are used by CICS Transaction Server for logging, recovery and backout operations.

The CICS PA MVS System Logger reports, when used in conjunction with the CICS Logger reports produced by the standard CICS statistics reporting utilities, such as DFHSTUP, provide a comprehensive analysis of the logstream activity for all your CICS systems and provide a more extensive and flexible performance reporting solution than the IXGRPT1 sample program.

You can request a List report and/or a Summary report. The System Logger List report shows information on Logstream writes, deletes, and events (Subtype 1), as well as Structure Alter events (Subtype 11) for each SMF recording interval. Structure Alter events apply to Structures, not individual Logstreams, and are reported with a Logstream name of *ALTER*. The report can be sorted either on Logstream name or Structure name and/or by Time.

The System Logger (SMF 88) records can be filtered by Logstream and/or Structure name patterns; masking characters % and * are also supported.

The System Logger Summary report summarizes Logstream and Structure statistics so that you can measure Logger performance over a longer period of time.



MVS System Logger Reports ...

```
  File  Systems  Options  Help
                        LOGRTEST - System Logger Report
Command ===>

System Selection:                          Report Output:
 Logger . . MV2CLOGR  +                     DDname  . . . LOGR0001
 Image  . . MV2C      +
 Group  . . _________ +

Reports Required:                          Report Options:
 /  Summary                                 1  1. Sort by Logstream Name
 _  List    _  Include ALTER records           2. Sort by Structure Name
            _  Sort by Time
                                            SMF Recording Interval . . __  (mins)
Report Filter:
 Logstream Name . . . ____________________________
 Structure Name . . . ________________

Report Format:
 Title  . . ____________________________________________________________________
            ____________________________________________________________________
```

Showing Defaults

MVS System Logger Reports - Logstream List

V1R2M0 CICS Performance Analyzer

System Logger - List

LOGR0001 Printed at 16:10:07 2/13/2002 Data from 22:55:00:00 1/05/2002 to 23:55:00:00 1/05/2002

Logstream name	Structure name	MVSID	Flag	Interval expired at	Level
IYOT1.DFHLOG	LOG_JG_20M	SYSD		23:10:00.00 1/05/2002	SP7.0.2

IXGWRITES Count	IXGWRITES Total Bytes	IXGWRITES Average Bytes	IXGWRITES Bytes Writn to Interim Storage	DELETIONS Count With DASD Write	DELETIONS Count Without DASD Write	DELETIONS Bytes After Offload w. DASD	DELETIONS Bytes Int Stor w/o DASD Write
46322	12736K	275	22236K	14998	32681	4129047	8983482

EVENTS Offloads	Staging Threshld	Demand DASD Shifts	Staging Full	Entry Full	Struct Full	Demand Init'd Offloads	Minimum Block Length	Maximum Block Length
22	0	5	0	0	0	0	116	1427

EVENTS Type1	EVENTS Type2	EVENTS Type3	EVENTS Struct Rebuilds Init'd	EVENTS Struct Rebuilds Complt'd	DASD Writes Count	DASD Writes Total Bytes	DASD Writes Average	DASD Writes Waits
45424	898	0	0	0	37	4728967	0	21

MVS System Logger Reports - Logstream Summary

V1R2M0 CICS Performance Analyzer
System Logger - Logstream Summary

LOGR0001 Printed at 16:10:07 2/13/2002 Data from 22:55:00:00 1/05/2002 to 23:55:00:00 1/05/2002

Logstream name	MVSID	Structure name	First interval start	Last interval stop	Total Interval
IYOT1.DFHLOG	SYSD	LOG_JG_20M	23:00:00.00 1/05/2002	23:46:22.38 1/05/2002	0000:46:22

	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	628147	172706K	275	301535K	216244	467717	59484K	128572K
Rate(/Sec)	225	62080		108388	77	168	21382	46216
Minimum	4	4292		4864	0	0	0	0
Maximum	94200	25898K		45218K	32740	71810	9004730	19739K

EVENTS

	Offloads	Staging Threshld	Demand DASD Shifts	Block Length	Staging Full	Entry Full	Struct Full	Demand Init'd Offloads
Total	314	0	78		0	0	0	0
Rate(/Sec)	0	0	0		0	0	0	0
Minimum	0	0	0	116	0	0	0	0
Maximum	48	0	12	1427	0	0	0	0

	EVENTS					DASD Writes			
	Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Complt'd	Count	Total Bytes	Average	Waits
Total	612865	15277	5	0	0	551	68133K	0	315
Rate(/Sec)	220	5	0	0	0	0	24491		0
Minimum	4	0	0	0	0	0	0		0
Maximum	91995	2458	5	0	0	84	10314K		48

MVS System Logger Reports - Structure Summary

V1R2M0 CICS Performance Analyzer
System Logger - Structure Summary

LOGR0001 Printed at 16:10:07 2/13/2002 Data from 22:55:00:00 1/05/2002 to 23:55:00:00 1/05/2002 Page 67

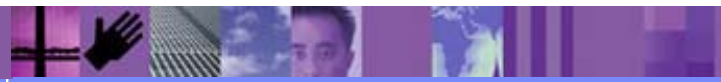
Structure name	MVSID	First interval start	Last interval stop	Total Interval
LOG_JG_20M	SYSD	23:00:00.00 1/05/2002	23:46:45.67 1/05/2002	0000:46:45

	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	1895819	521260K	275	910084K	650666	1412682	179002K	388332K
Rate(/Sec)	675	185832		324450	231	503	63815	138443
Minimum	0	0		0	0	0	0	0
Maximum	95743	26322K		45959K	32740	71811	9004730	19740K

EVENTS

	Offloads	Staging Threshld	Demand DASD Shifts	Block Length	Staging Full	Entry Full	Struct Full	Demand Init'd Offloads
Total	948	0	235		0	0	0	0
Rate(/Sec)	0	0	0		0	0	0	0
Minimum	0	0	0	116	0	0	0	0
Maximum	48	0	12	1427	0	0	0	0

	EVENTS					DASD Writes			
	Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Complt'd	Count	Total Bytes	Average	Waits
Total	1850214	45600	5	0	0	1651	205029K	0	942
Rate(/Sec)	659	16	0	0	0	0	73094		0
Minimum	0	0	0	0	0	0	0		0
Maximum	93387	2508	5	0	0	84	10314K		48



MVS System Logger Reports - Structure Summary ...

V1R2M0 CICS Performance Analyzer
System Logger - Structure Summary

LOGR0001 Printed at 7:25:41 2/14/2002 Data from 21:10:00.00 1/03/2002 to 22:00:00.02 1/03/2002 Page 35

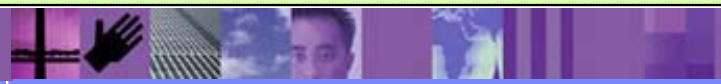
Structure name	MVSID	First interval start	Last interval stop	Total Interval
DASDONLY	SYSD	21:20:00.00 1/03/2002	21:58:28.32 1/03/2002	0000:38:28

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 20159	5547225	275	82571K	16571	3584	67875K	14680K
Rate(/Sec) 8	2403		35776	7	1	29408	6361
Minimum 1207	336654		4943872	0	0	0	0
Maximum 2891	794685		11842K	3665	1303	15012K	5337088

EVENTS

Offloads	Staging Threshld	Demand DASD Shifts	Block Length	Staging Full	Entry Full	Struct Full	Demand Init'd Offloads
Total 17	120	2		0	0	0	0
Rate(/Sec) 0	0	0		0	0	0	0
Minimum 0	0	0	116	0	0	0	0
Maximum 3	26	1	1427	0	0	0	0

EVENTS					DASD Writes			
Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Complt'd	Count	Total Bytes	Average	Waits
Total 0	0	0	0	0	20	5258226	0	2
Rate(/Sec) 0	0	0	0	0	0	2278		0
Minimum 0	0	0	0	0	0	0		0
Maximum 0	0	0	0	0	3	1158911		2



MVS System Logger Reports - Alter List

```
 V1R2M0                                          CICS Performance Analyzer
                                                   System Logger - List

LOGR0001 Printed at 16:10:07  2/13/2002     Data from 22:55:00:00  1/05/2002 to 23:55:00:00  1/05/2002              Page       1

Logstream name                    Structure name          Flag           MVSID     Level
*ALTER RECORD*                    LOG_JG_20M                             SYSD      SP7.0.2

------------ STRUCTURE ALTER ----------------
SMF record timestamp   23:05:00:00  1/05/2002

            Current                 Current    Targeted      Struct         Log         Log
              Bytes                 Average     Average        Size        Data     Streams
            Written    Offloads       Bufsz       Bufsz    (Blocks)      Writes    Connectd
           --------    --------    --------    --------    --------    --------    --------
                  0           0         256         300        5056           8           6
-------------------------------------------------------------------------------------------------------------------------------

Logstream name                    Structure name          Flag           MVSID     Level
*ALTER RECORD*                    LOG_JG_20M                             SYSD      SP7.0.2

------------ STRUCTURE ALTER ----------------
SMF record timestamp   23:10:00:00  1/05/2002

            Current                 Current    Targeted      Struct         Log         Log
              Bytes                 Average     Average        Size        Data     Streams
            Written    Offloads       Bufsz       Bufsz    (Blocks)      Writes    Connectd
           --------    --------    --------    --------    --------    --------    --------
                  0          64         256         300        5056      131213           6
-------------------------------------------------------------------------------------------------------------------------------
```

Tailoring the MVS System Logger Reports

```
  File  Systems  Options  Help
                        LOGRTEST - System Logger Report
Command ===>

System Selection:                          Report Output:
 Logger . . MV2CLOGR  +                     DDname  . . . LOGR0001
 Image  . . MV2C      +
 Group  . .           +

Reports Required:                          Report Options:
 /  Summary                                 1  1. Sort by Logstream Name
 _  List    _  Include ALTER records           2. Sort by Structure Name

                                            SMF Recording Interval . . __   (mins)

Report Filter:
 Logstream Name . . . *.*.DFHJ*
 Structure Name . . .

Report Format:
 Title  . .
```

Masking characters supported

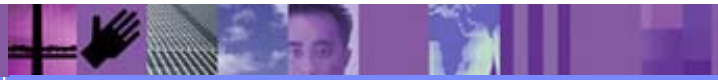
Specify the report options

Tailoring the MVS System Logger Reports - Notes

This foil shows an example of tailoring the CICS PA System Logger reports using the Report Filter. The System Logger (SMF 88) records can be filtered by logstream and/or structure name patterns; masking characters % and * are also allowed.

In addition to the System Logger (SMF 88) records, there are a number of other SMF records that are produced which may be helpful in fully understanding activity relating to logstreams, Coupling Facility (CF), and the logger address space. These SMF records are:-

- SMF 74.4 CF Activity
- SMF 74.1 - DASD Activity
- SMF 72 - Workload Activity.



CICS Performance Analyzer for z/OS

Historical Database (HDB)

CICS PA Historical Database (HDB)

- Flexible and easy-to-use facility for collecting and managing historical performance data for your CICS systems
- The CICS PA history database function provides ...
  - Short term history data detailing individual transaction performance for use in performance problem analysis
  - Long term history data summarized over time can be used for trend analysis and capacity planning
  - Powerful and flexible definition facility for historical data repositories based on Report Forms
  - Definition and management of the historical databases (HDBs) from the CICS PA ISPF dialog
  - Comprehensive reporting facilities
  - Optionally load history data into DB2 for further analysis and reporting
  - Trending and capacity planning

CICS PA Historical Database (HDB) - Notes

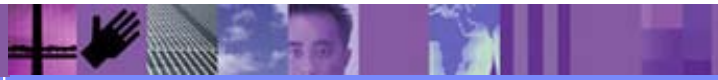
The CICS PA Historical Database (HDB) provides a flexible and easy-to-use facility for managing historical performance data for your CICS systems.

The CICS PA History Database (HDB) function provides ...

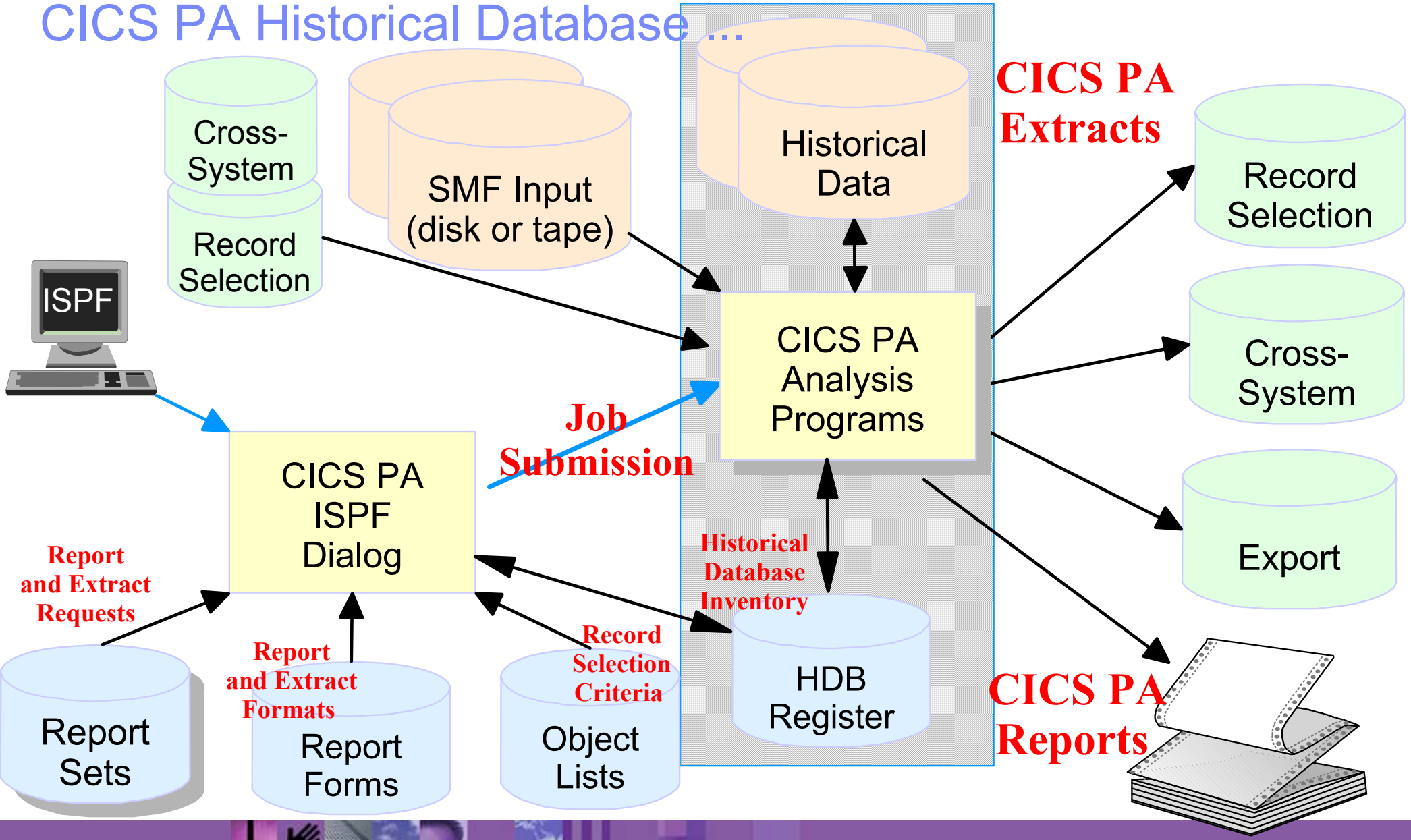
- Short term history data detailing individual transaction performance for use in performance problem analysis
- Long term history data summarized over time can be used for trend analysis and capacity planning
- Powerful and flexible definition facility for historical data repositories
- Definition and management of the historical databases (HDBs) from the CICS PA ISPF dialog
- Comprehensive reporting facilities
- A facility to optionally load history data into DB2 for further analysis and reporting using DB2 reporting tools such as Query Management Facility (QMF)
- Trending and Capacity Planning capabilities.

CICS PA Historical Database (HDB) ...

```
  File  Options  Help
V1R3M0          CICS Performance Analyzer 1.3 - Primary Option Menu
Option ===> 5

0  CICS PA Profile        Customize your CICS PA dialog profile
1  System Definitions     Specify CICS 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
X  Exit                   Terminate CICS PA
```

CICS PA Historical Database ...



CICS PA Historical Database - Menu ...

```
   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  Maintenance        Maintain HDB definitions and data sets
7  Housekeeping       Perform HDB housekeeping

HDB Register . . . TEST.HDB.REGISTER                          +
```

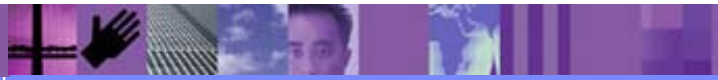
CICS PA Historical Database - Notes

The Historical Database Menu contains the functions to manage the Historical Database environment. The menu provides access to the seven major functions of HDB processing.

The HDB Register dataset is the inventory of all information associated with the CICS PA Historical Database Manager. The HDB register contains the following information:-

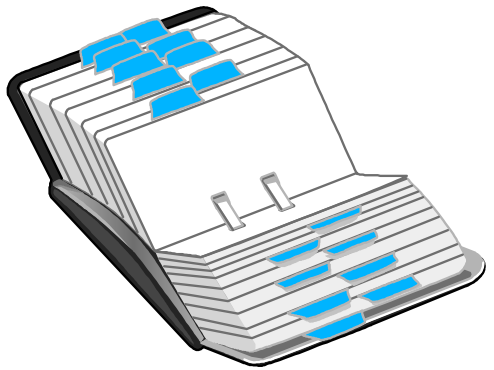
1. HDB definitions
2. Dataset definitions for HDB repositories
3. HDB Templates.

You can define as many HDB Registers as required; however only one Register can be used at a time and each Register acts independently. Information cannot be shared between Registers.



CICS PA Historical Database - HDB Register

- Inventory of all information associated with the CICS PA Historical Database Manager
- HDB Register contains ...
  - HDB definitions
  - Dataset definitions for HDB repositories
  - HDB Templates
- Define as many HDB Registers as required, but ...
  - Only one Register can be used at a time
  - Each Register acts independently ...
    - Information cannot be shared between registers

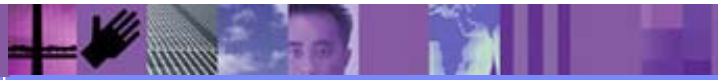


CICS PA Historical Database - HDB Register ...

```
  File  Options  Help
 --------------------------- Historical Database ---------------------------
|                            Define HDB Register                            |
| Command ===> ____________________________________________________________ |
|                                                                           |
|                                        Enter "/" to select option         |
|                                        _  Edit IDCAMS command             |
|                                        _  Browse errors only              |
|  HDB Register Name  . . TEST.HDB.REGISTER                                 |
|                                                                           |
|                         Cluster Level Information:                        |
|                                                                           |
|  Space Units  . . . . . 1  1. Cylinders   Primary Quantity . . . 3        |
|                            2. Tracks      Secondary Quantity . . 1        |
|                            3. Records                                     |
|                            4. Kilobytes                                   |
|                            5. Megabytes                                   |
|  Volume . . . . . . . . _______                                           |
|  Data Class . . . . . . ________                                          |
|  Management Class . . . ________                                          |
|  Storage Class  . . . . ________                                          |
|                                                                           |
|                                                                           |
|___________________________________________________________________________|
```

CICS PA Historical Database (HDB) - HDB Template

- HDB Templates define the type and format of the data in the Historical Databases (HDBs)
- Similar to Report Forms, they provide HDBs with ...
  - Flexibility ...
    - you decide what and how much 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 what information is recorded in the HDB
- Each Template contains the following definition information about the HDB ...
  - Type of HDB - List or Summary
  - Field names and associated attributes



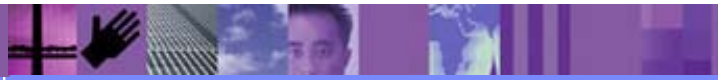
CICS PA Historical Database - HDB Template - Notes

CICS PA HDB Templates define the type and format of the data in the Historical Database (HDB). HDB Templates are similar to Report Forms and provide HDBs with:-

Flexibility - you decide what and how much 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 what information is recorded in the HDB.

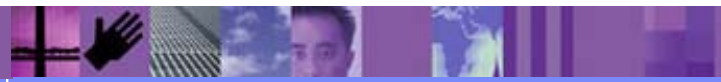


CICS PA Historical Database - HDB Template ...

```
  File  Options  Help
                                HDB Templates                    Row 1 to 7 of 7
Command ===> NEW                                                 Scroll ===> CSR

Select to edit Template. Enter NEW command to define a new Template.

/  Name     Type              Description                 Changed          ID
_ ACCT     SUMMARY  Accounting HDB Template          2003/10/28 15:41 CBAKER
_ BASIC    SUMMARY  Summary HDB Template            2003/10/06 11:52 CBAKER
_ BASICLST LIST     Basic List Template             2003/07/22 11:59 CBAKER
_ ELENASUM SUMMARY  Summary HDB Template            2003/07/22 16:41 CBAKER
_ SUMTEST1 SUMMARY  Summary HDB Template            2003/07/15 14:44 CBAKER
_ TEST630L LIST     List HDB Template               2003/10/14 09:25 CBAKER
_ TEST630S SUMMARY  Summary HDB Template            2003/10/14 09:26 CBAKER
******************************** End of list ********************************
```

CICS PA Historical Database - HDB Template ...

```
_ File  Confirm  Options  Help                                          _____
 ---------------------- Historical Database ----------------------
|  File  Systems  Options  Help                                      |
|                          New HDB Template                          |
| Command ===> ____________________________________________________  |
|                                                                    |
| Specify the name of the new Template and its options:              |
|                                                                    |
| Name . . . . . SUMTEST                                             |
|                                                                    |
| APPLID . . . . _________ +     Version (VRM) . . ___  +            |
| MVS Image  . . _____                                               |
|                               _  Field Categories                  |
|                                                                    |
| Type 2  1. List                                                    |
|         2. Summary                                                 |
|                                                                    |
|                                                                    |
|____________________________________________________________________|
```

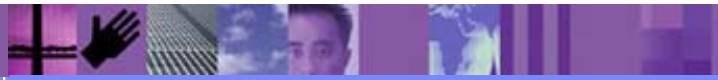


CICS PA Historical Database - HDB Template - Notes

Each Template contains information on the type of HDB (List or Summary), along with the field names and their associated attributes.

When you request a new Template, a table of the CMF fields is presented (shown on the next slide) that you can then edit. The HDB Template initially consists of 2 sections:-

1. The top section of the Template shows the fields in the default HDB template. The 'EOD' marker defines the end of the historical database record, fields below the 'EOD' marker are not included in the records.
2. To include any of these fields in the HDB records, simply move them above the 'EOD' marker, and remove any unwanted fields.



CICS PA Historical Database - HDB Template ...

```
  File  Edit  Confirm  Upgrade  Options  Help
                        Summary Template - HDBTEST1          Row 1 of 239 More: >
Command ===> _____________________________________________  Scroll ===> CSR

Description  . . . Summary HDB Template_____________  Version (VRM): 620

Selection Criteria:
 _  Performance                    Time Interval  . . 00:01:00  (hh:mm:ss)

     Field
/    Name +     K  Description
___  START      A  Task start time
___  STOP       A  Task stop time
___  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      Redispatch wait time
___  FCWAIT        File I/O wait time
___  FCAMCT        File access-method requests
___  IRWAIT        MRO link wait time
___  SC24UHWM      UDSA HWM below 16MB
___  SC31UHWM      EUDSA HWM above 16MB
___  EOD           ---------------- End of HDB -----------------
___  TERM       A  Terminal ID
___  APPLTRAN   A  Application naming Tran ID
___  APPLPROG   A  Application naming Tran ID
```

CICS PA Historical Database - HDB Definition

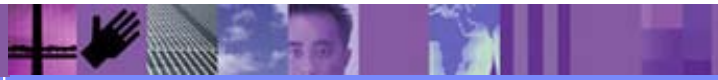
```
  File  Options  Help
                              New HDB Definition
Command ===> ____________________________________________________________

Specify new HDB definition options then press EXIT to save.

Name . . . . . HDBDAILY  System ________  +  Image ________
Description  . . ____________________________________

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

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

Data Set Allocation Settings:
 DSN Prefix . . . . . CBAKER_____________________
 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  . . 5_______    (In above units)
  Secondary quantity    ________    (In above units)
```

CICS PA Historical Database - HDB Definition - Notes

This visual shows an example a new HDB definition. The details required for a new HDB include:-

1. HDB Name
2. APPLID/Image (optional)
3. Description (optional)
4. Template
5. Selection Criteria (optional)
6. Data Retention Period
7. Data Set Allocation Settings:-

DSN Prefix, Management Class, Storage Class, Volume Serial and Device Type, Data Class, Space Units and Space Quantities.



CICS PA Historical Database - Functions ...

- Load ...
  - Creates the JCL that builds the HDBs
  - Recap Report from the HDB Load process
- Report ...
  - Generates the Report JCL for HDBs
- Export ...
  - Creates the DDL to define the DB2 Table
  - Generates the JCL to load a HDB into a DB2 Table
- Maintenance ...
  - Maintenance functions that can be performed against HDBs ...
    - Display the HDB definition and its associated data sets
- Housekeeping ...
  - Housekeeping functions that can be performed against HDBs ...
    - Submit HDB Housekeeping JCL ...
      - Delete an entire HDB or individual datasets in the HDB
    - Repair HDB Register using VERIFY command

CICS PA Historical Database - Load HDBs ...

```
  File  Options  Help
 ------------------------------------------------------------------------------
                                  Load HDBs                     Row 1 to 4 of 4
Command ===> ________________________________________________ Scroll ===> CSR

Select to load an HDB.

   Name      Type                 Description               Changed         ID
_  BASIC     LIST                                      2003/07/22 11:59 CBAKER
S  HDBDAILY  SUMMARY                                   2003/07/11 10:13 CBAKER
_  SUMRUN    SUMMARY                                   2003/07/21 16:54 CBAKER
_  TESTSUM   SUMMARY                                   2003/07/22 14:38 CBAKER
********************************* End of list *********************************
```

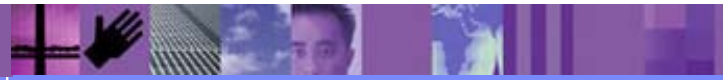
CICS PA Historical Database - Load HDBs ...

```
 File  Options  Help
|  File  Systems  Options  Help                                          |
|                        Load SUMMARY HDB HDBDAILY                      |
| Command ===> ____________________________________________________     |
|                                                                       |
| Specify HDB load options then press Enter to continue submit.         |
|                                                                       |
|                                      ----- Report Interval ------     |
| System Selection:                         YYYY/MM/DD  HH:MM:SS.TH     |
|  APPLID . . ________  +              From ___________  ___________    |
|  Image  . . ________  +              To   ___________  ___________    |
|  Group  . . MROGROUP  +                                               |
|                                                                       |
| Enter "/" to select option                                            |
| /  Edit JCL before submit                                             |
|                                                                       |
|                                                                       |
|_______________________________________________________________________|
```

CICS PA Historical Database - Load HDBs - Notes ...

After selecting an HDB for Load processing you will be prompted to specify run-time options (as shown on this visual) and CICS PA will then build the JCL to load the data into the HDB. You are also presented with the option to edit the JCL before submitting the jobstream for execution.

The Load HDB Recap Report, shown on the next slide, is always produced at the end to provide an analysis of the data loaded into the HDB. The information provided includes the name of data set added to the HDB, the number of records loaded into the data set and the date/time range of the data.



CICS PA Historical Database - Load HDBs - Recap Report ...

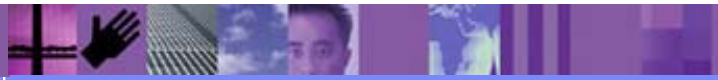
```
 V1R3M0                                                CICS Performance Analyzer
                                                         HDB LOAD Recap Report

HDBL0001 Printed at 12:06:38  7/18/2003    Data from 11:10:00 02/04/1999 to 08:10:00 02/16/1999


LOAD requested for HDB: HDBDAILY  Register DSN: CBAKER.TEST.HDB.REGISTER

The following Container(s) were created and loaded:
  Container DSN: CBAKER.HDBDAILY.D03185.T092007.HDB            No of Records: 331
    Start Timestamp: 1999-02-04-11.10.00          End Timestamp: 1999-02-04-11.33.00

LOAD process complete.
```

CICS PA Historical Database - Reporting

```
   File  Options  Help
 ------------------------------------------------------------------------------
                                HDB Reporting                     Row 1 to 4 of 4
 Command ===> ________________________________________________ Scroll ===> CSR

 Select to submit report.

    Name      Type                Description                  Changed         ID
 _  BASIC     LIST                                          2003/07/22 11:59 CBAKER
 S  HDBDAILY  SUMMARY                                       2003/07/11 10:13 CBAKER
 _  SUMRUN    SUMMARY                                       2003/07/21 16:54 CBAKER
 _  TESTSUM   SUMMARY                                       2003/07/22 14:38 CBAKER
 ********************************* End of list **********************************
```

CICS PA Historical Database - Reporting ...

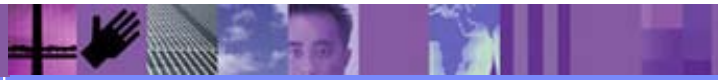
```
 File  Options  Help
|  File  Options  Help                                                    |
|                      Run SUMMARY HDB Report - HDBDAILY                  |
| Command ===> ____________________________________________________________ |
|                                                                         |
| Specify Report request options then press Enter to continue submit.     |
|                                                                         |
| Reporting Options:                        ----- Report Interval ------  |
|  Report Form  . . TRTODSUM  +                  YYYY/MM/DD  HH:MM:SS.TH  |
|                                           From ___________  ___________ |
|                                           To   ___________  ___________ |
|                                                                         |
| Processing Options:                        Reporting Options:           |
| Time Interval  . . 00:05:00  (hh:mm:ss)     _  Exclude Totals           |
|                                                                         |
| Enter "/" to select option                                              |
| /  Edit JCL before submit                                               |
|                                                                         |
| HDB contains data from 1999/02/04 11:10 to 1999/02/16 08:10.            |
|                                                                         |
|_________________________________________________________________________|
```



CICS PA Historical Database - Reporting - Notes

This visual shows an example of a request to generate the Report JCL for HDBs. Options that can be specified include the Report Form, Report Interval date/time selection and the Summary time interval. You are also presented with the option to edit the JCL before submitting the jobstream for execution.

The next visual shows an example of the output for an HDB Performance List Report.



CICS PA Historical Database - Reporting ...

V1R3M0 CICS Performance Analyzer
Historical Database List

HDBR0001 Printed at 12:16:17 7/22/2003 Data from 11:10:29 02/04/1999 Page 1

Stop Time	Start Time	APPLID	Tran	Term	Userid	Program	TCLSName	SC	TaskNo	Response Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time
11:10:29.803	11:10:29.789	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	16	.0139	.0007	.0006	.0133	.0000
11:10:29.809	11:10:29.791	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	17	.0185	.0010	.0014	.0175	.0001
11:10:29.861	11:10:29.793	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	18	.0674	.0196	.0027	.0479	.0269
11:10:30.194	11:10:29.782	IYK2Z1V1	CGRP		CBAKER	DFHZCGRP		U	12	.4123	.0420	.0074	.3702	.3223
11:10:30.207	11:10:29.787	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	15	.4204	.0568	.0100	.3636	.1744
11:10:30.456	11:10:29.782	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	13	.6743	.0728	.0134	.6015	.4000
11:10:30.531	11:10:29.781	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	10	.7498	.1910	.0228	.5588	.1997
11:10:31.121	11:10:29.787	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	14	1.3344	.3202	.0378	1.0142	.2626
11:10:31.211	11:10:29.781	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	11	1.4292	.1497	.0313	1.2794	.3461
11:10:45.642	11:10:29.651	IYK2Z1V1	CPLT		CBAKER	DFHSIPLT		U	7	15.9915	.3383	.0369	15.6532	.0155
11:10:45.856	11:10:29.780	IYK2Z1V1	CSSY		CBAKER	DFHAPATT		U	III	16.0761	9.3488	2.3435	6.7273	1.1645
11:10:46.196	11:10:46.170	IYK2Z1V1	CWBG		CBAKER	DFHWBGB		S	24	.0262	.0248	.0041	.0013	.0012
11:10:46.856	11:10:46.774	IYK2Z1V1	CRSQ		CBAKER	DFHCRQ		S	25	.0818	.0449	.0040	.0369	.0367
11:10:47.134	11:10:46.908	IYK2Z1V1	CXRE		CBAKER	DFHZXRE		S	27	.2255	.0243	.0049	.2011	.2009
11:10:48.317	11:10:48.290	IYK2Z1V1	CLR2	R11	CBAKER	DFHLUP		TO	29	.0263	.0030	.0020	.0232	.0000
11:10:48.471	11:10:46.774	IYK2Z1V1	CSFU		CBAKER	DFHFCU		S	26	1.6968	1.5899	.1136	.1069	.0294
11:10:51.227	11:10:50.706	IYK2Z1V1	CSAC	SAMA	CBAKER	DFHACP		TO	31	.5217	.0028	.0011	.5189	.0002
11:10:51.840	11:10:48.014	IYK2Z1V1	CLQ2		CBAKER	DFHLUP		U	28	3.8259	.0818	.0068	3.7441	.0035
11:10:51.942	11:10:51.755	IYK2Z1V1	CEMT	SAMA	CBAKER	DFHEMTP		TO	32	.1877	.1842	.0264	.0035	.0030
11:10:52.549	11:10:52.540	IYK2Z1V1	CEMT	SAMA	CBAKER	DFHEMTP		TO	33	.0091	.0068	.0026	.0023	.0001
11:10:53.074	11:10:53.065	IYK2Z1V1	CEMT	SAMA	CBAKER	DFHEMTP		TO	34	.0092	.0068	.0025	.0024	.0000
11:10:54.113	11:10:53.602	IYK2Z1V1	CSAC	SAMA	CBAKER	DFHACP		TO	35	.5109	.0042	.0012	.5067	.0001
11:10:55.159	11:10:54.644	IYK2Z1V1	CSAC	SAMA	CBAKER	DFHACP		TO	36	.5150	.0011	.0011	.5139	.0001
11:10:55.884	11:10:55.742	IYK2Z1V1	CSTE		CBAKER	DFHTACP		U	37	.1420	.1381	.0126	.0039	.0037
11:11:05.421	11:11:05.367	IYK2Z1V1	CATA		CBAKER	DFHZATA		U	38	.0537	.0394	.0121	.0143	.0003
11:11:06.055	11:11:05.707	IYK2Z1V1	CQRY	S208	CBAKER	DFHQRY		S	39	.3476	.0451	.0048	.3025	.0038

CICS PA Historical Database - Exporting

- Export an HDB to DB2 ...
  - Creates the DDL to define the DB2 Table
  - Generates the JCL to load an HDB into a DB2 Table
- Access to DB2 Tools, such as ...
  - Query Management Facility (QMF)
    - Query and Reporting tool
- Access to other DB2 Tools, such as ...
  - DB2 Web Query Tool ...
    - Complex querying, data comparisons, and customized presentation
    - Convert query results to diverse file formats for use on other desktop apps ...
      - including HTML, XML/XSL, .TXT, and .CSV files

CICS PA Historical Database - Exporting ...

```
   File   Options   Help
 ------------------------------------------------------------------------------
                                HDB Exporting                   Row 1 to 4 of 4
 Command ===> ________________________________________________ Scroll ===> CSR

 Select to export HDB to DB2.

    Name      Type                  Description                  Changed        ID
 _  BASIC     LIST                                               2003/07/22 11:59 CBAKER
 S  HDBDAILY  SUMMARY                                            2003/07/11 10:13 CBAKER
 _  SUMRUN    SUMMARY                                            2003/07/21 16:54 CBAKER
 _  TESTSUM   SUMMARY                                            2003/07/22 14:38 CBAKER
 ******************************** End of list *********************************
```

CICS PA Historical Database - Exporting - Notes

This visual shows an example of Exporting an HDB into a DB2 Table for further analysis and reporting. The Export functions that CICS PA provides include:-

1. an option to create the DDL to define the DB2 Table for an HDB
2. generate (and submit) the JCL to load the HDB into a DB2 Table.

The next visual shows the data sets that are currently active in the HDB. Selecting a data set will present the Export HDB data set panel (shown on the following visual).

CICS PA Historical Database - Exporting ...

```
  File  Options  Help
                                  Export HDB                    Row 1 to 2 of 2
Command ===> ____________________________________________________ Scroll ===> CSR

Export HDB data set.

Name . . . . . : HDBDAILY

   Data Set Name                                  Start      End          Volume
_  CBAKER.HDBDAILY.D03196.T143430.HDB             1999/02/04 1999/02/04   *DELETE
S  CBAKER.HDBDAILY.D03196.T144501.HDB             1999/02/04 1999/02/16   H3DE39
******************************** End of list ********************************
```

CICS PA Historical Database - Exporting ...

```
  File  Options  Help
                          Export HDB data set
Command ===> ____________________________________________________________

HDB Name  . . . : HDBDAILY
Data Set Name . : CBAKER.HDBDAILY.D03196.T144501.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 . . . ____
 DSNTIAD Plan Name  . . ________
 DB2 Load Library . . . ________________________________________________
 DB2 Exit Library . . . ________________________________________________
 DB2 RUNLIB Library . . ________________________________________________
 Database . . . . . . . ________  Storage Group  . . ________
 VCAT Catalog name  . . ________  Volume . . . . . . ______

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

Showing Defaults

CICS PA Historical Database - Exporting ...

```
  File  Edit  Confirm  Menu  Utilities  Compilers  Test  Help
------------------------------------------------------------------------------
ISREDDE2   CBAKER.SPFTEMP1.CNTL                          Columns 00001 00072
Command ===>                                               Scroll ===> PAGE
****** ***************************** Top of Data ******************************
000001 //CBAKER JOB (WINVMC,CBAKER),'CHRIS BAKER',REGION=0M,MSGCLASS=H
000002 //DSNUPROC EXEC PGM=DSNUTILB,REGION=0M,
000003 //         PARM='<SSID>'
000004 //STEPLIB  DD  DISP=SHR,DSN=<DSN.SDSNLOAD>
000005 //         DD  DISP=SHR,DSN=<DSN.SDSNEXIT>
000006 //SYSPRINT DD  SYSOUT=*
000007 //UTPRINT  DD  SYSOUT=*
000008 //SYSUDUMP DD  SYSOUT=*
000009 //SYSREC   DD  DSN=CBAKER.HDBDAILY.D03196.T144501.HDB,
000010 //             DISP=SHR
000011 //SYSUT1   DD  UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
000012 //SORTOUT  DD  UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
000013 //SYSIN    DD  *
000014 LOAD DATA RESUME YES
000015      INTO TABLE <CPADBASE>.HDBDAILY (
000016       START_DATE             POSITION(1)     DATE EXTERNAL(10),
000017       START_TIME             POSITION(12)    TIME EXTERNAL(8),
000018       STOP_DATE              POSITION(20)    DATE EXTERNAL(10),
000019       STOP_TIME              POSITION(31)    TIME EXTERNAL(8),
000020       APPLID                 POSITION(39)    CHAR(8),
000021       TRAN                   POSITION(47)    CHAR(4),
000022       TASKCNT                POSITION(51)    FLOAT,
000023       RESPONSE_COUNT         POSITION(59)    FLOAT,
000024       DISPATCH_COUNT         POSITION(75)    FLOAT,
000025       DISPATCH_TIME          POSITION(91)    FLOAT,
```

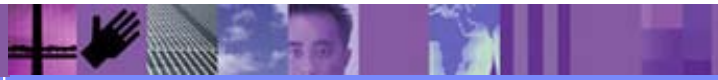
CICS PA Historical Database - Maintenance

```
  File  Systems  Options  Help
                                 Maintain HDB                          More: >
Command ===> 

Review and update HDB definition options then press EXIT to save.

Name . . . . . : HDBDAILY Type SUMMARY  System ________ +  Image ________
Description  . . ____________________________________

Specify View . . 1  1. Options  2. Data Sets

HDB Format:                             Selection Criteria:
 Template   . . . SUMTEST1  +             _  Performance

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

Data Set Allocation Settings:
 DSN Prefix . . . . . . . CBAKER
 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  . . . 5           (In above units)
  Secondary quantity      ________    (In above units)
```

CICS PA Historical Database - Maintenance - Notes

This next visual shows the data sets that are currently active in this HDB. There are line action commands available that will allow you to:-

1. Select the HDB data set to view status information. The information presented includes the data set name, volser, status, creation date/time, expiry date/time, the data start and end date/times, and a record count.
2. Browse the data set using ISPF Browse.
3. Delete the HDB data set. The data set will be deleted in the HDB now, and physically deleted when HDB Housekeeping is next run.
4. Undo reverses a prior 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.



CICS PA Historical Database - Maintenance ...

```
  File  Systems  Options  Help
                                  Maintain HDB                Row 1 of 2 More: >
Command ===> _____________________________________________  Scroll ===> CSR

Maintain HDB data sets.

Name . . . . . : HDBDAILY Type SUMMARY  System  ________ +  Image  ________
Description  . . _____________________________________

Specify View . . 2  1. Options  2. Data Sets

/  Data Set Name                                  Start      End         Volume
_  CBAKER.HDBDAILY.D03196.T143430.HDB            1999/02/04 1999/02/04  *DELETE
_  CBAKER.HDBDAILY.D03196.T144501.HDB            1999/02/04 1999/02/16  H3DE39
******************************** End of list ********************************
```

CICS PA Historical Database - Housekeeping

```
_ File  Options  Help
   |                       HDB Housekeeping                              |
O  | Command ===> ________________________________________________      |
   |                                                                     |
1  | Register . . : CBAKER.TEST.HDB.REGISTER                             |
2  |                                                                     |
3  | Select one of the following options                                 |
4  | 1  1. Submit HDB Housekeeping JCL                                   |
5  |    2. Repair HDB Register using VERIFY command                      |
6  |                                                                     |
7  | Enter "/" to select option                                          |
   | /  Edit JCL before submit                                           |
H  |                                                                     |
   |_____________________________________________________________________|
```

CICS PA Historical Database - Housekeeping - Notes

HDB Housekeeping (shown on the previous visual) performs tasks to re-organize and clean up your HDB environment. The options available are:-

1. Submit HDB Housekeeping JCL periodically to delete expired HDB data sets and to re-organize the HDB Register.
2. Repair HDB Register using the IDCAMS VERIFY command to repair the end-of-data-set information in the VSAM Catalog for the HDB Register.

Shown below is an example of the HDB Housekeeping report produced.

```
 V1R3M0                                          CICS Performance Analyzer
                                                  HDB Housekeeping Report


Housekeeping started.  HDB Register is CBAKER.TEST.SYSTEMS.REGISTER
The following Containers were removed from the Register:

  Container DSN: CBAKER.HDBDAILY.D03196.T144501.HDB           Reason: Deleted   No of Records: 421
    Created: 2003-07-15-14.45.01.000000  ;  Record Range is from 1999-02-04-11.10.00.000000  to  1999-02-16-08.10.00.000000
  Container DSN: CBAKER.HDBDAILY.D03196.T143430.HDB           Reason: Deleted   No of Records: 391
    Created: 2003-07-15-14.34.30.000000  ;  Record Range is from 1999-02-04-11.10.00.000000  to  1999-02-16-08.10.00.000000

 Housekeeping process complete.
```

Summary

- CICS Performance Analyzer for z/OS
  - Comprehensive Performance Reporting for CICS
    - Including DB2, WebSphere MQ, and MVS System Logger
  - Extensive Tabular Reports and Extract Data Sets
  - Historical Database
    - Trending and Capacity Planning
  - ISPF Dialog to build, maintain, and submit reports and extracts
- CICS PA Version 1.3 - Product information ...
  - Program Product - 5655-F38
  - Releases Supported ...
    - CICS Transaction Server for z/OS, Version 2
    - CICS Transaction Server for OS/390, Version 1
- More Information ....

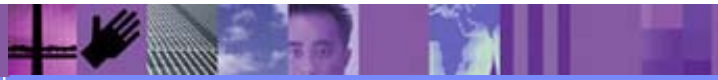
  http://www.ibm.com/cics/

Summary - Notes

CICS Performance Analyzer for z/OS provides a comprehensive CICS performance analysis and reporting tool using the CICS Monitoring Facility (CMF) data (SMF 110), DB2 Accounting data (SMF 101), WebSphere MQ Accounting data (SMF 116), and MVS System Logger data (SMF 88).

CICS Performance Analyzer for z/OS, Version 1 Release 3 was announced on August 5th 2003 and available on August 29th 2003.

CICS PA Version 1.3 supports CICS Transaction Server for z/OS Version 2, CICS Transaction Server for OS/390 Version 1, and CICS for MVS/ESA Version 4.1. For the DB2 Reports, CICS PA Version 1.3 supports DB2 Version 5, Version 6, Version 7, and Version 8. For the WebSphere MQ Reports, CICS PA Version 1.3 supports MQSeries for OS/390 Version 5.2, IBM WebSphere MQ for z/OS Version 5.3, and IBM WebSphere MQ for z/OS Version 5.3.1.



Appendix

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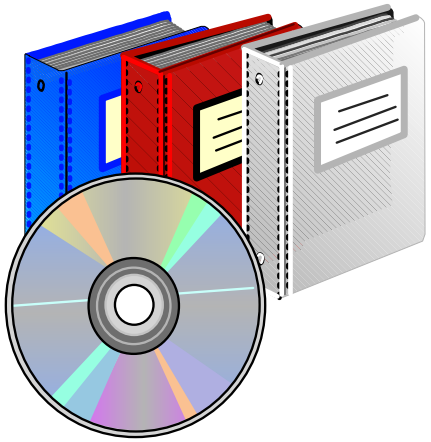

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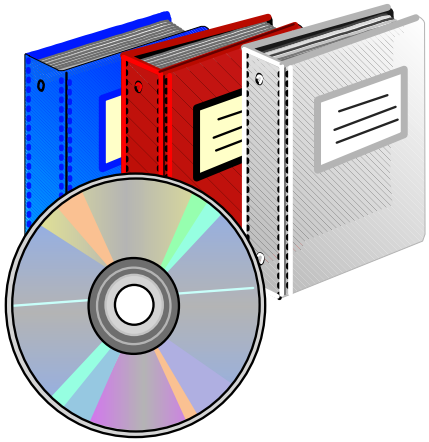

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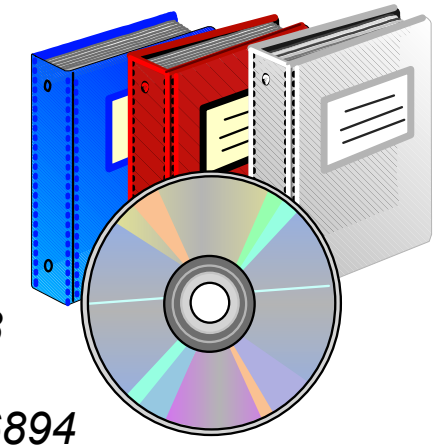

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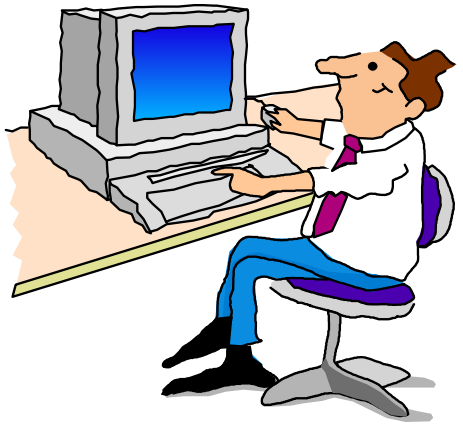
  - IMS Performance Analyzer for z/OS V3.2 (IMS PA)
  - DFSMS Optimizer for MVS/ESA and OS/390

Other IBM Performance Reporting Tools



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