



IBM Software Group

CICS Performance Analyzer for z/OS Version 1 Release 4

Technical Presentation



CICS Tools | IBM UK Laboratories, Hursley Park

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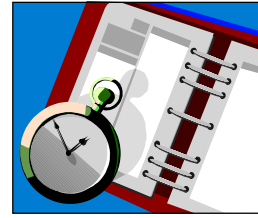
- ▶ Introduce yourself and the topic
- ▶ CICS Performance Analyzer for z/OS Version 1 Release 4 was announced on the 22nd February, 2005 and was generally available on 18th March, 2005.
- ▶ It supports CICS Transaction Server for z/OS Version 3, CICS Transaction Server for z/OS Version 2 (all releases), CICS Transaction Server for OS/390 Version 1 (all three releases) and CICS for MVS/ESA Version 4.1.
- ▶ Purpose of today's session is to introduce you to the product, show you the ISPF interface as well as some of the reports and data extracts.

Preface

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Presentation Overview

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



- ▶ Overview of the presentation..... includes an overview of the CICS PA product, it's potential benefits to customers, a comprehensive look at the ISPF dialog interface, requesting reports, tailoring and examples of all the CICS PA reports, data extracts, the CICS PA Historical Database (HDB) function, and the CICS PA Online Statistics Reporting facility. The presentation finishes with a summary.

What is CICS PA ?

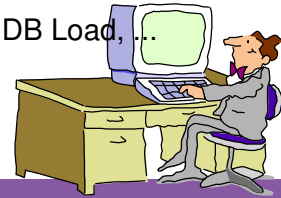
- CICS Performance Analyzer for z/OS
 - ▶ Comprehensive Performance Reporting for CICS
 - ▶ CICS Monitoring Facility (CMF) data (SMF 110)
 - Performance, Resource and Exception
 - ▶ CICS Statistics data (SMF 110)
 - ▶ CICS Server Statistics data (SMF 110)
 - ▶ DB2 Accounting records (SMF 101)
 - ▶ WebSphere MQ Accounting records (SMF 116)
 - ▶ z/OS System Logger records (SMF 88)
- Program Product - 5655-F38
- Complements the standard CICS utilities ...
 - ▶ DFH\$MOLS, DFHSTUP and DFH0STAT



- ▶ CICS Performance Analyzer (CICS PA) is a batch performance reporting tool. It uses the CICS SMF 110 data collected by the CICS Monitoring Facility (CMF), CICS Statistics, and CICS Server Statistics, DB2 Accounting data (SMF 101), WebSphere MQ Accounting data (SMF 116), and MVS System Logger data (SMF 88), to produce a wide range of batch reports and data extracts that can be utilized to analyze CICS system and application performance.

CICS PA Benefits

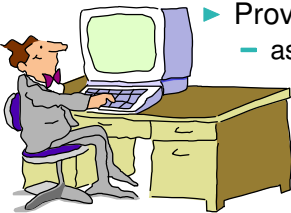
- Ease of use ...
 - ▶ No additional setup or customization required
 - ▶ Familiar CICS terms and concepts
- ISPF Dialog to build, maintain, submit reports
 - ▶ Tailor your reports easily using Report Forms
 - ▶ Extensive online help available, field descriptions, ...
- Extensive Tabular Reports and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



- ▶ It has an easy to use ISPF dialog interface that can be used to create the command language and JCL that is used to run the reporting program in batch.
- ▶ It has extensive online help facilities and a powerful command language that is used to select, sort and customize the report formats and data extracts.

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



- ▶ Here are some of the benefits that can be realized using the CICS Performance Analyzer:-
 - ▶ Improve transaction response times
 - ▶ Analyze and improve CICS transaction resource usage
 - ▶ Analyze CICS application performance
 - ▶ Provides information on usage trends for capacity planning activities.

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, CICS Statistics and CICS Server Statistics data, and the DB2 Accounting 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.



► This is a notes page for the audience.

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, ECI over TCP/IP, IIOP, ...
 - ▶ Exception events that cause performance degradation

- ▶ Here are some of the types of reports and extracts that can be produced using CICS PA.

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 3.1 collects over 282 specific performance data fields in 19 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 3, the CICS Web services support and enhancements to the Open Transaction Environment (OTE), 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.



- ▶ This is a notes page for the audience.

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, ...
- ▶ System Logger reports using z/OS 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 and CICS Statistics Records
 - DB2 SMF 101 Accounting Records
 - WebSphere MQ SMF 116 Accounting Records
 - z/OS System Logger Records
- ▶ Historical Database
 - Trending, Capacity Planning and Accounting



- ▶ Here are some more of the reports and extracts that can be produced using CICS PA, including DB2 Reports, WebSphere MQ Reports (new in CICS PA Version 1.3), MVS System Logger Reports and the Record Selection Extract.
- ▶ Also new in CICS PA Version 1 Release 3 is a Historical Database capability which can be used for trending and capacity planning using CICS performance data.

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.



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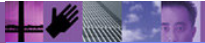
CICS PA Reports and Extracts - Notes

The **System Logger reports** process the z/OS 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 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 CICS CMF and CICS Statistics records (and optionally DB2 Accounting, WebSphere MQ Accounting records, and/or z/OS System Logger) 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.



- This is a notes page for the audience.

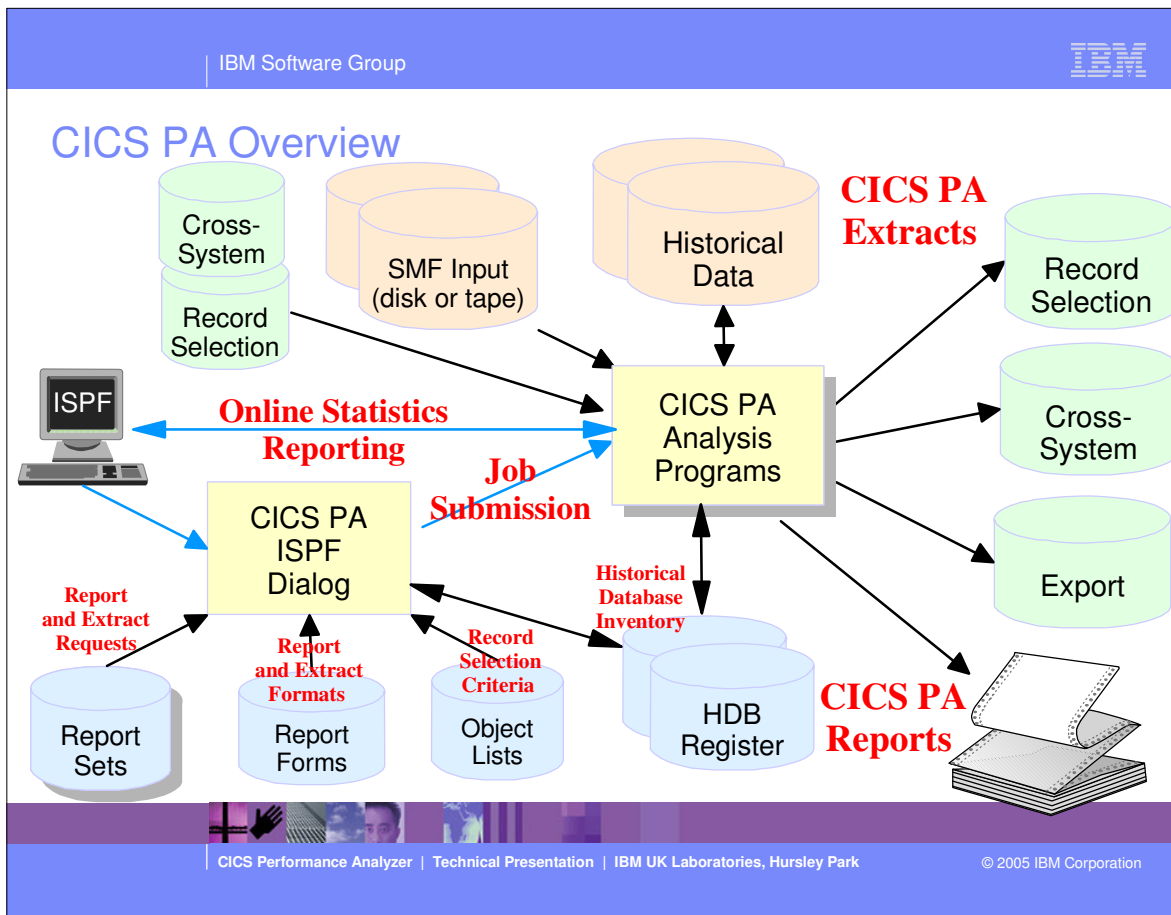
CICS PA Reports and Extracts - Notes

The **HDB Load** provides a facility that loads SMF data into a Historical Database (HDB). This same facility is available from Primary Menu option 5 Historical Database. However, from Report Sets you have the advantages of allowing you to run your reports, extracts and produce historical performance and statistics data in one job and also in a single pass of the SMF input file. Following HDB load, the data can optionally be exported to a pre-defined DB2 table.

The **Historical Database (HDB)** facility provides a flexible and easy-to-use facility for managing and reporting historical performance and statistics data for your CICS systems which can then be used for trending, capacity planning, and accounting purposes.



- ▶ This is a notes page for the audience.



- ▶ This foil shows the main components of CICS PA; including the TSO Interactive System Productivity Facility (ISPF) dialog, it's related data sets and the CICS PA batch analysis and reporting programs.

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), CICS Statistics, and CICS Server Statistics 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 z/OS 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 and Shared System Definitions.

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



► This is a notes page for the audience.

CICS PA - ISPF Dialog

- CICS PA Primary Option Menu ...
 - ▶ CICS PA Profile and Settings, CICS PA Data Sets, ...
 - ▶ System Definitions
 - Personal Systems, Shared Systems
 - ▶ 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 load and report requests, Export HDB data sets to DB2, ...
 - ▶ Statistics
 - Online Statistics Reporting



- ▶ The first part of this presentation takes you through the CICS PA ISPF Dialog.

CICS PA Primary Option Menu

```

File  Options  Help
V1R4M0          CICS Performance Analyzer - Primary Option Menu
Option ==>>>

0  CICS PA Profile           Customize your CICS PA dialog profile
1  Personal Systems          Specify personal 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
6  Shared Systems            Specify shared CICS Systems, SMF Files and Groups
7  Statistics                Report CICS Statistics
X  Exit                      Terminate CICS PA

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```

- ▶ This is the CICS PA Primary Option Menu screen. It can be invoked by entering:-
- ▶
- ▶ ex 'CICSPA14.SCPAEXEC(CPAOREXX)' 'CICSPA14 E'
- ▶
- ▶ into the ISPF Command Shell panel (option 6) command line.
- ▶
- ▶ It can also be defined as a standard selection on ISPF dialogs, examples of how to set this up are documented in the CICS PA User's Guide manual.
- ▶
- ▶ We will look at each of the menu options in more detail.

CICS PA Primary Option Menu - Notes

The CICS PA Interactive System Productivity Facility (ISPF) dialog allows you to request and submit your report and data extract requests easily.

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), z/OS 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 and statistics data for your CICS systems.
7. Report CICS Statistics provides comprehensive reporting of CICS Statistics, either directly from an SMF data set or from a CICS PA Historical Database.

► This is a notes page for the audience.

CICS PA Profile and Settings - Notes

Selecting option 0 will cause the CICS PA Profile Options Menu (as shown on the next slide) to be displayed. From here you can select the CICS PA settings, reporting and data set allocations, and the DB2 Export global settings.

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

CICS PA control data sets:-

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

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



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CICS PA Settings panel (option 1)

```

File  Options  Help
-----
CICS PA Settings

Command ==> _____

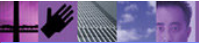
Specify settings:

CICS PA Load Library . . . . . 'CBAKER.CICSPA.V1R4M0.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=OM
==> /*ROUTE PRINT WINVMC.CBAKER
==> _____
==> _____

```



- ▶ This is an example of the CICS PA Settings panel.

CICS PA Profile Options - Control Data Sets ...

```
File  Options  Help
----- CICS PA Profile Options -----
|  File  Options  Help  |
|----- CICS PA Control Data Sets -----|
| Command ==> _____|
|
| Specify the names of the CICS PA Control Data Sets.
|
| Report Sets . . . 'CBAKER.CICSPA.RSET'      +
| Report Forms . . . 'CBAKER.CICSPA.FORM'     +
| Object Lists . . . 'CBAKER.CICSPA.OBJL'     +
|
| Missing Data Sets Option:
| 1 1. Allocate now
| 2 2. Allocate when required
|
|-----|
```



CICS PA Settings panel (option 4) - DB2 Settings

```
File Options Help
| File Options Help
|
| Command ==> _____
|
| DB2 Subsystem ID . . . DB01
| DSNTIAD Plan Name . . DSNTIA71
| DB2 Load Library . . . 'DB2710.SDSNLOAD'
| DB2 Exit Library . . . 'DB2710.SDSNEXIT'
| DB2 RUNLIB Library . . 'DB2710.RUNLIB.LOAD'
| Database . . . . . CICSPAHD Storage Group . . CPA14STG
| VCAT Catalog name . . DB2CAT Volume . . . . .
| Allocation: Primary _____ Secondary . . . . .
|
| _____
```



- ▶ This is an example of the CICS PA DB2 Settings panel for exporting HDB data to DB2 tables.

CICS PA Personal System Definitions

- CICS PA Personal System Definitions ...
 - ▶ CICS Systems (APPLIDs)
 - ▶ MVS Images
 - ▶ DB2 Subsystems
 - ▶ MQ Subsystems (WSMQ Queue Managers)
 - ▶ z/OS System Logger
 - ▶ SMF File Management
 - ▶ Maintain Group definitions
 - ▶ Definition Take-Up from SMF File
- CICS PA Shared System Definitions ...
 - ▶ All CICS PA users can share the same definitions
 - Avoiding duplication, simplifying maintenance, ...
 - ▶ SMF File selection for batch reporting can be automated
 - ▶ One or more Personal System Definitions can be consolidated into a single Shared System Definition repository by using Take-up



CICS PA Personal System Definitions ...

```
File Options Help
V1R4M0 CICS Performance Analyzer - Primary Option Menu
Option ==> 1

0 CICS PA Profile Customize your CICS PA dialog profile
1 Personal Systems Specify personal 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
6 Shared Systems Specify shared CICS Systems, SMF Files and Groups
7 Statistics Report CICS Statistics
X Exit Terminate CICS PA

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CICS PA Personal System Definitions - Notes

Selecting option 1 from the CICS PA Primary Option Menu will cause the CICS PA Personal 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 Personal System Definitions Menu System View option; the Systems View is shown on the next slide



► This is a notes page for the audience.



CICS PA Personal System Definitions - Systems View

File Edit Filter View Options Help					
Personal System Definitions					Row 1 from 45
Command ==> NEW				Scroll ==> DATA	
Enter "/" to select action.					
System	Type	Image	Description	SMF Files	
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	MV2C	
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 Personal System Definitions - Notes

You define your CICS Systems (APPLIDs), MVS Images, DB2 Subsystems, MQ Subsystems (WebSphere MQ Queue Managers), and z/OS 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, System 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 z/OS 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)
- z/OS 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 z/OS System Loggers.

- ▶ This is a notes page for the audience.

CICS PA Personal System Definitions - New System

File Edit Filter View Options Help			
System Definitions			
New System			
C	Command ==>		Row 1 from 45 Scroll ==> DATA
E	Specify the name and type of system.		
	System Name . . .		ion
	System Type . . . <u>1</u>	1. CICS System 2. MVS Image 3. DB2 Subsystem 4. MQ Subsystem 5. System Logger	SMF Files System DB2T MV2D MV2CLOGR
	CICSP2 CICS CS01	CICS Test System - 6.2	on Sysplex2 x2 MV2C MV2C
	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



- ▶ By selecting Option 1 from the CICS PA main menu screen this panel would be displayed.
- ▶
- ▶ This panel is used to identify the system name and system type; CICS System (APPLID), DB2 Subsystem, MQ Subsystem, MVS System Logger, and MVS Image.

Defining your CICS Systems - Part 1

```

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

CICS System definition:
APPLID . . . . . CICS P2 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 list

```

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



- ▶ This panel is used to define each CICS system to the CICS Performance Analyzer:-
- ▶ You only need to define the CICS System (APPLID) to enable CICS PA to start reporting, all other parameters are optional.
- ▶
- ▶ Note:- You do not NEED to create a dictionary data set for each CICS system, even if it's using a user specified Monitoring Control Table (MCT). The only time CICS PA needs the dictionary information is when you want to include any user fields that are defined in the MCT in a Report Form. You can create the dictionary data set at any stage.

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.



- This is a notes page for the audience.

Defining your CICS Systems - Part 2

```

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

CICS System definition:
APPLID . . . . . IYK2Z1V1  MVS Image . . MV2C _____
Description . . . . . System upgraded from V1R1 _____
CICS Version (VRM) . . . 530
MCT Suffix . . . . . 53
MCT Load Library . . . 'CBAKER.SAMPLE.MCTLOAD' _____
SDFHLOAD Library . . . 'BLDBSF.JUPXA.SDFHLOAD' _____
Dictionary DSN . . . . _____

/  Group +           Description
_  TESTAGRP  Group TESTAGRP inserted by CIC1P1
***** End of list *****
    
```



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 will then be selected for consolidated (i.e. Cross-System) reporting.



- ▶ This is a notes page for the audience.

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 ==> DATA Scroll ==> |
| |
| 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 list ***** |
| |
| |
| |

```

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
 - Specific SMF data sets can be Excluded
 - ▶ You can also specify SMF data sets for each System



- ▶ This panel is an example showing the CICS PA system definition for an MVS Image.

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, z/OS 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, z/OS System Logger).



► This is a notes page for the audience.

Defining your DB2 Subsystems

```
File Edit Filter View Options Help
System Definitions
| File Edit View Options Help |
| DB2 Subsystem Row 1 of 1 More: > |
| Command ==> DATA Scroll ==> DATA |
|
| DB2 Subsystem definition:
| DB2 SSID . . . . . DB3A MVS Image . . . MV26
| Description . . . . .
| DB2 Version (VRM) . . 610
|
| / Exc SMF Data Set Name + UNIT + SEQ VOLSER +
|
| ***** End of list *****
|
|
|
|
```



- ▶ This panel is an example showing the CICS PA system definition for a DB2 Subsystem.

Defining your DB2 Subsystems - Notes

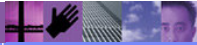
You define your DB2 Subsystems to CICS PA so that:-

- 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.



► This is a notes page for the audience.

Defining your MQ Subsystems (WSMQ Queue Manager)

```
File Edit Filter View Options Help
System Definitions
| File Edit View Options Help |
| MQ Subsystem Row 1 of 1 More: > |
| Command ==> _____ Scroll ==> DATA |
|
| MQ Subsystem definition:
| MQ SSID . . . . . MQCB MVS Image . . . . MV26
| Description . . . . _____
|
| / Exc SMF Data Set Name + UNIT + SEQ VOLSER +
|
| ***** End of list *****
|
|
|
|
|
|
|
|
```

- ▶ This panel is an example showing the CICS PA system definition for a MQ Subsystem.

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.



- ▶ This is a notes page for the audience.

Defining your z/OS System Logger

```

File Edit Filter View Options Help
----- System Definitions -----
| File Edit View Options Help |
| System Logger Row 1 of 1 More: > |
| Command ==> _____ Scroll ==> DATA |
| System Logger definition: |
| Logger . . . . . MV26LOGR MVS Image . . . MV26 |
| Description . . . Sysplex2 - MV26 System Logger |
| / Exc SMF Data Set Name + UNIT + SEQ VOLSER + |
| _____ LOGGER.SMF.DATA |
| ***** End of list ***** |

```



- ▶ This panel is an example showing the CICS PA system definition for the z/OS System Logger.

Defining your z/OS System Logger - Notes

You define your z/OS 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 z/OS System Logger can belong in one or more Groups. This allows you to easily use CICS PA to "connect" z/OS System Loggers with their CICS Systems (APPLIDs) in the same Group.

CICS PA Reports and Extracts can be requested for:-

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



- This is a notes page for the audience.

CICS PA Personal System Definitions - SMF Files

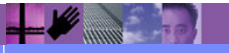


```

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



CICS PA Personal System Definitions - 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



- ▶ This is a notes page for the audience.

CICS PA Personal System Definitions - 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 Personal System Definitions - 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 Personal System Definitions - 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



► This is a notes page for the audience.



CICS PA Personal System Definitions - 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
C -----| 10
| File Options Help | SR
|-----|
O Command ==> _____
S Specify the SMF File for data take-up.
O 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 2. Edit Batch JCL
    
```

```

M0 08:16:27 7/23/2003 CICS Performance Analyzer Page
    Take-up from SMF
011I Processing started for SMF File SMFIN001
030I CMF records for System MV2D start at 7/17/2001 9:17:09:69
041I DB2 Accounting Record found, DB2 SSID=DE2D , Release=6.1
021I CMF record for CICS system found, APPLID=IYK2Z2G1, Release=6.2.0
041I DB2 Accounting Record found, DB2 SSID=DE2D , Release=6.1
041I DB2 Accounting Record found, DB2 SSID=DD2D , Release=5.1
013I Processing ended for SMF File SMFIN001, 4 Systems found
005I 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.



- ▶ This is a notes page for the audience.

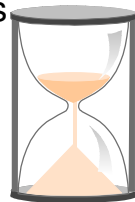
Take-Up from SMF File

```
File  Options  Help
----- System Definitions -----
                Data Take-Up from SMF
O  Command ==> _____
S  |
S  | *****
S  | *                Take-Up from SMF                *
S  | *****
O  |
1  |
2  | CICS PA has completed extracting systems from the following
3  | SMF File:
4  |
X  | Data Set . . . : 'CBAKER.DB2.SMF.DATA3'
U  |
U  | Instructions:
U  | Press ENTER key to continue adding the systems
U  | Enter DEFER command to defer adding the systems
U  | Enter END or CANCEL command to cancel adding the systems
U  | _____
```



CICS PA Personal System Definitions - 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 Activity, 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!



Personal System Definitions - Hints and Tips - Notes

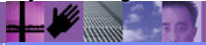
It is strongly recommended that you take your time when initially setting up your CICS PA System Definitions. Consider your reporting requirements, for example:-

- 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.



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IBM Software Group

CICS Performance Analyzer for z/OS

CICS PA Shared System Definitions



CICS Tools | IBM UK Laboratories, Hursley Park

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- ▶ In this section of the presentation we will cover the CICS PA Shared System Definitions.

CICS PA Shared System Definitions

- **Shared System Definitions ...**
 - ▶ Typically shared system definitions are maintained by a central administrator and used by all users for reporting
 - ▶ Shared System Definitions are saved in the HDB Register
- **This contrasts with Personal System Definitions ...**
 - ▶ Typically maintained by each user and used by each user for reporting
 - ▶ Saved in the Personal Profile Library (CICS PA Settings)
- **Advantages of using Shared System Definitions ...**
 - ▶ All CICS PA users can share the same definitions
 - Avoiding duplication, simplifying maintenance, ...
 - ▶ SMF File selection for batch reporting requests is automated
 - ▶ One or more Personal System Definitions can be consolidated into a single Shared System Definition repository by using Take-up
- **At Report Set or HDB run time ...**
 - ▶ Select use of either Personal or Shared System Definitions



CICS PA Shared System Definitions ...

```
File Options Help
V1R4M0 CICS Performance Analyzer - Primary Option Menu
Option ==> 6

0 CICS PA Profile Customize your CICS PA dialog profile
1 Personal Systems Specify personal 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
6 Shared Systems Specify shared CICS Systems, SMF Files and Groups
7 Statistics Report CICS Statistics
X Exit Terminate CICS PA

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```



CICS PA Shared System Definitions - Notes ...

CICS PA Shared System Definitions define the CICS and other related systems to be reported via Report Sets or HDB. Shared System Definitions are saved in the HDB Repository, and can be referenced by everyone who shares the same HDB Repository. The advantages of using Shared System Definitions include:-

- All CICS PA users can share the same definitions, avoiding duplication.
- SMF File selection for batch reporting requests is automated.
- One or more Personal System Definitions can be consolidated in to a single Shared System Definition repository by using Take-up.

Shared SMF File definitions provide automatic SMF file selection when you generate Report Set or HDB and JCL. There are two types of SMF File definitions, Daily and Cyclic:-

Daily SMF files span a period of time for the current day (today). They are used when you request reporting for today. Daily SMF files are typically GDGs, one generation created by each SMF dump (FASMFDP) job. They can only be defined by the Take-up from SMF File facility. Daily SMF files are retained in the HDB Register for one day only, and are expired by HDB housekeeping the next day.

Cyclic SMF files cover a continuously recurring period of time. Cyclic SMF files are typically GDGs. For example, a weekly SMF GDG where the most recent cycle (generation 0) spans the current week, -1 is last week, and so on. You can define one or more Cyclic SMF file definitions. CICS PA supports various intervals including daily, weekly, monthly, yearly and fixed (number of days) cycles.

- ▶ This is a notes page for the audience.

CICS PA Shared System Definitions - Notes ...

The CICS PA Shared System Definitions menu options are:-

1. Define the Systems (CICS, MVS, DB2, MQ, Logger) and the SMF Files they use
2. Maintain Groups and the Systems that belong to them
3. Data Take-up from Personal System Definitions ...
 - Your personal definitions are immediately copied to the shared definitions
4. Data Take-up from SMF File ...
 - System details are extracted from the file then used to automatically update your Shared System Definitions.



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CICS PA Shared System Definitions - Maintaining ...

```
File Edit Filter View Options Help
Shared System Definitions          System saved
Command ==> NEW IYK2Z1V3          Scroll ==> PAGE

Select a System to edit its definition and SMF Files.

/ System Type Image Description SMF Files
_ IYK2Z1V1 CICS MV2C ** New CICS system ** System
***** Bottom of data *****
```



CICS PA Shared System Definitions - Notes ...

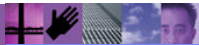
The CICS System details are presented across three views (as shown on the next three slides):-

1. System Definition attributes
2. Cyclic SMF Files
3. Daily SMF Files.

View 1. System Definition attributes - The first view displays all the System Definition attributes.

View 2. Cyclic SMF Files - The second view displays Cyclic SMF File definitions. Cyclic SMF files are the definitions of SMF Files that cover a continuously recurring period of time, and consistently contain data for this system. Cyclic SMF files are typically GDGs. For example, a weekly SMF GDG where the most recent cycle (generation 0) spans the current week, -1 is last week, and so on.

View 3. Daily SMF Files - Daily SMF Files are the definitions of SMF Files created today that contain data for this system. The Take-up from SMF File process manages the list of SMF Files automatically. Use HDB Housekeeping to remove expired Daily SMF File definitions from the list.



- ▶ This is a notes page for the audience.

CICS PA Shared System Definitions - System Attributes ...

```
File Dictionary Options Help
EDIT                               CICS System                More: < >
Command ==> _____

CICS System definition:
APPLID . . . . . IYK2Z1V3 MVS Image . . . MV2C
Description . . . . . ** New CICS system **

System View:
1 1. Definition    2. Cyclic SMF Files    3. Daily SMF Files

Specify CICS System Definition:
CICS Version (VRM) . . . 630
MCT Suffix . . . . . 63
MCT Load Library . . . _____
SDFHLOAD Library . . . _____
Dictionary DSN . . . . . _____
```



- ▶ View 1. System Definition attributes - The first view displays all the System Definition attributes.

CICS PA Shared System Definitions - Cyclic SMF Files ...

```

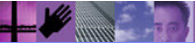
File Edit Options Help
EDIT                      CICS System                      Row 1 of 1 More: < >
Command ==> _____ Scroll ==> PAGE

CICS System definition:
APPLID . . . . . IYK2Z1V3 MVS Image . . . MV2C
Description . . . . . ** New CICS system **

System View:
 2 1. Definition  2. Cyclic SMF Files  3. Daily SMF Files

/ Cyclic SMF File GDG Base or Data Set Name      Origin      Interval DISP
_ 'CBAKER.MV2C.SMF.DAILY'                        DAY          DAY          OLD
***** Bottom of data *****

```



- View 2. Cyclic SMF Files - The second view displays Cyclic SMF File definitions. Cyclic SMF files are the definitions of SMF Files that cover a continuously recurring period of time, and consistently contain data for this system. Cyclic SMF files are typically GDGs. For example, a weekly SMF GDG where the most recent cycle (generation 0) spans the current week, -1 is last week, and so on.

CICS PA Shared System Definitions - Daily SMF Files ...

```

File Edit Options Help
EDIT                               CICS System                Row 1 of 1 More: < >
Command ==> _____ Scroll ==> PAGE

CICS System definition:
APPLID . . . . . IYK2Z1V3 MVS Image . . . MV2C
Description . . . . . ** New CICS system **

System View:
 3 1. Definition    2. Cyclic SMF Files    3. Daily SMF Files

SMF Data Set Name                ----- Start ----- - Stop -
'CBAKER.MV2C.SMF.DAILY.G032V00'    2005-12-08 08.23.00 00.00.00
***** Bottom of data *****

```



- ▶ View 3. Daily SMF Files - Daily SMF Files are the definitions of SMF Files created today that contain data for this system. The Take-up from SMF File process manages the list of SMF Files automatically. Use HDB Housekeeping to remove expired Daily SMF File definitions from the list.

CICS PA Shared System Definitions - Notes ...

The next slide shows an example of CICS PA Shared System Definitions Data Take-up from SMF File. System details are extracted from the file then used to automatically update your Shared System Definitions. Take-up of Shared Systems from an SMF File optionally performs the following functions:-

1. Defines new shared systems, including CICS, DB2, MQ and Logger systems and MVS Images
2. Defines Daily SMF Files, and associates them to either Systems with data on the file or its MVS Image.



► This is a notes page for the audience.

CICS PA Shared Systems - Take-Up from SMF ...

```

File Options Help
----- System Definitions -----
V | File Options Help |
O | ----- |
  | Data Take-Up from SMF |
0 | Command ==> _____ |
1 | | |
2 | Specify the SMF File for data take-up. | ps
3 | | |
4 | Data Set Name . . . 'CPPSS.SMFDUMP.MV2C.G1187V00' |
5 | | |
6 | Required Definitions:      Connect files to: |
7 | / Systems                  2 1. System |
X | / Files                    2. Image |
  | | |
  | Recap Report: |
  | DDname . . . RCAP0001 |
  | | |
  | Enter "/" to select option |
  | _ Edit JCL before submit |
  | | |
  | ----- |
  
```





CICS PA Shared Systems - Take-Up from SMF ...

AM0 CICS Performance Analyzer
Shared System Takeup Recap Report By Data Set

0001 Printed at 15:57:06 1/03/2006 Data from 12:21:57 01/03/2006 to 14:55:14 01/03/2006

		-----Start-----		-----Stop-----		-----System-----			Page
ime	Data Set Name	Date	Time	Date	Time	Name	Type	Imag	Record Count
0001	CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.21.57	2006-01-03	14.55.14	IYK3ZJT1	CICS	MV2C	810
						MV2C	Image		7928
						IYK2ZIO3	CICS	MV2C	6
						DEWCBAC0	CICS	MV2C	960
						IYK2ZHI1	CICS	MV2C	139
						SCLOG	Logger	MV2C	765
						IYK3ZJT5	CICS	MV2C	16
						DEWCBAA0	CICS	MV2C	75
						IYK3ZIH1	CICS	MV2C	58
						IYK2ZHI2	CICS	MV2C	4969

AM0 CICS Performance Analyzer
Shared System Takeup Recap Report By System

0001 Printed at 15:57:06 1/03/2006 Data from 12:21:57 01/03/2006 to 14:55:14 01/03/2006

		-----Start-----		-----Stop-----		Page		
Type	Imag	DDname	Data Set Name	Date	Time	Date	Time	Record Count
ZJT1	CICS	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.21.57	2006-01-03	14.53.38	810
			Image SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.21.57	2006-01-03	14.55.14	7928
ZIO3	CICS	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.22.05	2006-01-03	12.22.06	6
BAC0	CICS	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.22.23	2006-01-03	14.55.14	960
ZHI1	CICS	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.23.54	2006-01-03	14.54.54	139
B	Logger	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.29.40	2006-01-03	14.52.35	765
ZJT5	CICS	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.33.38	2006-01-03	12.33.38	16
BAA0	CICS	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.37.44	2006-01-03	14.44.42	75
ZIH1	CICS	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.42.24	2006-01-03	14.19.36	58
ZHI2	CICS	MV2C	SMFIN001.CPPSS.SMF.DUMP.MV2C.G4110V00	2006-01-03	12.42.37	2006-01-03	14.55.05	4969

CICS PA Shared Systems - Take-Up from SMF - Notes

The previous slide shows an example of the Data Take-Up from SMF Recap report that is generated at the end of file processing. The Recap report provides a list of all the Systems with data on the SMF file together with a count of all SMF 110 records on the file.

With this information you can elect to take-up Systems or Files or both, and specify whether to connect the Files to the System or the Image.

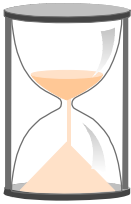
Note that the Recap report is showing what is available for Take-up from the SMF files, it is not showing the results of Take-up. Review the Shared System Definitions in the dialog to see the results of Take-up.



- ▶ This is a notes page for the audience.

CICS PA Shared System Definitions - Hints and Tips ...

- **Use Shared or Personal System Definitions ?**
 - ▶ Advantages of using Shared System Definitions ...
 - All CICS PA users can share the same definitions
 - Avoiding duplication, simplifying maintenance, ...
 - SMF File selection for batch reporting requests is automated
 - One or more Personal System Definitions can be consolidated into a single Shared System Definition repository by using Take-up
- **Daily SMF files are recommended when your SMF Dump process creates extract GDG data sets whenever SMF is switched throughout the day**
 - ▶ Include Take-Up from SMF File step in your daily SMF Dump process ...
 - Manages the list of SMF Files automatically
 - ▶ Daily files allow you to run report requests against today's SMF data without having to explicitly specify the data set names





IBM Software Group

CICS Performance Analyzer for z/OS

CICS PA Report Sets



CICS Tools | IBM UK Laboratories, Hursley Park

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- In this section of the presentation we will cover the CICS PA Report Sets.

CICS PA Report Sets

```
File Options Help
V1R4M0 CICS Performance Analyzer - Primary Option Menu
Option ==> 2

0 CICS PA Profile Customize your CICS PA dialog profile
1 Personal Systems Specify personal 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
6 Shared Systems Specify shared CICS Systems, SMF Files and Groups
7 Statistics Report CICS Statistics
X Exit Terminate CICS PA

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restricted by GSA ADP Schedule Contract with IBM Corp.
```



Report Sets - Requesting Reports and Extracts ...

```

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 *****

```



- ▶ This panel would be displayed when Option 2 was selected from the CICS PA main menu. It is used to display the currently defined Report Sets and to define new Report Sets. It is from this screen that you would select a Report Set for job submission and execution.
- ▶
- ▶ By specifying 'new' on the command line you can specify a new Report Set.
- ▶
- ▶ The next visual shows the input panel for a new Report Set.

Report Sets - 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
  S ___ 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

Report Sets - 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 and summary 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.



- ▶ This is a notes page for the audience.

Report Sets - 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.



- ▶ This is a notes page for the audience.

Report Sets - 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 z/OS 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.

- ▶ This is a notes page for the audience.

Report Sets - 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 records (and optionally DB2 Accounting, WebSphere MQ Accounting and/or z/OS System Logger 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.

The **HDB Load** is a facility that loads SMF data into a Historical Database (HDB). Following HDB load, the data can optionally be exported to a pre-defined DB2 table. This same facility is available from Primary Menu option 5 Historical Database. However, from Report Sets you have the advantages of allowing you to run your reports, extracts and produce historical performance and statistics data in one job and also in a single pass of the SMF input file.

Selection Criteria enables you to filter the CMF performance and exception clas 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.



- ▶ This is a notes page for the audience.

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 . . . . . :
Precision . . . . . 4 (4-6)
```



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, and Field Precision.

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 CICS PA 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.

The Precision option defines the precision of numeric fields, which can be formatted fields can be formatted to either 4, 5, or 6 decimal places.

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

- ▶ This is a notes page for the audience.

Requesting a Performance List Report

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

System Selection:                Report Output:
APPLID . . . CICSPI +          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.



► This is a notes page for the audience.

Requesting a Performance List Report - Default

2M0 CICS Performance Analyzer
Performance List

0001 Printed at 15:17:27 1/21/2002 Data from 11:10:29 2/04/1999 APPLID IYK221V1 Page

in	SC	Term	Userid	RSID	Program	TaskNo	Stop	Response	Dispatch	User	CPU	Suspend	DispWait	FC Wait	FCAMRq	IR Wa
							Time	Time	Time	Time	Time	Time	Time	Time		Time
Y	U		CBAKER		DFHAPATT	16	11:10:29.803	.0139	.0007	.0006	.0133	.0000	.0000	.0000	0	.00
Y	U		CBAKER		DFHAPATT	17	11:10:29.809	.0185	.0010	.0014	.0175	.0001	.0000	.0000	0	.00
Y	U		CBAKER		DFHAPATT	18	11:10:29.861	.0674	.0196	.0027	.0479	.0269	.0000	.0000	0	.00
P	U		CBAKER		DFHZCGRP	12	11:10:30.194	.4123	.0420	.0074	.3702	.3223	.0000	.0000	0	.00
Y	U		CBAKER		DFHAPATT	15	11:10:30.207	.4204	.0568	.0100	.3636	.1744	.0000	.0000	0	.00
Y	U		CBAKER		DFHAPATT	13	11:10:30.456	.6743	.0728	.0134	.6015	.4000	.0000	.0000	0	.00
Y	U		CBAKER		DFHAPATT	10	11:10:30.531	.7498	.1910	.0228	.5588	.1997	.0000	.0000	0	.00
Y	U		CBAKER		DFHAPATT	14	11:10:31.121	1.3344	.3202	.0378	1.0142	.2626	.0000	.0000	1	.00
Y	U		CBAKER		DFHAPATT	11	11:10:31.211	1.4292	.1497	.0313	1.2794	.3461	.0000	.0000	0	.00
T	U		CBAKER		DFHSIFLT	7	11:10:45.642	15.9915	.3383	.0369	15.6532	.0155	.0000	.0000	0	.00
Y	U		CBAKER		DFHAPATT	III	11:10:45.856	16.0761	9.3488	2.3435	6.7273	1.1645	.9522	2059	.00	.00
G	S		CBAKER		DFHWBGB	24	11:10:46.196	.0262	.0248	.0041	.0013	.0012	.0000	.0000	0	.00
Q	S		CBAKER		DFHCRQ	25	11:10:46.856	.0818	.0449	.0040	.0369	.0367	.0000	.0000	0	.00
E	S		CBAKER		DFHZXRE	27	11:10:47.134	.2255	.0243	.0049	.2011	.2009	.0000	.0000	0	.00
Z	TO R11		CBAKER		DFHLUP	29	11:10:48.317	.0263	.0030	.0020	.0232	.0000	.0000	.0000	0	.02
U	S		CBAKER		DFHFCU	26	11:10:48.471	1.6968	1.5899	.1136	.1069	.0294	.0000	.0000	0	.00
C	TO SAMA		CBAKER		DFHACP	31	11:10:51.227	.5217	.0028	.0011	.5189	.0002	.0000	.0000	0	.00
Z	U		CBAKER		DFHLUP	28	11:10:51.840	3.8259	.0818	.0068	3.7441	.0035	.0000	.0000	0	3.73
T	TO SAMA		CBAKER		DFHEMTP	32	11:10:51.942	.1877	.1842	.0264	.0035	.0030	.0000	.0000	0	.00
T	TO SAMA		CBAKER		DFHEMTP	33	11:10:52.549	.0091	.0068	.0026	.0023	.0001	.0000	.0000	0	.00
T	TO SAMA		CBAKER		DFHEMTP	34	11:10:53.074	.0092	.0068	.0025	.0024	.0000	.0000	.0000	0	.00
C	TO SAMA		CBAKER		DFHACP	35	11:10:54.113	.5109	.0042	.0012	.5067	.0001	.0000	.0000	0	.00
C	TO SAMA		CBAKER		DFHACP	36	11:10:55.159	.5150	.0011	.0011	.5139	.0001	.0000	.0000	0	.00

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- ▶ This visual shows an example of the default format of the Performance List Report.

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.



- ▶ This is a notes page for the audience.

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* _____
IS 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
D Field
/ Name Description
- WBREPWCT Shared IS Repository write requests
- WBSSEND Web SEND requests
* IS 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.



- This is a notes page for the audience.

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 (Primary Option Menu - 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
 - ▶ Used when specifying record Selection Criteria
 - ▶ 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.



- ▶ This is a notes page for the audience.



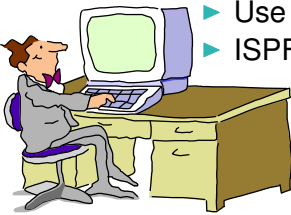
Object Lists ...

```
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)
 - Submit them from there or ...
 - ... as part of any job scheduling or automation process
- To view the output ...
 - ▶ Use SDSF (System Display Search Facility), or ...
 - ▶ ISPF option 3.8, Outlist Utility



- ▶ To submit a CICS PA Report Set for execution; select option 2 from the Main Menu, select the RUN option to build the JCL, you can then review and modify the JCL if required and then submit the job for execution.
- ▶ You can also save the JCL in a JCL library that can then be used as part of any Job Scheduling or Automation.
- ▶ To view the CICS PA output you can use SDSF 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.



- ▶ This is a notes page for the audience.

Job Submission - RUN Command ...

```

File  Systems  Options  Help
-----
Run Report Set DB2RPTS
Command ===> _____

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

System Selection:
CICS APPLID . . _____ + Image . . _____ + Group . . MROGROUP +
DB2 SSID . . . . _____ + Image . . _____ + Group . . _____ +
MQ SSID . . . . _____ + Image . . _____ + Group . . _____ +
Logger . . . . _____ + Image . . _____ + Group . . _____ +

_ Override System Selections specified in Report Set

Missing SMF Files Option:
2 1. Issue error message
   2. Leave DSN unresolved in JCL
   3. Disregard offending reports

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

----- Report Interval -----
                YYYY/MM/DD HH:MM:SS.TH
From _____
To   _____
    
```

- 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 Interval** - 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.
 - a. Date is either a calendar date in your preferred format or a relative date. Time is a time-of-day.
 - b. Relative dates are specified as 0, -1, -2, ... to signify a date relative to the current date. 0 represents today, -1 yesterday, -2 two days ago, and so on. If both From and To dates are specified, they must be in the same format.
 - c. For a date/time range:
 - >Either From or To can be omitted to indicate that the range is open-ended. If From is omitted, it defaults to the first input record. If To is omitted, it defaults to the end of file.
 - >If From date is specified with no time, the start of day is assumed.
 - >If To date is specified with no time, the end of day is assumed.
 - d. For a time slot, both times must be present with no dates to signify the same time slot every day. The times can span midnight.

- ▶ This is a notes page for the audience.

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
JESMSG LG JES2 2 CBAKER H LOCAL 20
JESJCL JES2 3 CBAKER H LOCAL 29
JESYSMSG JES2 4 CBAKER H LOCAL 81
SYSPRINT CICS SPA 102 CBAKER H LOCAL 78
SYSOUT CICS SPA 103 CBAKER H LOCAL 30
LIST0001 CICS SPA 104 CBAKER H LOCAL 2,691
S SUMM0001 CICS SPA 105 CBAKER H LOCAL 444
WKLD0001 CICS SPA 106 CBAKER H LOCAL 26
XSUM0001 CICS SPA 107 CBAKER H LOCAL 14
WAIT0001 CICS SPA 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 ...

nu Utilities Compilers Help

SE CBAKER.SPF135.OUTLIST Line 00000262 Col 001 1
 and ==> Scroll ==> CS

2M0 CICS Performance Analyzer
 Cross-System Work

0001 Printed at 7:24:46 3/27/2002 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page

Userid	SC	TranType	Term	LUName	Request Type	Program	Fcty T/Name	Conn Name	NETName	UOW Seq	APPLID	R Task T	Stop Time	Respon Time
BRENNER	TO	U	S208	IGCS208	AP:	CALLCB1	T/S208		GBIBMIYA.IGCS208	1	IYK2Z1V1	249 D	11:29:32.677	1.11
BRENNER	TO	U	S208	IGCS208	AP:	CALLCB1	T/S208		GBIBMIYA.IGCS208	1	IYK2Z1V1	257 T	11:30:14.621	2.09
BRENNER	TO	U	S208	IGCS208	AP:	CALLCB1	T/S208		GBIBMIYA.IGCS208	1	IYK2Z1V1	257 D	11:30:12.525	.00
BRENNER	TO	U	S208	IGCS208	AP:	CALLCB1	T/S208		GBIBMIYA.IGCS208	1	IYK2Z1V1	257 D	11:30:12.524	1.06
BRENNER	TO	U	S23C	IGCS23C	AP:	CALLCB1	T/S23C		GBIBMIYA.IGCS23C	1	IYK2Z1V3	171 T	11:17:23.394	2.09
BRENNER	TO	U	S23C	IGCS23C	AP:	CALLCB1	T/S23C		GBIBMIYA.IGCS23C	1	IYK2Z1V3	171 D	11:17:21.297	.00
BRENNER	TO	U	S23C	IGCS23C	AP:	CALLCB1	T/S23C		GBIBMIYA.IGCS23C	1	IYK2Z1V3	171 D	11:17:21.297	1.03
BRENNER	U	U	R		AP:	DFH0SAL2			GBIBMIYA.IGCS23C	1	IYK2Z1V3	175 T	11:17:32.054	.56
BRENNER	U	U	R		AP:	DFH0STOC			GBIBMIYA.IGCS23C	1	IYK2Z1V3	177 T	11:17:32.053	.51
BRENNER	U	U	R		AP:	DFH0RED1			GBIBMIYA.IGCS23C	1	IYK2Z1V3	176 T	11:17:32.050	.53



Requesting Reports and Extracts - Hints and Tips

- Using Monitoring Control Table (MCT) Exclude?
 - ▶ Some CICS PA Reports require specific CMF fields
 - 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, ...
- System Selection ...
 - ▶ Specify in the Report request rather than at Run-time
- Selection Criteria ...
 - ▶ Use Report Set for record selection criteria
 - ▶ Use Report Form for report selection criteria
- Consider creating a small SMF test file ...
 - ▶ Useful for testing purposes ...
 - Report Forms, Selection Criteria, HDB Templates, 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 SMF 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.

Use the Report Set for record selection criteria and the Report Form for report selection criteria.

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, validate selection criteria, or data extracts before they are used in a production environment against very large SMF data sets.



- ▶ This is a notes page for the audience.

Report Forms

```
File Options Help
VIR4M0          CICS Performance Analyzer - 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
6 Statistics           Online reporting for CICS Statistics
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 130 sample Report Forms are 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, ...
 - Response Time Distribution, ...
 - ▶ Supported on ...
 - Performance List, List eXtended, and Summary Reports
 - Cross-System Work Report
 - Performance Data Extract
 - HDB Reports and Extracts



Report Forms - Notes

Report Forms are used to define the content and format 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 form)
- Model (use an HDB Template as a basis for a new form).

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 Forms that have already been defined. Each report form can be selected in order to modify it as shown in the example that follows



► This is a notes page for the audience.

Report Forms ...

```

File  Confirm  Samples  Options  Help
Report Forms
Command ==> NEW SAMPFORM Row 1 to 9 of 9
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 ...

```

File  Systems  Options  Help
-----
                          New Report Form
Command ==> _____

Specify new Report Form options.

Name . . . SAMPFORM  Version (VRM) . . . 640  +

System Selection:                Field Categories:
APPLID . . . . . _____  +  _  Select to specify Field Categories
MVS Image . . . . . _____

Form Type or Model:
_  1. List                        4. Model (Report Form)
_  2. List Extended (Sorted)     5. Model (HDB Template)
_  3. Summary

Model . . . . . _____  +
Report Forms Data Set . . . 'CBAKER.CICSPA.FORMSAMP'  +
HDB Register . . . . . TEST.CICSTS31.REGISTER  +
    
```



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 was extended to allow the inclusion of Selection Criteria to apply filtering that is applicable to the resources being reported by the Report Form. In CICS PA Version 1 Release 4 the Report Forms capability has been extended to allow new forms to be modeled on an HDB template.

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



- ▶ This is a notes page for the audience.

Report Forms - Field Categories ...

```

File Systems Options Help
-----
New Report Form -----
Select Field Categories
|
| Command ==> _____
|
| Category Selection:
| _ DFHAPPL - Application naming      _ DFHJOUR - Journal
| _ DFHBTS - BTS                      _ DFHMAPP - BMS Maps
| _ DFHCHNL - CHANNEL option          _ DFHPROG - Program Control
| _ DFHCICS - CICS task information    _ DFHRMI - Resource Manager (RMI)
| _ DFHDATA - Data processing          _ DFH SOCK - Secure Sockets
| _ DFHDEST - Transient Data          _ DFHSTOR - Storage Control
| _ DFHDOCH - Document Handler         _ DFH SYNC - Syncpoint processing
| _ DFHEJBS - EJB Server               _ DFHTASK - Task Control
| _ DFHFEPI - Front End (FEPI)         _ DFHTEMP - Temporary Storage
| _ DFHFILE - File Control             _ DFHTERM - Terminal Control
|                                     _ DFHWEBB - Web Interface
|
| Region Type:
| _ AOR - Application-owning           _ TOR - Terminal-owning
| _ FOR - File-owning                 _ DB2 - DB data-owning
|
| User Fields:
| _ DBCTL - IMS DBCTL data-owning     _ CROSSYS - Cross-System
|

```



Report Forms - Samples

```

Sample Report Forms
-----
|                                     Row 1 to 16 of 131 |
| Command ==> _____ Scroll ==> CSR |
| Select one or more sample Report Forms and press Exit |
|
| Name      Type      Description |
| - - - - - - - - - - - - - - - - - - - - - - - - - - - |
| ABNDLST  LIST      Transaction Abend List |
| ABNSUM   SUMMARY   Transaction Abend Summary |
| BADCPU   LISTX     Top 20 Worst CPU Times |
| BADDDB2RQ LISTX    Top 20 Worst DB2 Requests |
| BADFCRQ  LISTX     Top 20 Worst File Requests |
| BADRESP  LISTX     Top 20 Worst Response Times |
| BADRMI   LISTX     Top 20 Worst CICS RMI Times |
| BADRMIRQ LISTX     Top 20 Worst CICS RMI Requests |
| BADSUSP  LISTX     Top 20 Worst Suspend Times |
| BADTDRQ  LISTX     Top 20 Worst Tdqueue Requests |
| BADTSRQ  LISTX     Top 20 Worst Tsqueue Requests |
| BADWBRQ  LISTX     Top 20 Worst CICS Web Requests |
| BTSACLST LIST      CICS BTS Activity - Overview |
| BTRSRLST LIST      CICS BTS Request Activity |
| BTRSQSUM SUMMARY   CICS BTS Request Activity |
| CCLST    LIST      Channel Container Activity |

```

- Over 130 sample Report Forms provided ...
 - ▶ List, ListX and Summary - use as-is or as a Model



- ▶ Over 100 sample Report Forms are provided with CICS PA. These include LIST, LISTX, and SUMMARY Report Forms that you can use them as-is or tailor to meet your reporting and extract requirements.

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
    
```

7 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.



- This is a notes page for the audience.

Tailoring the Performance LIST Report Format ...

```

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

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

Selection Criteria:
- Performance Page width . . 132

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
ECTOTAL 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.



► This is a notes page for the audience.

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
Name + Type Length Dictionary Definition - User Field -
Offset Length
-----
TRAN _____ 4 TRAN DFHTASK C001 _____
USERID _____ 8 USERID DFHCICS C089 _____
STOP _____ 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:
APPLID . . CICSPI +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . LIST0001
Print Lines per Page . . _____ (1-255)

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.



- ▶ This is a notes page for the audience.



Performance List Report - File Requests

0001 Printed at 10:32:09 2/07/2002 Data from 11:17:21 2/04/1999 APPLID IYK2Z1V3 Page

Transaction File Control Usage

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

- ▶ This visual shows an example of a Performance List Report tailored using a Report Form to show the transaction file request activity.

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.



- ▶ This is a notes page for the audience.

Performance List Report - DBCTL

MO

CICS Performance Analyzer
Performance List

001 Printed at 11:33:27 9/11/2001 Data from 12:17:43 2/04/1999 APPLID IYK2Z1V3 Page

Analysis of Transaction IMS DBCTL Usage

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



- ▶ This visual shows an example of a Performance List Report tailored using a Report Form to show the transaction DBCTL usage.

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.



- ▶ This is a notes page for the audience.

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.CICSPA.FORMS

Enter "/" to select action.

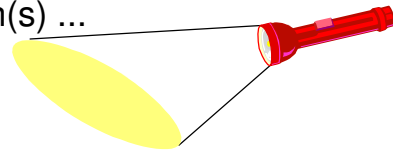
/  Name      Type      Description      Changed      ID
-  ABNDLST  LIST     Transaction Abend List      2005/03/25 00:00 CICSPA
-  BTSACLST LIST     CICS BTS Activity - Overview 2005/03/25 00:00 CICSPA
-  BTSRQLST LIST     CICS BTS Request Activity    2005/03/25 00:00 CICSPA
-  CCLST    LIST     Channel Container Activity    2005/03/25 00:00 CICSPA
-  CC3LST  LIST     Channel Container Activity (V3) 2005/03/25 00:00 CICSPA
-  COMMWLST LIST     Transaction Comms Wait Analysis 2005/03/25 00:00 CICSPA
-  CPULXTR  LIST     CPU Analysis and Extract      2005/03/25 00:00 CICSPA
-  CPULST   LIST     Transaction CPU Analysis      2005/03/25 00:00 CICSPA
-  CPULST1  LIST     Transaction CPU Analysis (1)   2005/03/25 00:00 CICSPA
-  CPU3LEXT LIST     CPU Analysis and Extract (V3) 2005/03/25 00:00 CICSPA
-  CPU8LST  LIST     Transaction CPU Analysis (Key 8) 2005/03/25 00:00 CICSPA
-  CPU9LST  LIST     Transaction CPU Analysis (Key 9) 2005/03/25 00:00 CICSPA
-  CSWANLST LIST     Cross-System Analysis List     2005/03/25 00:00 CICSPA
-  CSWEXLST LIST     Cross-System Extract List Report 2005/03/25 00:00 CICSPA
-  DHLST   LIST     CICS Document Handler Analysis 2005/03/25 00:00 CICSPA
-  EJBLST  LIST     Enterprise Java Bean Analysis  2005/03/25 00:00 CICSPA
-  ENQLST  LIST     CICS ENQueue/Lock Delay Analysis 2005/03/25 00:00 CICSPA
-  EXWTLST LIST     Exception Wait Analysis        2005/03/25 00:00 CICSPA
-  FCLST   LIST     File Request Activity          2005/03/25 00:00 CICSPA
-  FCTYLST LIST     Transaction Facility Analysis   2005/03/25 00:00 CICSPA
-  FCWTLST LIST     File Wait Analysis             2005/03/25 00:00 CICSPA
-  FDSPLST LIST     First Dispatch Delay Analysis   2005/03/25 00:00 CICSPA

```

- ▶ Over 60 sample Report forms are provided with CICS PA.
- ▶
- ▶ Here we see the LIST and LISTX sample Report Forms, the SUMMARY sample Report Forms are shown in a later slide.

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 ...

BM0 CICS Performance Analyzer
Performance List Extended

0001 Printed at 10:40:11 7/24/2003 Data from 11:10:29 2/04/1999 to 11:33:51 2/04/1999 Page

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

- ▶ This visual shows an example of the default format of the Performance List Extended Report.

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.



- ▶ This is a notes page for the audience.



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                                     Page width . . 132

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.



- This is a notes page for the audience.

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
Media:
e
select action.

-----
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.



► This is a notes page for the audience.



Performance List Extended - Worst DB2 Trans

0001 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

CICS Performance Analyzer
Performance List Extended

Bad DB2 transaction response time

Response Time	Userid	Program	Stop Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time	DB2ConWt Time	DB2ThdWt Time	DB2 Reqs	DB2SQLWt Time
114.574	JOHN	CORD04P	12:26:25.765	4.9961	4.6084	109.578	3.7039	.0000	90.2326	9178	19.3442
95.2259	STEVE	CORD04P	12:26:04.243	5.1529	4.6320	90.0730	9.0971	.0000	.0000	8436	90.0727
94.8672	CHRIS	CORD04P	12:26:04.954	5.0842	4.6390	89.7829	8.0275	.0000	.0000	8574	89.7826
93.6422	SHIRLEY	CORD04P	12:26:01.425	5.1434	4.6228	88.4988	8.7084	.0000	.0000	8465	88.4984
81.5987	DAVID	CORD04P	12:22:21.938	4.9596	4.5885	76.6391	6.4075	.0000	.0000	8335	76.6388
81.2668	KATH	CORD04P	12:22:22.820	4.9766	4.5806	76.2901	6.3358	.0000	.0000	9346	76.2898
80.0224	MIKE	CORD04P	12:22:18.958	5.2067	4.6592	74.8158	6.0739	.0000	.0000	8690	74.8154
38.3645	JAMES	CORD04P	12:16:12.420	5.0326	4.6100	33.3319	5.4501	.0000	.0000	9124	33.3315
102.066	JOHN	CORD05P	12:22:44.565	4.8183	4.4576	97.2478	4.4576	.0000	76.4557	6573	20.7892
36.3721	CHRIS	CORD05P	12:16:22.814	5.0605	4.5812	31.3116	4.4883	.0000	.0000	9102	31.3103
23.2860	DAVID	CORD05P	12:12:04.661	5.4456	4.6209	17.8404	3.9595	.0000	.0000	8221	17.7935
1.0671	SHIRLEY	CORD05P	11:49:21.077	.4447	.0405	.6223	.0037	.0000	.0000	1	.6192
.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.



- ▶ This is a notes page for the audience.

Performance Summary Report

- Performance Summary Report ...
 - ▶ Sort and Summarize the performance data in your report
 - ▶ Sorting Criteria ...
 - Up to eight sort fields ...
 - Ascending or Descending sequence (in any combination)
 - ▶ Statistics functions available include ...
 - Avg, Min, Max, Total, Std Deviation, Peak Percentile, ...
 - ▶ Field presentation formats available ...
 - Numeric, clock (time and count), and timestamp (date and time)
 - ▶ Reporting Options ...
 - Time Interval
 - Totals Level ...
 - blank - Suppress totals
 - 0 through 8 - Optional Grand Totals



Performance Summary Report - Notes

The Performance Summary Report allows you to sort and summarize the performance data in your report. Up to eight sort keys can be specified in any combination of ascending or descending order.

Statistics Functions are available including:- Average, Minimum, Maximum, Total and Standard Deviation.

Field presentation formats available include:-

- For numeric (A,P,D) fields:- optionally specify K or M to divide a field value by 1000 or 1000000, typically for count fields; or specify KB or MB to divide a field value by Kilobytes (divide by 1024) or Megabytes (divide by 1024x1024), typically for storage fields.

- For clock (S) fields, one of the following can be specified:-

TIME Accumulation of elapsed time in seconds with requested precision of 0.0001 to .000001 (default is TIME with PRECISION(4))

COUNT Number of occurrences of the condition

- For timestamp (T) fields:- various date and time formatting options can be specified.

Other reporting options include:-

- Time Interval when you want to summarize transaction activity over time.
- Totals Level in order to print the subtotals when the sort field changes, and print a grand total at the end of the report.



- This is a notes page for the audience.



Performance Summary Report ...

3M0 CICS Performance Analyzer
Performance Summary

0001 Printed at 12:46:48 7/23/2003 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page

#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 SC24UHW	Avg SC31UHW
18	.0115	.0945	.0099	.0020	.0016	.0114	.0008	.0003	1	.0000	949	0
1033	.0789	36.6088	.0027	.0015	.0762	36.6061	.0000	.0000	6	.0007	1008	0
1	.0482	.0482	.0350	.0049	.0132	.0132	.0125	.0000	0	.0000	0	0
11	.0021	.0040	.0017	.0014	.0004	.0021	.0000	.0000	1	.0001	928	0
15	.0245	.1724	.0223	.0027	.0022	.0194	.0010	.0000	0	.0000	422	177
17	.0183	.0665	.0118	.0032	.0065	.0505	.0010	.0017	0	.0007	968	0
2	.0028	.0031	.0027	.0015	.0001	.0001	.0000	.0000	0	.0000	0	0
1	.0024	.0024	.0023	.0016	.0001	.0001	.0000	.0000	0	.0000	0	0
1	.0027	.0027	.0027	.0015	.0001	.0001	.0000	.0000	0	.0000	0	0
25	2.3633	8.2455	.0074	.0021	2.3559	8.2300	.0013	.0000	0	.0000	0	1056
17	.0285	.0882	.0119	.0055	.0167	.0828	.0002	.0000	0	.0000	0	0
6	.0372	.0590	.0159	.0056	.0213	.0306	.0024	.0000	0	.0000	0	0
2	.0290	.0296	.0283	.0047	.0006	.0009	.0006	.0000	0	.0000	0	0
11	11.2041	51.3803	.0147	.0054	11.1894	51.3196	.0016	.0000	3	.0000	0	1865
2	.0179	.0334	.0176	.0029	.0003	.0006	.0003	.0000	0	.0000	0	0
1	575.916	575.916	.0061	.0046	575.910	575.910	.0003	.0000	0	.0000	0	0
61	1.7234	72.8971	.0194	.0043	1.7039	72.8839	.0004	.0000	0	.0000	3	21295
98	1.9304	51.4018	.0602	.0218	1.8702	50.2257	.0008	.0086	53	.0000	0	0
137	19.1960	592.514	.0154	.0062	19.1806	592.359	.0043	.0000	0	.0000	0	0
12	.1128	1.2902	.0211	.0021	.0917	1.0858	.0916	.0000	0	.0000	0	0
6	.0180	.0468	.0175	.0042	.0004	.0009	.0004	.0000	0	.0000	0	0
36	.0242	.2046	.0233	.0081	.0008	.0060	.0006	.0000	0	.0000	0	0
1	.8982	.8982	.1132	.0132	.7850	.7850	.0068	.0000	0	.0000	0	0
2	.5862	.7601	.0571	.0076	.5291	.6880	.4134	.0000	0	.0000	0	0
5	.0111	.0153	.0058	.0035	.0053	.0091	.0001	.0000	0	.0000	0	0
2	2.0731	3.8259	.0628	.0068	2.0103	3.7441	.0820	.0000	0	1.9054	0	0

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- ▶ This visual shows an example of the default format of the Performance Summary Report.

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.



- ▶ This is a notes page for the audience.

Tailoring the Performance Summary Report

```

File Edit Control Upgrade Options Help
EDIT SUMMARY Report Form - SUMMTOD Row 1 of 285 More: >
Command ==> _____ Scroll ==> PAGE
Description . . . Summary by Time of Day Version (VRM): 640
Selection Criteria:
Performance Page width . . . 132

Field Sort
Name + K O Type Fn Description
b TRAN K A _____ Transaction identifier
TASKCNT _____ Total Task count
RESPONSE _____ 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 Redispach 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 K A _____ Current ABEND code
m STOP A TIMES _____ Task stop time

```

Summary sorted by Stop time and Tran ID

Ascending or Descending

6 Statistical functions are available

7 Date/Time formats are available

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 (this is the default)
- >Minimum
- >Maximum
- >Total
- >Standard deviation
- >nnn Peak Percentile (in the range 50 to 100).

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



- ▶ This is a notes page for the audience.

Tailoring the Performance Summary Report

```

File Edit Control Upgrade Options Help
EDIT SUMMARY Report Form - SUMMTOD Row 1 of 285 More: >
Command ==>> _____ Scroll ==>> PAGE

Description . . . Summary by Time of Day Version (VRM): 640

Selection Criteria:
  _ Performance Page width . . 132

Field Sort
/ Name + K O Type Fn Description
-- TRAN K A _____ Transaction identifier
-- STOP A TIMES _____ Task stop time
-- 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 K A _____ Current ABEND code
-- ABCODEO A _____ Original ABEND Code
    
```

Tailoring the Performance Summary Report - Notes ...

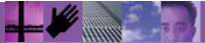
The Report Form (shown on the previous slide) shows the result of the edit commands from the previous slide. The Report Form has been altered to summarize transaction activity by time of day.

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.



- ▶ This is a notes page for the audience.



Tailoring the Performance Summary Report ...

```

File Edit Confirm Upgrade Options Help
EDIT SUMMARY Report Form - SUMMTOD Row 1 of 285 More: >
Command ==> _____ Scroll ==> PAGE

Description . . . Summary by Time of Day
Title . . Transaction Summary by Time of Day
_____
_____
Field Sort - User Field -
/ Name + K O Type Fn Length Dictionary Definition Offset Length
---
STOP K A TIMES 8 STOP DFHCICS T006
---
TRAN K A 8 TRAN DFHTASK C001
---
TASKCNT 8 TASKCNT CICSXA X902
---
RESPONSE AVE 8 RESP CICSXA D901
---
RESPONSE MAX 8 RESP CICSXA 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 FCLOWTT 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 K A 4 ABCODEC DFHPROG C114
---
ABCODEO K 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 . . _____

Reporting Options:
Time Interval . . 00:01:00 (hh:mm:ss)
Totals Level . . _ (blank or 0-8)

Selection Criteria:              Execution Option:
_ Performance                     _ Use External Sort
```





Performance Summary Report by Time-of-Day

00 CICS Performance Analyzer
Performance Summary

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

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
00 CEMT	6	.0608	.1877	.0579	.0105	.0029	.0011	.0000	0	.0000	0	0
00 CGRP	2	.5862	.7601	.0571	.0076	.5291	.4134	.0000	0	.0000	0	0
00 CLQ2	2	2.0731	3.8259	.0628	.0068	2.0103	.0820	.0000	0	1.9054	0	0
00 CLR2	2	.0604	.0946	.0030	.0020	.0574	.0000	.0000	0	.0135	0	0
00 CPLT	2	18.3106	20.6297	.3495	.0372	17.9611	.0176	.0000	0	.0000	0	0
00 CRSQ	2	.0731	.0818	.0416	.0039	.0315	.0313	.0000	0	.0000	0	0
00 CSAC	5	.5138	.5217	.0023	.0011	.5115	.0001	.0000	0	.0000	0	0
00 CSFU	2	2.7193	3.7417	2.2322	.1714	.4871	.0232	.0000	0	.0000	0	0
00 CSSY	18	2.5720	20.7042	1.3231	.3193	1.2489	.2908	.1534	269	.0000	0	180
00 CSTE	2	.1338	.1420	.1250	.0125	.0088	.0086	.0000	0	.0000	0	0
00 CWBG	2	.0267	.0273	.0255	.0039	.0012	.0010	.0000	0	.0000	0	0
00 CKRE	2	.1275	.2255	.0265	.0049	.1010	.1008	.0000	0	.0000	0	0
00 CZUX	1	.0344	.0344	.0331	.0078	.0013	.0016	.0000	0	.0000	0	43552
00 CZXS	1	.0907	.0907	.0340	.0078	.0567	.0016	.0000	0	.0000	0	43712
00	49	1.9914	20.7042	.6140	.1292	1.2773	.1347	.0564	99	.0783	0	1847
00 ABRW	1	.5819	.5819	.0783	.0121	.5037	.0127	.0000	0	.4908	1072	0
00 AMNU	1	.1724	.1724	.1720	.0091	.0004	.0004	.0000	0	.0000	512	0
00 CATA	4	.0409	.0537	.0253	.0084	.0156	.0003	.0000	0	.0000	0	0
00 CEMT	4	2.1512	4.3841	.0047	.0019	2.1465	.0000	.0000	0	.0000	0	0
00 CESN	8	.0319	.0806	.0304	.0094	.0015	.0014	.0000	0	.0000	0	0
00 CQRY	7	.3709	.7437	.0114	.0020	.3595	.0009	.0000	0	.0000	0	0
00 CSMI	1	.5116	.5116	.4563	.0395	.0552	.0032	.0056	6	.0246	96	0
00 CZUX	1	.0092	.0092	.0056	.0050	.0037	.0003	.0000	0	.0000	0	29792
00	27	4.776	4.3841	.0428	.0073	.4348	.0013	.0002	0	.0191	62	1103

- ▶ This visual shows an example of a Performance Summary Report summarizing the transaction activity by transaction ID for each 1 minute interval.

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.



- ▶ This is a notes page for the audience.

Performance Summary Report - Response Time Distribution

M0 CICS Performance Analyzer
Performance Summary

0001 Printed at 9:32:01 4/26/2004 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page

#Tasks	Avg Response Time	60% Response Time	65% Response Time	70% Response Time	75% Response Time	80% Response Time	85% Response Time	90% Response Time	95% Response Time	98% Response Time	99% Response Time	Max Response Time
18	.0115	.0153	.0173	.0194	.0216	.0241	.0270	.0307	.0361	.0423	.0463	.0945
1033	.0789	.2309	.3101	.3936	.4837	.5846	.7011	.8488	1.0669	1.3125	1.4758	36.6088
1	.0482	.0482	.0482	.0482	.0482	.0482	.0482	.0482	.0482	.0482	.0482	.0482
11	.0021	.0023	.0024	.0024	.0025	.0026	.0028	.0029	.0031	.0034	.0036	.0040
15	.0245	.0298	.0325	.0355	.0386	.0421	.0462	.0513	.0590	.0675	.0732	.1724
17	.0183	.0235	.0262	.0291	.0321	.0356	.0395	.0446	.0520	.0604	.0659	.0665
1	.0027	.0027	.0027	.0027	.0027	.0027	.0027	.0027	.0027	.0027	.0027	.0027
25	2.3633	2.3784	2.3863	2.3946	2.4036	2.4137	2.4253	2.4400	2.4618	2.4862	2.5025	8.2455
17	.0285	.0323	.0343	.0364	.0387	.0412	.0442	.0479	.0533	.0595	.0636	.0882
6	.0372	.0414	.0436	.0459	.0484	.0511	.0544	.0584	.0590	.0590	.0590	.0590
2	.0290	.0290	.0290	.0290	.0290	.0290	.0290	.0290	.0290	.0290	.0290	.0296
11	11.2041	14.1591	15.7009	17.3244	19.0764	21.0386	23.3045	26.1778	30.4176	35.1947	38.3717	51.3803
2	.0179	.0179	.0179	.0179	.0179	.0179	.0179	.0179	.0179	.0179	.0179	.0334
1	575.916	575.916	575.916	575.916	575.916	575.916	575.916	575.916	575.916	575.916	575.916	575.916
61	1.7234	1.9834	2.1191	2.2620	2.4162	2.5888	2.7882	3.0411	3.4142	3.8346	4.1142	72.8971
98	1.9304	3.5783	4.4380	5.3434	6.3204	7.4146	8.6782	10.2805	12.6449	15.3088	17.0805	51.4018
137	19.1960	28.8580	33.8991	39.2075	44.9360	51.3519	58.7608	68.1555	82.0185	97.6382	108.025	592.514
12	.1128	.1161	.1178	.1196	.1216	.1238	.1263	.1295	.1342	.1396	.1431	1.2902
6	.0180	.0224	.0247	.0272	.0298	.0327	.0361	.0404	.0468	.0468	.0468	.0468
36	.0242	.0298	.0327	.0358	.0391	.0428	.0471	.0526	.0606	.0697	.0757	.2046
1	.8982	.8982	.8982	.8982	.8982	.8982	.8982	.8982	.8982	.8982	.8982	.8982
2	.5862	.5862	.5862	.5862	.5862	.5862	.5862	.5862	.5862	.5862	.5862	.7601
5	.0111	.0122	.0128	.0134	.0141	.0148	.0153	.0153	.0153	.0153	.0153	.0153

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- ▶ This visual shows an example of a Performance Summary Report showing the response time distribution. The report shows the transaction activity summarized by transaction ID for each 1 minute interval.

Performance Summary - Temporary Storage Activity

IM0 CICS Performance Analyzer
Performance Summary

001 Printed at 7:24:07 1/28/2002 Data from 11:10:56 2/04/1999 to 08:04:18 2/16/1999 Page

Summary of Transaction Temporary Storage Activity

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



- ▶ This visual shows an example of a Performance Summary Report using a Report Form to tailor the report content to show by transaction ID the temporary storage activity.

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.



- ▶ This is a notes page for the audience.

Sample 'Summary' Report Forms

```

File  Confirm  Samples  Options  Help
Report Forms                                     Row 1 to 22 of 45
Command ==>> _____ Scroll ==>> CSR

Report Forms Data Set . . . CBAKER.CICSPA.FORMS

Enter "/" to select action.

/  Name      Type      Description      Changed      ID
-  ABNDSUM   SUMMARY  Transaction Abend Summary      2005/03/25 00:00 CICSPA
-  ACCTSUM   SUMMARY  Accounting Summary HDB Extract  2005/01/13 10:10 CBAKER
-  BTSRQSUM  SUMMARY  CICS BTS Request Activity      2005/03/25 00:00 CICSPA
-  CCSUM     SUMMARY  Channel Container Activity      2005/03/25 00:00 CICSPA
-  CC3SUM    SUMMARY  Channel Container Activity (V3) 2005/03/25 00:00 CICSPA
-  COMMWSUM  SUMMARY  Transaction Comms Wait Analysis  2005/03/25 00:00 CICSPA
-  CPUSEXTR  SUMMARY  CPU Analysis and Extract        2005/03/25 00:00 CICSPA
-  CPUSUM    SUMMARY  Transaction CPU Analysis        2005/03/25 00:00 CICSPA
-  CPUSUM1   SUMMARY  Transaction CPU Analysis (1)    2005/03/25 00:00 CICSPA
-  CPU3SEXT  SUMMARY  CPU Analysis and Extract (V3)   2005/03/25 00:00 CICSPA
-  CPU8SUM   SUMMARY  Transaction CPU Analysis (Key 8) 2005/03/25 00:00 CICSPA
-  CPU9SUM   SUMMARY  Transaction CPU Analysis (Key 9) 2005/03/25 00:00 CICSPA
-  DHSUM     SUMMARY  CICS Document Handler Analysis  2005/03/25 00:00 CICSPA
-  DISPSUM   SUMMARY  Transaction Dispatch/CPU Usage  2005/03/25 00:00 CICSPA
-  EJBSUM1   SUMMARY  Enterprise Java Bean Analysis(1) 2005/03/25 00:00 CICSPA
-  EJBSUM2   SUMMARY  Enterprise Java Bean Analysis(2) 2005/03/25 00:00 CICSPA
-  ENQSUM    SUMMARY  CICS ENQueue/Lock Delay Analysis 2005/03/25 00:00 CICSPA
-  EXWTSUM   SUMMARY  Exception Wait Analysis        2005/03/25 00:00 CICSPA
-  FCSUM     SUMMARY  File Request Activity          2005/03/25 00:00 CICSPA
-  FCWTSUM   SUMMARY  File Wait Analysis            2005/03/25 00:00 CICSPA
-  FDSPSUM   SUMMARY  First Dispatch Delay Analysis   2005/03/25 00:00 CICSPA
-  FEPISUM   SUMMARY  FEPI Request Activity          2005/03/25 00:00 CICSPA
-  ICSUM     SUMMARY  Interval Control Activity      2005/03/25 00:00 CICSPA

```

- ▶ On an earlier slide, we saw the LIST and LISTX sample Report Forms.
- ▶
- ▶ Here we see the SUMMARY sample Report Forms provided with CICS PA.
- ▶
- ▶ You can use them as-is or tailor them to meet your reporting and extract requirements.

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 ...

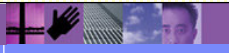
```

File Edit Confirm Upgrade Options Help
EDIT SUMMARY Report Form - SUMBYATD Row 1 of 15 More: >
Command ==> _____ Scroll ==> PAGE

Description . . . Summary by Application Tran ID Version (VRM): 640

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

Field Sort
/ Name + K O Type Fn Description
--- STOP K A TIMES Task stop time
--- APPLTRAN K A Application naming Tran ID
--- TRAN K 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 first 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.



- ▶ This is a notes page for the audience.



Performance Summary Report - Application Naming ...

M0 CICS Performance Analyzer
Performance Summary


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

Tran	Tran	#Tasks	Avg Response Time	Max Response Time	Avg Dispatch Time	Avg User Time	Avg CPU Suspend Time	Avg Suspend Count	Avg DispWait Time	Avg IR Wait Time	Max IR Wait Time
:00	MENU	1	.0246	.0246	.0243	.0035	.0003	3	.0003	.0000	.0000
:00	MENU	1	.0246	.0246	.0243	.0035	.0003	3	.0003	.0000	.0000
:00	MENU	1	.0246	.0246	.0243	.0035	.0003	3	.0003	.0000	.0000
:00	MENU	4	.0007	.0007	.0007	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	6	.0007	.0008	.0007	.0005	.0000	1	.0000	.0000	.0000
:00	MENU	12	.0008	.0010	.0008	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	1	.0007	.0007	.0007	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	23	.0008	.0010	.0007	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	23	.0008	.0010	.0007	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	1	.0008	.0008	.0008	.0005	.0000	1	.0000	.0000	.0000
:00	MENU	11	.0007	.0009	.0007	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	5	.0009	.0013	.0009	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	2	.0007	.0007	.0006	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	6	.0007	.0008	.0007	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	25	.0008	.0013	.0007	.0006	.0000	1	.0000	.0000	.0000
:00	MENU	25	.0008	.0013	.0007	.0006	.0000	1	.0000	.0000	.0000

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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 for OS/390 Version 1.3 or later



Transaction
Wait Time



Performance Wait Analysis Report ...

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

System Selection:
APPLID . . . _____ +
Image . . . _____ +
Group . . . _____ +

Report Output:
DDname . . . . . WAIT0001
Print Lines per Page . . . ____ (1-255)

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

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

Report Format:
Title . . . _____

Selection Criteria:
_ Performance
```

Showing Defaults



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



- ▶ This is a notes page for the audience.



Performance Wait Analysis Report

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

RMI

Primary 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
CU 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
Source Manager Interface (RMI) elapsed time	4302.4135	1.0859	191768	48.4	11.0% of Response
Source Manager Interface (RMI) suspend time	2641.0973	0.6666	19211	4.8	7.7% of Suspend

Suspend Detail

	Total	Average	Suspend Time		Count
			%age	Graph	
A Other Wait Time	21836.2138	5.5114	63.6%	*****	332847
AXOTDLY MAXOPENTCBS wait time	4094.5942	1.0335	11.9%	**	639
J62WTT LU6.2 wait time	3035.7758	0.7662	8.8%	*	5238
SPDELAY First dispatch wait time	2398.0299	0.6053	7.0%	*	3962
KTDELAY > First dispatch MXT wait time	374.7682	0.0946	1.1%		87
QDELAY Lock Manager (LM) wait time	2206.6980	0.5570	6.4%	*	2621
TUPWAIT Give up control wait time	437.0868	0.1103	1.3%		277
TIOWTT Journal I/O wait time	305.0656	0.0770	0.9%		1888

CBPB

Primary Data	Time		Count		Ratio
	Total	Average	Total	Average	
Tasks			13		

- ▶ This visual shows an example of the format of the Performance Wait Analysis Report.

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.



- ▶ This is a notes page for the audience.



Performance Wait Analysis Recap Report

```

0000 CICS Performance Analyzer
0001 Wait Analysis Recap Report
0002
0003 Printed at 13:13:01 7/23/2003 Data from 19:26:39 7/14/2003 to 19:38:16 7/14/2003 Page
0004
0005 ----- Time -----
0006 Total Average Ratio
0007
0008 ks 4560
0009 onse Time 57143.6000 12.5315
0010 tch Time 6606.9175 1.4489 11.6% of Respons
0011 ime 311.0086 0.0682 4.7% of Dispatc
0012 nd Wait Time 50536.5764 11.0826 88.4% of Respons
0013 tch Wait Time 40688.4491 8.9229 80.5% of Suspend
0014 rce Manager Interface (RMI) elapsed time 7492.8370 1.6432 13.1% of Respons
0015 rce Manager Interface (RMI) suspend time 5080.1235 1.1141 10.1% of Suspend
0016
0017 ----- Suspend Time ----- Field Availabilit
0018 Total Average Perc Graph Present Missin
0019
0020 Other Wait Time 35739.2181 7.8375 70.7% |*****
0021 LAY First dispatch wait time 4240.4008 0.9299 8.4% |* 4560
0022 LAY First dispatch TCLSNAME wait time 980.1794 0.2150 1.9% | 4560
0023 LAY First dispatch MKT wait time 651.7618 0.1429 1.3% | 4560
0024 DLY MAXOPENTCBS wait time 4178.8802 0.9164 8.3% |* 4560
0025 PPT LU6.2 wait time 3035.7758 0.6657 6.0% |* 4560
0026 AY Lock Manager (LM) wait time 2213.3215 0.4854 4.4% | 4560
0027 PPT Journal I/O wait time 441.5376 0.0968 0.9% | 4560
0028 AIT Give up control wait time 437.0868 0.0959 0.9% | 4560
0029
0030 NWT DB2 Connection wait time 0.0000 N/C 0.0% | 4560
0031 YOW DB2 Thread wait time 0.0000 N/C 0.0% | 4560
0032 LIT IMS (DBCTL) wait time 0.0000 N/C 0.0% | 4560
0033
0034 1* (All Suspend Wait events) 50536.5764 11.0826 100.0% |*****
    
```

- ▶ This visual shows an example of the format of the Performance Wait Analysis Recap Report.

Performance Totals Report

- Totals each field in the CMF performance class records
- Report has four main sections ...
 - ▶ CICS System Statistics about the CICS system, including ...
 - CPU and Dispatch times, Performance Record and Task counts
 - ▶ CPU and Dispatch Statistics
 - Breakdown of CPU, Dispatch, and Suspend counts and elapsed time
 - ▶ Resource Utilization Statistics
 - Each field in the performance record is summarized
 - ▶ User Field Statistics
 - Statistics for the User Fields defined in the CMF performance class records
- Hints and Tips ...
 - ▶ Consider using Performance Summary Reports ...
 - Sort Criteria, Report Forms, ...
 - Reporting Options ...
 - Time Interval, Totals level options - sub-totals, grand totals, ...



		CICS Performance Analyzer			
		Performance Total			
		CICS System			
001 Printed at 7:56:19 3/22/2005		Data from 06:29:28		6/23/2004 to 12:40:21 6/23/2004	
		Page			
		Dispatched Time		CPU Time	
		DD HH:MM:SS	Secs	DD HH:MM:SS	Secs
Elapsed Run Time		06:10:52	22252		
Selected Performance Records					
spatch/CPU Time		00:00:16	16	00:00:12	12
spatch/CPU Time		00:00:20	20	00:00:02	2
L (QR + MS)		00:00:36	36	00:00:13	13
U Time				00:00:00	0
U Time				00:00:00	0
U Time				00:00:00	0
U Time				00:00:00	0
L (L8 + J8 + S8 + X8)		00:00:00	0	00:00:00	0
U Time				00:00:00	0
U Time				00:00:00	0
U Time				00:00:00	0
L (L9 + J9 + X9)		00:00:00	0	00:00:00	0
L CICS TCB Time		00:00:36	36	00:00:13	13

- ▶ This visual shows an example of part 1 of the Performance Totals Report showing the overall CICS System Usage.

Performance Totals Report - CICS System ...

CICS Performance Analyzer		Performance Totals	
Dispatched Time		CPU Time	
DD HH:MM:SS	Secs	DD HH:MM:SS	Secs
001 Printed at 7:56:19 3/22/2005 Data from 06:29:28 6/23/2004 to 12:40:21 6/23/2004 Page			
Elapsed Run Time	06:10:52	22252	
Performance Records (Type C)	0		
Performance Records (Type D)	22		
Performance Records (Type F)	79		
Performance Records (Type S)	1		
Performance Records (Type T)	4892		
Performance Records (Selected)	4994	Total Performance Records	4994

- ▶ This visual shows an example of part 1 of the Performance Totals Report showing the overall CICS System Usage.

Performance Totals Report - CICS System - Notes

The Performance Totals Report (the first of 4 parts is shown on the previous two slides) 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.



- ▶ This is a notes page for the audience.

Performance Totals Report - CPU and Dispatch

M0 CICS Performance Analyzer
Performance Totals

001 Printed at 7:56:19 3/22/2005 Data from 06:29:28 6/23/2004 to 12:40:21 6/23/2004 Page

Selected Performance Records	C O U N T S			T I M E		
	Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task
atch Time	33324	6.7	2483	36	.007	7.012
ime				15	.003	2.456
PU (SRB) Time				0	.000	.000
nd Time	35522	7.1	2483	30758	6.159	1887.443
atch Wait Time	25109	5.0	1397	20	.004	12.500
atch Wait Time (QR Mode)	24655	4.9	1333	13	.003	12.382
nse (-TCWait for Type C)				0	.000	.000
nse (All Selected Tasks)				100523	20.129	1887.546
spatch Time	27346	5.5	1334	16	.003	2.959
spatch Time	453	.1	64	20	.004	4.426

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- ▶ This visual shows an example of part 2 of the Performance Totals Report showing the CPU and Dispatch statistics.

Performance Totals Report - CPU and Dispatch ...

MM0 CICS Performance Analyzer
Performance Totals

001 Printed at 7:56:19 3/22/2005 Data from 06:29:28 6/23/2004 to 12:40:21 6/23/2004 Page

Selected Performance Records	C O U N T S			T I M E		
	Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task
Dispatch Time	223	.0	37	11	.002	3.809
U Time				12	.002	2.148
U Time				2	.000	.308
U TIME				1	.000	.277
U Time				0	.000	.000
U Time				0	.000	.000
U Time				0	.000	.000
U Time				0	.000	.000
U Time				0	.000	.121
U Time				0	.000	.000
U Time				0	.000	.000

- ▶ This visual shows an example of part 2 of the Performance Totals Report showing the CPU and Dispatch statistics.

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 or J9 - A task has J8 or J9 mode TCBs for its sole use if it needs to run a JVM.
- L8 or L9 - 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. In CICS Transaction Server for z/OS Version 3.1 L8 and L9 Mode TCBs are also used by OPENAPI applications.
- 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).
- X8 or X9 - A task has X8 or X9 mode TCBs for its sole use if it needs to run an XPLink program.

► This is a notes page for the audience.



Performance Totals Report - Resource Utilization

0001 Printed at 12:33:59 1/21/2002 Data from 11:10:29 2/04/1999 to 11:33:51 2/04/1999 Page

Selected Performance Records	C O U N T S			T I M E		
	Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task
IT File I/O wait time	293	.5	214	1	.002	.952
AIT RLS File I/O wait time	1	.0	1	0	.000	.068
IT VSAM TS I/O wait time	0	.0	0	0	.000	.000
WAIT Asynchronous Shared TS wait time	0	.0	0	0	.000	.000
IT Journal I/O wait time	12	.0	1	0	.000	.025
IT VSAM transient data I/O wait time	0	.0	0	0	.000	.000
IT MRO link wait time	429	.7	7	9	.013	3.734
WAIT CF Data Table access requests wait time	0	.0	0	0	.000	.000
SYNC CF Data Table syncpoint wait time	0	.0	0	0	.000	.000
...						
GIN1 Messages received count	537	.8	2			
GIN1 Terminal characters received count	6996	10.9	225			
GOUL Messages sent count	541	.8	2			
GOUL Terminal characters sent count	358311	556.4	1865			
...						
ZIN2 LU6.2 messages received count	0	.0	0			
ZIN2 LU6.2 characters received count	0	.0	0			
ZOU2 LU6.2 messages sent count	0	.0	0			
ZOU2 LU6.2 characters sent count	0	.0	0			
...						
File ADD requests	0	.0	0			
File BROWSE requests	6556	10.2	1767			
File DELETE requests	0	.0	0			
File GET requests	177	.3	137			
File PUT requests	0	.0	0			

- ▶ This visual shows an example of part 3 of the Performance Totals Report showing the Resource Utilization statistics.

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.



- This is a notes page for the audience.

Performance Totals Report - User Fields

MO CICS Performance Analyzer
Performance Totals

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

Selected User Records	C O U N T S			T I M E		
	Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task
TEST S001	54	.1	1	20	.032	1.329
TEST S002	54	.1	1	0	.000	.002
TAL ECPRMI A001	0	0	0			
HER ECPRMI A002	0	0	0			
2 ECPRMI A003	0	0	0			
CTL ECPRMI A004	0	0	0			
DLI ECPRMI A005	0	0	0			
M ECPRMI A006	0	0	0			
PIP ECPRMI A007	0	0	0			
TAL IC A001	0	0	0			
ME IC A002	0	0	0			
L IC A003	0	0	0			
IC A004	0	0	0			
VAL IC A005	0	0	0			
IC A006	0	0	0			
EVE IC A007	0	0	0			
IC A008	0	0	0			

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- ▶ This visual shows an example of part 4 of the Performance Totals Report showing the User Field (from any User-defined EMPs in the Monitoring Control Table) statistics.

Performance Totals Report - User Fields - Notes

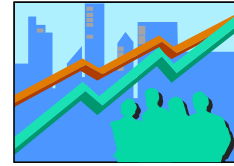
Part 4 of the Performance Totals Report shows the User Field statistics.

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



- ▶ This is a notes page for the audience.

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
- Selection Criteria ...
 - ▶ Record and/or Unit-of-Work

- ▶ The Cross-System Work report provides a report showing the CMF records from a single or multiple CICS system(s) consolidated by the network unit-of-work id.
- ▶
- ▶
- ▶ When generating the Cross-System report you can also create the Cross-System Work Extract

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



- ▶ This is a notes page for the audience.

Cross-System Work Report - Default ...

CICS Performance Analyzer Cross-System Work														
MO											Page			
001 Printed at 12:09:28 1/24/2002 Data from 11:10:51 2/04/1999 to 08:10:28 2/16/1999														
Userid	SC	TranType	Term	LUName	Request Type	Program	Fcty T/Name	Conn Name	NETName	UOW Seq	APPLID	R Task T	Stop Time	Response Time
BRENNER	TP	U	S23D	IGCS23D	AP:	DFHGABRW	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	61	T 11:13:20.275	0080
CBAKER	TO	UM	R11	IYK2Z1V1	FS:F---	DFHMIRS	T/R11	CJB1	GBIBMIYA	IGCS23D	1	IYK2Z1V3	57	T 11:13:20.274 004
BRENNER	TP	U	S23D	IGCS23D	AP:	DFHGABRW	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	62	T 11:13:21.332	0064
CBAKER	TO	UM	R11	IYK2Z1V1	FS:F---	DFHMIRS	T/R11	CJB1	GBIBMIYA	IGCS23D	1	IYK2Z1V3	58	T 11:13:21.331 0035
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D	GBIBMIYA	IGCS23D	3	IYK2Z1V1	72	T 11:16:28.284	1.1025
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	72	C 11:16:27.181	3.0044
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	72	C 11:16:24.177	2.2127
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	72	C 11:16:21.964	46.5125
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	72	C 11:15:35.451	6794
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	140	T 11:21:24.062	51.3442
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	140	C 11:20:32.718	8.3481
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	140	C 11:20:24.370	0042
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	174	T 11:21:28.662	1.1930
BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	174	C 11:21:27.469	0041
BRENNER	TO	U	S23D	IGCS23D	TR:CJB3		T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	178	T 11:22:38.447	48.9210
CBAKER	TO	U	R11	IYK2Z1V1	AP:	DFH0STAT	S/S23D	CJB1	GBIBMIYA	IGCS23D	1	IYK2Z1V3	349	T 11:22:38.433 66.7720
BRENNER	TO	U	S23D	IGCS23D	TR:CJB3		T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	178	C 11:21:49.526	10.0524
BRENNER	TO	U	S23D	IGCS23D	TR:CJB3		T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	178	C 11:21:39.473	7.8027
BRENNER	TO	U	S23D	IGCS23D	TR:CJB3		T/S23D	GBIBMIYA	IGCS23D	1	IYK2Z1V1	178	C 11:21:31.671	0110

- ▶ This visual shows an example of the Cross-System Work Report. It includes correlation examples of transaction routing and function shipping...

Tailoring the Cross-System Work Report

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

System Selection:
APPLID . . _____ +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . CROS0001
Print Lines per Page . . ____ (1-255)

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 (Record pre-processing)
_ Performance (Unit-of-work post-processing)
```

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.

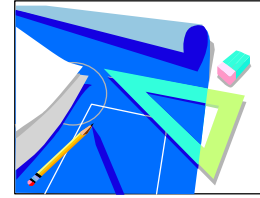
You can specify Selection Criteria to filter the CMF records on time period and field values to restrict reporting to the data that is of interest to you. For the Cross-System Work report, there are two levels of filtering available:-

1. Record pre-processing. CICS PA translates Selection Criteria to the SELECT(PERFORMANCE operand. If you specify a Report Form that also has Selection Criteria specified, then a record must pass selection by both specifications to be included in the report.
2. Unit-of-work post-processing. This provides filtering across tasks in multi-task UOWs. If one task in a UOW matches the Selection Criteria, then the entire UOW is selected.



► This is a notes page for the audience.

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, ...
- Use with RMF Workload Activity Reports



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.



- ▶ This is a notes page for the audience.

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

M0 CICS Performance Analyzer
Workload Manager Activity List

001 Printed at 7:33:50 12/10/2002 Data from 14:18:57 11/05/2002 to 15:04:59 11/05/2002 Page 19

Request	Fcty	Conn	Service	Report	R	Response
Request Type	Program	T/Name	Name	Class	Task	T P C Stop Time
CICSUSER TP U P199 SCSTP199 TR:PAA4	T/P199		CICSDFLT WASC	SCSCPTA2	15918	T BTE 14:59:33.90 .003
CICSUSER TP U T21 SCSCPTA2 AP: DSWTS1VV	S/P199 PTA2		CICSDFLT WASC	SCSCPAA4	24448	T EXE Y 14:59:33.90 .002
CICSUSER TO U P199 SCSTP199 TR:PAA4	T/P199		CICSDFLT WASC	SCSCPTA2	15918	T BTE 14:59:35.91 .013
CICSUSER TO U T21 SCSCPTA2 AP: DSWFORVV	S/P199 PTA2		CICSDFLT WASC	SCSCPAA4	24472	T EXE Y 14:59:35.90 .002
CICSUSER TP U P199 SCSTP199 TR:PAA4	T/P199		CICSDFLT WASC	SCSCPTA2	15931	T BTE 14:59:36.32 .013
CICSUSER TP U T21 SCSCPTA2 AP: DSWFS3VV	S/P199 PTA2		CICSDFLT WASC	SCSCPAA4	24478	T EXE Y 14:59:36.31 .008
CICSUSER TO U P199 SCSTP199 TR:PAA4	T/P199		CICSDFLT WASC	SCSCPTA2	15944	T BTE 14:59:37.92 .003
CICSUSER TO U T21 SCSCPTA2 AP: DSWFORVV	S/P199 PTA2		CICSDFLT WASC	SCSCPAA4	24504	T EXE Y 14:59:37.92 .001
CICSUSER TP U P199 SCSTP199 TR:PAA4	T/P199		CICSDFLT WASC	SCSCPTA2	15946	T BTE 14:59:38.33 .006
CICSUSER TP U T21 SCSCPTA2 AP: DSWTX1VV	S/P199 PTA2		CICSDFLT WASC	SCSCPAA4	24509	T EXE Y 14:59:38.33 .001
CICSUSER TO U P199 SCSTP199 TR:PAA4	T/P199		CICSDFLT WASC	SCSCPTA2	15956	T BTE 14:59:40.34 .002
CICSUSER TO U T21 SCSCPTA2 AP: DSWFORVV	S/P199 PTA2		CICSDFLT WASC	SCSCPAA4	24534	T EXE Y 14:59:40.34 .001
CICSUSER TP U P199 SCSTP199 TR:PAA4	T/P199		CICSDFLT WASC	SCSCPTA2	15957	T BTE 14:59:40.85 .110
CICSUSER TP U T21 SCSCPTA2 AP: DSWIX8VV	S/P199 PTA2		CICSDFLT WASC	SCSCPAA4	24537	T EXE Y 14:59:40.85 .109
CICSUSER TO U P199 SCSTP199 TR:PAA4	T/P199		CICSDFLT WASC	SCSCPTA2	15963	T BTE 14:59:42.87 .011
CICSUSER TO U T21 SCSCPTA2 AP: DSWFORVV	S/P199 PTA2		CICSDFLT WASC	SCSCPAA4	24553	T EXE Y 14:59:42.87 .003

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- ▶ This visual shows an example of the format of the Workload Manager (WLM) Detail Report.

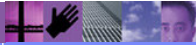
MVS Workload Activity Reports - Summary

BM0 CICS Performance Analyzer
Workload Manager Activity Summary by Service Class

0001 Printed at 16:43:42 6/18/2003 Data from 14:18:57 11/05/2002 to 15:04:59 11/05/2002 Page 19

Service Class	APPLID	Phase	#Tasks	Response Time			
				Average	Std Dev	90% Peak	Maximum
DFLT	SCSCFAA1	BTE	51	.0377	.1073	.1753	.5600
	SCSCFAA1	EXE	1533	.0316	.0781	.1316	1.1133
	SCSCFAA4	BTE	17	111.043	457.767	697.900	1887.44
	SCSCFAA4	EXE	8239	.0204	.0569	.0934	1.2754
	SCSCFJA7	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
	Total	BTE	27142	.3005	19.8410	25.7367	1887.44
Total	EXE	10582	.0207	.0587	.0960	1.2754	
WORK	SCSCFJA7	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

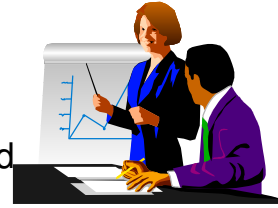
- by MVS WLM Service Class and Report Class
 - ▶ Applid, WLM Completion phase, Number of tasks, ...
 - ▶ Response time ...
 - Average, Std Deviation, Peak percentile, Maximum, ...



- ▶ This visual shows an example of the format of the Workload Manager (WLM) Summary Report.

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)
 - External Call Interface (ECI) over TCP/IP
 - 3270 Bridge - "two task model"
 - Internet Inter-ORB Protocol (IIOP) - CICS TS 1.3



Transaction Group Report ...

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

System Selection:
APPLID . . . . . +
Image . . . . . +
Group . . . . . +

Report Output:
DDname . . . . . TRGP0001
Print Lines per Page . . . . . (1-255)

Processing Options:
 1 1. Groups of more than one record
 2 2. Groups of a single record
 3 3. All Groups

Report Format:
Title . . . . .

Selection Criteria:
_ Performance
```

Showing Defaults





Transaction Group Report ...

M0 CICS Performance Analyzer
Transaction Group

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

Userid	SC	Origin	Brdg	Client	Request	Fcty	Conn	R	Respons	
			Tran	IP Address	Type	Program	Term LUName	Task T	Stop Time	Time
CBAKER	U	SOCKET		9.20.45.17	AP: DFHWBXN			IYK2Z1V3 617 T 11:30:11.47	.254	
CBAKER	U	WEB		9.20.45.17	AP: DFHWBTTA			IYK2Z1V3 618 T 11:30:11.51	.038	
CBAKER	U	SOCKET		9.20.45.17	AP: DFHWBXN			IYK2Z1V3 619 T 11:30:21.65	.353	
CBAKER	U	WEB		9.20.45.17	AP: DFHWBTTA			IYK2Z1V3 620 T 11:30:21.67	.028	
CBAKER	U	SOCKET		9.20.45.17	AP: DFHWBXN			IYK2Z1V3 621 T 11:30:28.02	.309	
CBAKER	U	WEB		9.20.45.17	AP: DFHWBTTA			IYK2Z1V3 622 T 11:30:29.44	1.426	
CBAKER	U	SOCKET		9.20.45.17	AP: DFHWBXN			IYK2Z1V3 623 T 11:30:33.46	.282	
CBAKER	U	WEB		9.20.45.17	AP: DFHWBTTA			IYK2Z1V3 624 T 11:30:34.63	1.173	
CBAKER	U	SOCKET		9.20.45.17	AP: DFHWBXN			IYK2Z1V3 625 T 11:30:42.85	.002	
CBAKER	U	WEB		9.20.45.17	AP: DFHWBTTA			IYK2Z1V3 626 T 11:30:43.18	.322	
CBAKER	TO	BRIDGE	CWBA		AP: DFHEDAP	{AAJ }AAJ	B/}AAJ	IYK2Z1V3 627 T 11:31:26.83	43.977	
CBAKER	U	SOCKET		9.20.45.17	AP: DFHWBXN			IYK2Z1V3 674 T 11:31:01.84	.271	
CBAKER	U	WEB		9.20.45.17	AP: DFHWBTTA			IYK2Z1V3 675 T 11:31:01.92	.076	
CBAKER	U	SOCKET		9.20.45.17	AP: DFHWBXN			IYK2Z1V3 676 T 11:31:15.03	.299	
CBAKER	U	WEB		9.20.45.17	AP: DFHWBTTA			IYK2Z1V3 677 T 11:31:15.06	.037	
CBAKER	U	SOCKET		9.20.45.17	AP: DFHWBXN			IYK2Z1V3 678 T 11:31:17.75	.256	
CBAKER	U	WEB		9.20.45.17	AP: DFHWBTTA			IYK2Z1V3 679 T 11:31:17.93	.178	

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- ▶ This visual shows an example of the Transaction Group Detail Report.

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



- This is a notes page for the audience.

Transaction Group Report - Summary

2M0 CICS Performance Analyzer
Transaction Group - Summary

0001 Printed at 11:46:14 1/24/2002 Data from 11:10:29 2/04/1999 to 08:10:06 2/16/1999 Page

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
GE	17	10.140	.000	.000	.010	.000	.000	.000	.000	.000
SESS	163	.634	.000	.000	.001	.000	.001	.000	.000	.000
	69	362.022	.301	.000	.061	.000	.000	.000	.000	.000
DULE	62	.280	.000	.000	.000	.000	.000	.000	.000	.000
ET	50	44.630	.000	.000	.045	.000	.000	.000	.000	.045
T	28	.261	.000	.000	.000	.000	.000	.000	.000	.000
EUE	23	.012	.000	.000	.000	.000	.000	.000	.000	.000
START	17	.011	.000	.000	.000	.000	.000	.000	.000	.000
INAL	1818	2.468	.000	.000	.002	.000	.000	.000	.000	.000
	60	.154	.000	.000	.000	.000	.000	.000	.000	.000
UN	16	.424	.000	.000	.000	.000	.000	.000	.000	.000
TOTAL	2323	13.781	.009	.000	.005	.000	.000	.000	.000	.001

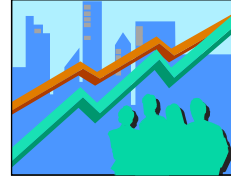
- Transaction Group Summary

- Report Forms - Performance Summary Report by ORIGIN
 - Sample Summary Report Form - TRORGSUM



- ▶ This visual shows an example of the Transaction Group Summary Report.
- ▶ An alternative, customizable, 'Transaction Group - Summary' report can be produced using a Performance Summary Report summarizing the performance data by Origin Type. A sample report form is supplied with CICS PA called TRORGSUM.

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 for OS/390 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 ...

M0 CICS Performance Analyzer
CICS Business Transaction Services (BTS)

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

SC	TranType	Process Name	Process Type	Activity Name	Pro/Act Reqs	Cont'er Reqs	Event Reqs	R Task T	Stop Time	Respor Time
TP	U				2	2	0	239 T	11:19:18.33	.18
TP	U				2	0	0	294 T	11:19:42.20	.11
TP	U				2	0	0	305 T	11:19:57.64	.07
U	U	R SALES111111	ORDER	CREDIT-CHECK	0	2	1	176 T	11:17:32.05	.51
U	U	R SALES111111	ORDER	STOCK-CHECK	0	2	1	177 T	11:17:32.05	.51
U	U	R SALES111111	ORDER	DFHROOT	10	5	4	175 T	11:17:32.05	.56
U	U	SALES111111	ORDER	INVOICE-BUILD	0	1	1	178 T	11:17:32.09	.03
U	U	SALES111111	ORDER	DELIV-NOTE	0	1	1	179 T	11:17:33.29	1.21
U	U	SALES111111	ORDER	DFHROOT	0	0	0	180 T	11:17:33.31	1.21
U	U	SALES111111	ORDER	DFHROOT	1	3	2	183 T	11:17:33.37	.04
U	U	SALES111111	ORDER	DFHROOT	1	3	5	184 T	11:17:33.42	.03
U	U	SALES111111	ORDER	DFHROOT	2	2	1	186 T	11:17:38.65	.03
U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	187 T	11:17:38.68	.03
U	U	SALES111111	ORDER	DFHROOT	1	0	3	188 T	11:17:38.72	.03
U	U	SALES111111	ORDER	DFHROOT	2	2	1	191 T	11:17:43.92	.03
U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	192 T	11:17:43.96	.03
U	U	SALES111111	ORDER	DFHROOT	1	0	3	193 T	11:17:44.04	.04
U	U	SALES111111	ORDER	DFHROOT	2	2	1	194 T	11:17:49.13	.04
U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	195 T	11:17:49.16	.03
U	U	SALES111111	ORDER	DFHROOT	1	0	3	196 T	11:17:49.20	.04
U	U	R SALES111111	ORDER	DFHROOT	0	1	3	198 T	11:17:52.42	.04
U	U	SALES111111	ORDER	DFHROOT	0	0	0	199 T	11:17:53.03	.61

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- ▶ This visual shows an example of the CICS Business Transaction Services (BTS) Report.

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.



- ▶ This is a notes page for the audience.

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:
APPLID . . . _____ +
Image . . . _____ +
Group . . . _____ +

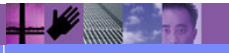
Report Output:
DDname . . . . . GRTE0001
Print Lines per Page . . ____ (1-255)

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

M0 CICS Performance Analyzer
Transaction Rate

001 Printed at 9:16:07 1/22/2002 Data from 11:10:29 2/04/1999 to 11:34:00 2/04/1999 Page 4/1999

Value	Average Response Time in Secs								Value	Number of Transactions completed										
.SS	8	16	24	32	40	48	56	64	72	80	8	16	24	32	40	48	56	64	72	80
:30																				
:00	4.2	***									52	*****								
:00	2.8	**									70	*****								
:00	4.0	***									76	*****								
:00	3.6	**									37	*****								
:00	75.0	*****									35	*****								

M0 CICS Performance Analyzer
Response Time

001 Printed at 9:16:07 1/22/2002 Data from 11:10:29 2/04/1999 to 11:34:00 2/04/1999 Page 4/1999

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

- ▶ This visual shows examples of the format of the Transaction Rate and Response Time Graph Reports.

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.



- ▶ This is a notes page for the audience.

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



- ▶ The CICS PA Exception List and Summary reports provides a detailed analysis of the CMF Exception class data.

Exception List Report

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

System Selection:
APPLID . . . _____ +
Image . . . _____ +
Group . . . _____ +

Report Output:
DDname . . . . . XLST0001
Print Lines per Page . . ____ (1-255)

Report Format:
Title . . . _____

Selection Criteria:
_ Exception
```

Specify the report options



Exception List Report ...

2M0 CICS Performance Analyzer
Exception List

0001 Printed at 9:51:50 1/22/2002 Data from 08:08:15 2/16/1999 APPLID IYK2ZIV3 Page

Term	LOName	Userid	Tran SC Class	Service Class	Report Class	Taskno	Exp Seq	Time Start	Elapsed	Current Program	Resource Type	Resource ID	Excepci Type
P045	IG22P045	CBAKER	TP			834	1	08:08:15	10.189	DFHGABRW	FILE	FILEA	STRING
S205	IGCS205	BRENNER	TP			835	1	08:08:25	7.245	DFHGABRW	FILE	FILEA	STRING
S220	IGCS220	BRENNER	TP			837	1	08:08:30	2.996	DFHGABRW	FILE	FILEA	STRING
S220	IGCS220	BRENNER	TO			1151	1	08:11:48	.005	DFHECID	TEMPSTOR	CACA	BUFFER
S220	IGCS220	BRENNER	TO			1151	2	08:11:48	.002	DFHECID	TEMPSTOR	CACA	BUFFER
S220	IGCS220	BRENNER	TO			1151	3	08:11:48	.002	DFHECID	TEMPSTOR	CACA	BUFFER
P045	IG22P045	CBAKER	TO			1149	1	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	2	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	3	08:11:48	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	4	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	5	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	6	08:11:48	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	7	08:11:48	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	8	08:11:48	.003	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	9	08:11:48	.003	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	10	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	11	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	12	08:11:49	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	13	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	14	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	15	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	16	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
P045	IG22P045	CBAKER	TO			1149	17	08:11:49	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER

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- This visual shows an example of the Exception List Report.

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.



- ▶ This is a notes page for the audience.

Exception Summary Report ...

2M0 CICS Performance Analyzer
Exception Summary

0001 Printed at 9:57:34 1/22/2002 Data from 08:08:15 2/16/1999 to 08:12:14 2/16/1999 Page

Total	TS-Buffer-Wait	TS-String-Wait	Pool-Buffer-Wait	Pool-String-Wait	File-String-Wait	.Temp Storage.	.Main Storage
Excepts	Average	Count	Average	Count	Average	Count	Average
3					6.810	3	
16			.003	16			
257	.006	256	.003	1			
276	.006	256	.003	17	6.810	3	

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



- ▶ This visual shows an example of the Exception Summary Report.
 - ▶ It summarises, by transaction ID, the total number of exceptions, and the 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.



- ▶ This is a notes page for the audience.



IBM Software Group

CICS Performance Analyzer for z/OS

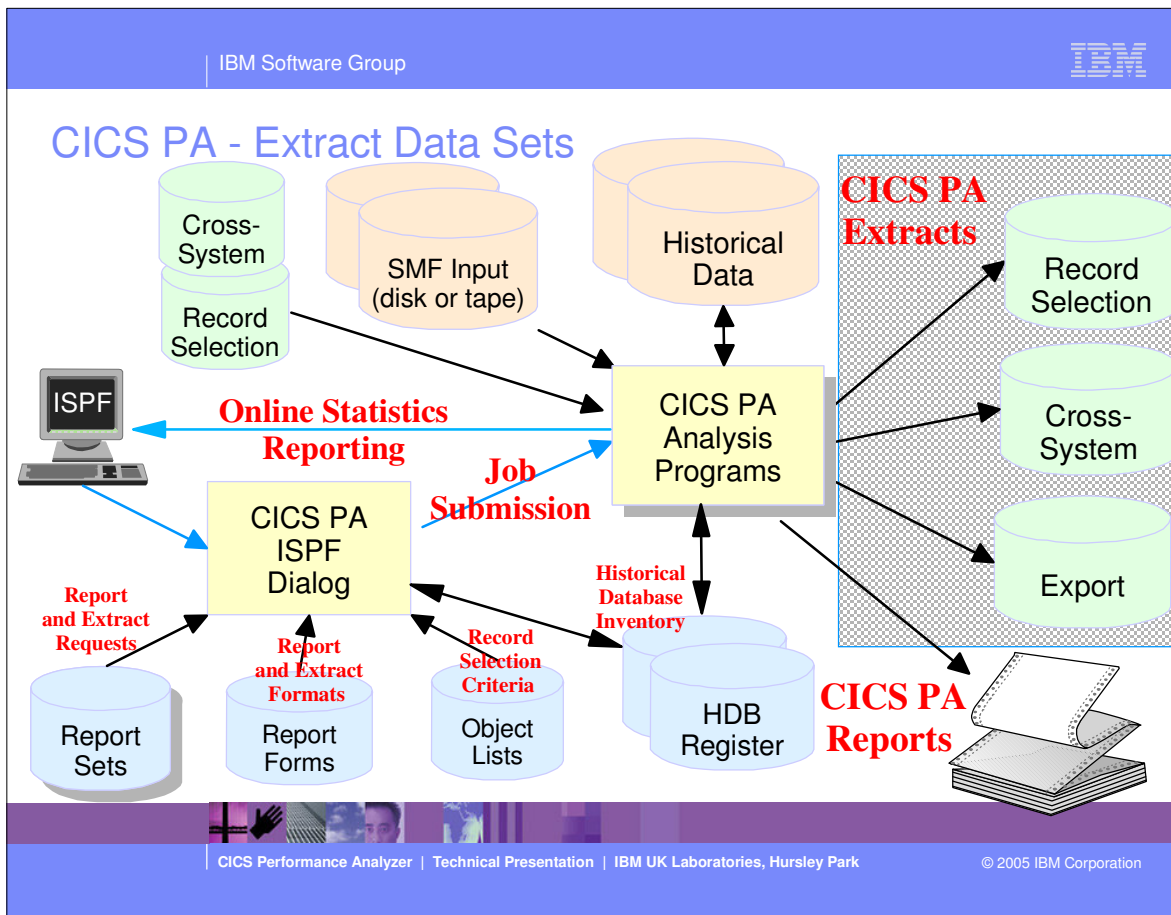
Extract Data Sets



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- ▶ In this section of the presentation we will cover the CICS PA Extract Data Sets.



- ▶ This foil shows the main components of CICS PA; including the TSO Interactive System Productivity Facility (ISPF) dialog, it's related data sets and the CICS PA batch analysis and reporting programs.

CICS PA Extract Data Sets

- **Performance Data Export**
 - ▶ Extract the CMF Performance 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
- **HDB Load**
 - ▶ HDB load requests can also be requested in a Report Set
 - Allows users to run reports and produce historical data in a single pass of the SMF file



Requesting Reports and Extracts

```

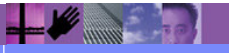
File  Systems  Confirm  Options  Help
EDIT                                     Report Set - TEST1                Row 1 of 12
Command ==> _____ Scroll ==> CSR

Description . . . CICS PA Report Set

Enter "/" to select action.

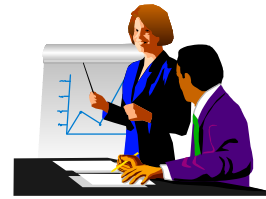
___  ** Reports **                               Active
+ ___ Options                                   No
+ ___ Selection Criteria                         No
+ ___ Performance Reports                       No
+ ___ Exception Reports                         No
+ ___ Transaction Resource Usage Reports        No
+ ___ Subsystem Reports                         No
+ ___ System Reports                           No
+ ___ Performance Graphs                       No
- ___ Extracts                                  No
   ___ Cross-System Work                        No
   ___ Export                                   No
   ___ Record Selection                         No
   ___ HDB Load                                 No
** End of Reports **
    
```

Select the extracts that you wish to run



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 75 clocks as defined by CICS Transaction Server for z/OS, Version 3.1

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 (;).



- This is a notes page for the audience.

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 . . . i                - 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.

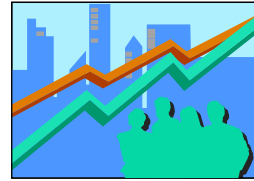
The next slide shows an example of the default record layout for the performance data extract.



- ▶ This is a notes page for the audience.

Performance Data Export - List

Optional
Labels
record



D	TRAN	TERM	USERID	TASKNO	STOP DATE	STOP TIME	RESPONSE	DISPATCH	CPU	SUSPEND	DISPWAIT	QRDISPT	QRCPU	MSDISP
LVI	CSSY		CBAKER	16	1999-02-04	11:10:29.803	.0139	.0007	.0006	.0133	.0000	.0007	.0006	.00
LVI	CSSY		CBAKER	17	1999-02-04	11:10:29.809	.0185	.0010	.0014	.0175	.0001	.0010	.0014	.00
LVI	CSSY		CBAKER	18	1999-02-04	11:10:29.861	.0674	.0196	.0027	.0479	.0269	.0047	.0019	.01
LVI	CGRP		CBAKER	12	1999-02-04	11:10:30.194	.4123	.0420	.0074	.3702	.3223	.0177	.0037	.02
LVI	CSSY		CBAKER	15	1999-02-04	11:10:30.207	.4204	.0568	.0100	.3636	.1744	.0177	.0064	.03
LVI	CSSY		CBAKER	13	1999-02-04	11:10:30.456	.6743	.0728	.0134	.6015	.4000	.0215	.0029	.05
LVI	CSSY		CBAKER	10	1999-02-04	11:10:30.531	.7498	.1910	.0228	.5588	.1997	.0673	.0089	.12
LVI	CSSY		CBAKER	14	1999-02-04	11:10:31.121	1.3344	.3202	.0378	1.0142	.2626	.1978	.0282	.12
LVI	CSSY		CBAKER	11	1999-02-04	11:10:31.211	1.4292	.1497	.0313	1.2794	.3461	.0595	.0216	.05
LVI	CPLT		CBAKER	7	1999-02-04	11:10:45.642	15.9915	.3383	.0369	15.6532	.0155	.0143	.0108	.32
LVI	CSSY		CBAKER	III	1999-02-04	11:10:45.856	16.0761	9.3488	2.3435	6.7273	1.1645	3.7054	1.9054	5.64
LVI	CWBG		CBAKER	24	1999-02-04	11:10:46.196	.0262	.0248	.0041	.0013	.0012	.0016	.0010	.02
LVI	CRSQ		CBAKER	25	1999-02-04	11:10:46.856	.0818	.0449	.0040	.0369	.0367	.0012	.0008	.04
LVI	CXRE		CBAKER	27	1999-02-04	11:10:47.134	.2255	.0243	.0049	.2011	.2009	.0037	.0016	.02
LVI	CLR2,R11		CBAKER	29	1999-02-04	11:10:48.317	.0263	.0030	.0020	.0232	.0000	.0030	.0020	.00
LVI	CSFU		CBAKER	26	1999-02-04	11:10:48.471	1.6968	1.5899	.1136	.1069	.0294	.2971	.0253	1.25
LVI	CSAC,SAMA		CBAKER	31	1999-02-04	11:10:51.227	.5217	.0028	.0011	.5189	.0002	.0028	.0011	.00
LVI	CLQ2		CBAKER	28	1999-02-04	11:10:51.840	3.8259	.0818	.0068	3.7441	.0035	.0034	.0025	.07
LVI	CEMT,SAMA		CBAKER	32	1999-02-04	11:10:51.942	.1877	.1842	.0264	.0035	.0030	.0041	.0028	.18
LVI	CEMT,SAMA		CBAKER	33	1999-02-04	11:10:52.549	.0091	.0068	.0026	.0023	.0001	.0068	.0026	.00
LVI	CEMT,SAMA		CBAKER	34	1999-02-04	11:10:53.074	.0092	.0068	.0025	.0024	.0000	.0068	.0025	.00

Performance Data Export - Summary

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

System Selection:
APPLID . . . _____ +
Image . . . _____ +
Group . . . MROGROUP +

Extract Recap:
DDname . . . EXPT0001

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

Extract Format:
Form . . . . . TRTODSUM +
Delimiter . . . ,

Enter "/" to select option
/ Include Field Labels
_ Numeric Fields in Float format

Selection Criteria:
_ Performance *

Summary Processing Options:
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 programs 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.



- This is a notes page for the audience.

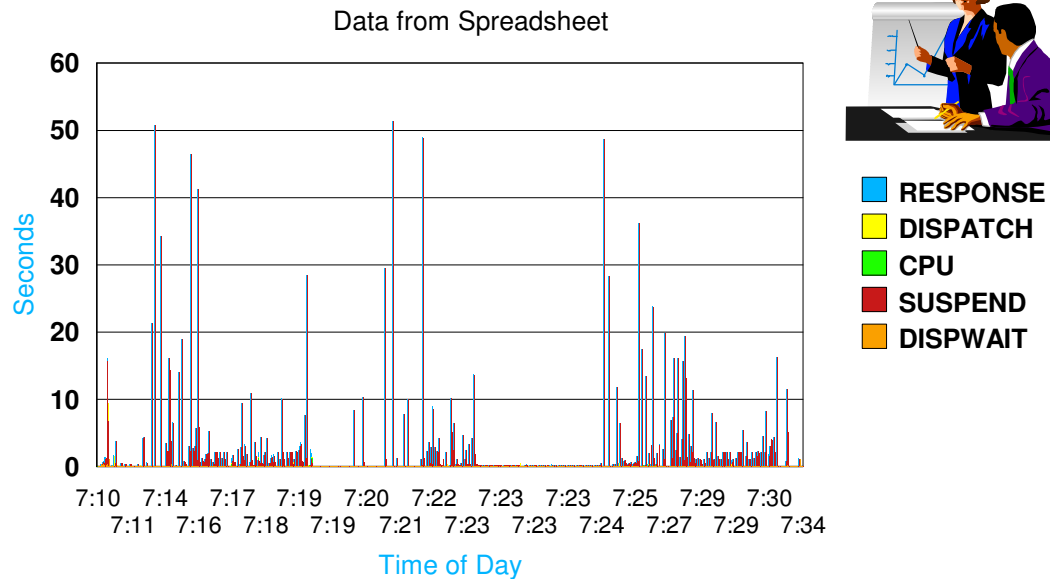
Performance Data Export - Recap

```
2M0                                CICS Performance Analyzer
                                Export
-----
0001 Printed at 14:01:50  1/17/2002   Data from 11:10:29  2/04/1999 to 08:10:06  2/16/1999   Page
EX01 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

- ▶ This visual shows an example of the Performance Data Export Recap Report.

Performance Data Export ...



- ▶ This was a simple example of charting the exported data. This sample of data indicates that there were some very long response times and most of the time was suspend time which turned out to be conversational tasks.

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.



- ▶ This is a notes page for the audience.

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.

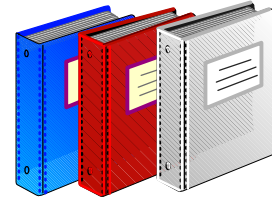
For more information on the DB2 data management tools ...

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



- This is a notes page for the audience.

Record Selection Extract



- **Creates a new SMF Data Set**
 - ▶ CICS SMF 110 CMF and Statistics Records
 - ▶ DB2 SMF 101 Accounting Records
 - ▶ WebSphere MQ SMF 116 Accounting Records
 - ▶ z/OS System Logger SMF 88 Records
- **SMF Data volume reduction**
 - ▶ Filter large SMF files, ...
- **Record selection ...**
 - ▶ CICS, DB2, MQ and Logger System Selection
 - ▶ Performance and Exception 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
-----
                    BASIC - Record Selection Extract
Command ==> _____

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

Required CICS record types:      Extract Recap:
_ Performance                    DDname . . . RSEL0001
_ Exception
_ Resource
_ Statistics

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

Selection Criteria:
_ Performance
_ Exception
    
```

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 CICS Monitoring (CMF) and CICS Statistics records (and optionally DB2 Accounting, WebSphere MQ Accounting, and/or z/OS System Logger 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.



- ▶ This is a notes page for the audience.

Record Selection Extract - Extract Recap

```

IM0                                CICS Performance Analyzer
                                Record Selection Extract
-----
0001 Printed at  9:23:48  1/21/2005   Data from 06:27:22  7/17/2003 to 08:05:08  7/17/2003   Page

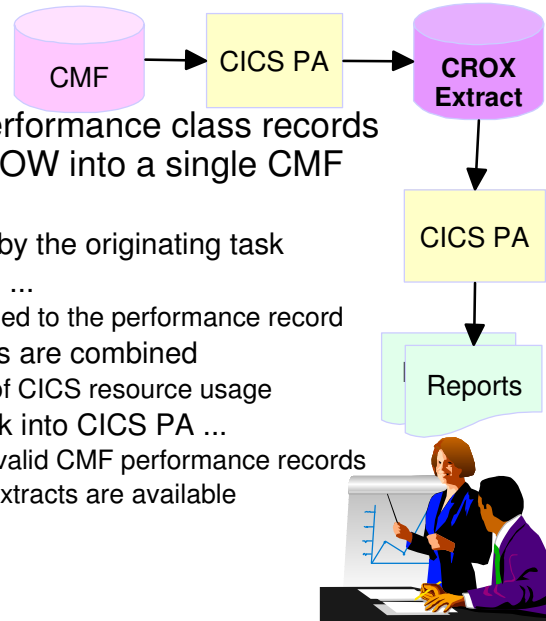
S01 Extract has completed successfully
Data Set Name      . . . . . CBAKER.SELECT.EXTRACT
Record Counts:
Performance Dictionary . . . . .      0
Performance Class   . . . . .    2,166
Exception Class     . . . . .      0
Resource Class      . . . . .      0
Statistics           . . . . .      0
DB2 Accounting      . . . . .     660
MQ Accounting        . . . . .      0
Logger              . . . . .      0
SMF Records         . . . . .     774
  
```

- For each Record Selection Extract ...
 - ▶ Data set name
 - ▶ Record counts ...
 - CMF - Dictionary, Performance, Exception, Resource
 - CICS Statistics
 - DB2 and WebSphere MQ Accounting
 - z/OS System Logger
 - SMF Records

- ▶ This visual shows an example of the Record Selection Extract Recap Report.

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.



- ▶ This is a notes page for the audience.

Cross-System Work Extract - Recap

```
2M0                                CICS Performance Analyzer
                                Cross-System Work
-----
0001 Printed at 7:12:12 1/17/2002 Data from 11:10:29 2/04/1999 to 11:33:51 2/04/1999 Page
XS01 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



- ▶ This visual shows an example of the Cross-System Work Extract Recap Report.

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) . . . 640
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 - '640'
 - ▶ Associate the 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.



- ▶ This is a notes page for the audience.

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.
System Type Image Description SMF Files
_ 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 *****

```

**'Special Fields'
added by
CICS PA**

Cross-System Work Extract - Report Set ...

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

System Selection:
APPLID . . . MULTIPLE +
Image . . . CICS +
Group . . . _____ +

Report Output:
DDname . . . . . LIST001
Print Lines per Page . . ____ (1-255)

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

Selection Criteria:
_ Performance
```

Specify the report options





Cross-System Work Extract - List Report ...

0001 Printed at 8:01:28 9/27/2002 Data from 11:11:28 2/04/1999 APPLID MULTIPLE Page

System Work Extract - Detail

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

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.



- ▶ This is a notes page for the audience.

HDB Load

- HDB Load ...
 - ▶ Creates the JCL that builds the HDBs
 - ▶ Optionally, export the HDB to a pre-defined DB2 Table
 - ▶ Recap Report from the HDB Load process
 - ▶ HDB Load Audit
 - Verify that load requests have completed, Highlight gaps in the data, ...
 - Audit information can be viewed from the HDB dialog
 - ▶ HDB load requests can also be requested in a Report Set
 - Allows users to run reports and produce historical data in a single pass of the SMF file
 - Multiple HDB load requests are supported



HDB Load ...

```

File Options Help
-----
File Systems Options Help
Load SUMMARY HDB - HDBDAILY
Command ==> _____

Specify HDB load options then press Enter to continue submit.

System Selection:
APPLID . . _____ +
Image . . MV2C +
Group . . _____ +

----- Report Interval -----
                YYYY/MM/DD HH:MM:SS.TH
                From _____
                To   _____

DB2 Export Options:
_ Load DB2 Table

Table Load Options
1 1. Resume  2. Replace

Include Clock Field Components
1 1. Time and Count
  2. Time only
  3. Count only

Summary Options
_ Include Sums of Squares

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



HDB Load - 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.

Following HDB load, the data can optionally be exported to a pre-defined DB2 table. (To define the DB2 table, use the Export option from the Historical Database menu.) To request DB2 export, select Load DB2 Table and specify Resume or Replace.

HDB load requests can also be requested in a Report Set which allows users to run their reports and also produce historical performance and statistics data in a single pass of the SMF File. Multiple HDB load requests are supported although they must use the same HDB Register.

An HDB Load audit trail is also provided in the HDB Register to prevent duplicate container data sets being generated and to highlight gaps in the collected data. This audit information can be viewed from the HDB dialog.



- This is a notes page for the audience.



IBM Software Group

CICS Performance Analyzer for z/OS Transaction Resource Usage Reports



CICS Tools | IBM UK Laboratories, Hursley Park

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- ▶ In this section of the presentation we will cover the CICS PA reports covering Transaction Resource Usage.

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.



- ▶ This is a notes page for the audience.

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).



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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:
APPLID . . _____ +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . RESU0001
Print Lines per Page . . ____ (1-255)

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.



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Transaction Resource Usage Reports - Usage List

CICS Performance Analyzer Transaction Resource Usage List														
001 Printed at 15:18:36 6/19/2003 Data from 14:49:42 6/19/2003													Page	
Userid	SC	TranType	Term	LUName	Request Type	Program	T/Name	Conn Name	NETName	APPLID	Task	UOW R Seq T	Stop Time	Respon Time
CBAKER	TO	U	TC28	IYCWTC28	AP:	DFHGAALL	T/TC28		GBIBMIYA.IYCWTC28	IYK2Z1V1	89	1 T	15:13:27.113	.00
				***** 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	
CBAKER	TO	U	TC28	IYCWTC28	AP:	DFHGAALL	T/TC28		GBIBMIYA.IYCWTC28	IYK2Z1V1	90	1 T	15:13:34.041	.20
				***** 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	
CBAKER	TF	U	TC28	IYCWTC28	AP:	DFHGAALL	T/TC28		GBIBMIYA.IYCWTC28	IYK2Z1V1	91	1 T	15:13:39.474	.00
				***** 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	

- ▶ This visual shows an example of the format of the Transaction Resource Usage List Report.



Transaction Resource Usage Reports - Usage List

CICS Performance Analyzer													
Transaction Resource Usage List													
001 Printed at 15:18:36 6/19/2003 Data from 14:49:42 6/19/2003											Page		
Userid	SC	TranType	Term	LUName	Request Type	Program	Fcty T/Name	Conn Name	NETName	APPLID	UOW R Task Seq T	Stop Time	Respon Time
CBAKER	TP	U		TC28	IYCWTC28 AP:	DFH0AALL	T/TC28		GBIBMIYA.IYCWTC28	IYK221V1	91 1 T	15:13:39.474	00
***** FC Calls ***** I/O Waits ***** AccMeth													
le													
Get Put Browse Add Delete Total File RLS CFDT Requests													
EA		Elapse	.0001	.0047	.0000	.0000	.0000	.0048	.0032	.0000	.0000		
		Count	1	1	0	0	0	2	1	0	0		4

CBAKER	TO	U		TC05	IYCWTC05 AP:	DFHECIP	T/TC05		GBIBMIYA.IYCWTC05	IYK221V1	69 1 T	15:14:26.435 266.73	
***** FC Calls ***** I/O Waits ***** AccMeth													
le													
Get Put Browse Add Delete Total File RLS CFDT Requests													
EA		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 *****													
Queue													
Get Put_Aux Put_Main Total TS Shr_TS Get Put_Aux Put_Main													
TQ1		Elapse	.0000	.0000	.0017	.0017	.0000	.0000					
		Count	0	0	3	3	0	0	Length	0	0		360
TQ2		Elapse	.0000	.0000	.0000	.0000	.0000	.0000					
		Count	0	2	0	2	0	0	Length	0	120		0
al		Elapse	.0000	.0000	.0017	.0017	.0000	.0000					
		Count	0	2	3	5	0	0	Length	0	120		360

- ▶ This visual shows an example of the format of the Transaction Resource Usage List Report.

Resource Usage Reports - File Usage Summary

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

System Selection:
APPLID . . _____ +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . FILE0001
Print Lines per Page . . ____ (1-255)

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.



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Transaction File Usage Summary Report ...

BMO

CICS Performance Analyzer
Transaction File Usage Summary

0001 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

#Tasks		***** FC Calls *****						***** I/O Waits *****			AccMet
		Get	Put	Browse	Add	Delete	Total	File	RLS	CFDT	Request
3	Elapse Avg							.0011	.0000	.0000	
	Max							.0032	.0000	.0000	
	Count Avg	1	0	0	0	0	1	0	0	0	0
	Max	1	1	0	0	0	2	1	0	0	0

File	#Tasks	***** FC Calls *****						***** I/O Waits *****			AccMet
		Get	Put	Browse	Add	Delete	Total	File	RLS	CFDT	Request
FILEA	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	0
	Max	1	1	0	0	0	2	1	0	0	0



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.



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Resource Usage Reports - File Usage Summary

001 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

		CICS Performance Analyzer File Usage Summary									
Tran	#Tasks	***** FC Calls *****					***** I/O Waits *****			AccMet	
		Get	Put	Browse	Add	Delete	Total	File	RLS	CFDT	Request
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
		Max	0	0	5	0	0	6	2	0	0
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
		Max	1	1	0	0	0	2	1	0	0
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
		Max	0	0	5	0	0	6	0	0	0
Tot1	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
		Max	1	1	5	0	0	6	2	0	0



Resource Usage Reports - Temp Storage Usage Summary

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

System Selection:
APPLID . . _____ +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . TEMP0001
Print Lines per Page . . ____ (1-255)

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. Unprintable temporary storage queue names will be formatted in hexadecimal.
- 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 subsection for each Temporary Storage Queue that this transaction has used. For those transactions which access more than one temporary storage queue, resource subtotals 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.

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Transaction Temporary Storage Usage Summary Report

M0 CICS Performance Analysis

Transaction Temporary Storage Usage Summary

001 Printed at 16:55:16 7/15/2003 Data from 14:49:42 6/19/2003 to 15:16:15 6/19/2003 APPLID IVK2Z1V1 Page

#Tasks		***** TS Calls *****				*** I/O Waits ***				
		Get	Put_Aux	Put_Main	Total	TS	Shr_TS			
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 *****				*** I/O Waits ***		***** TS Item *****		
		Get	Put_Aux	Put_Main	Total	TS	Shr_TS	Get	Put_Aux	Put_Mai
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
		Max	0	2	0	2	0	3	Length	0 600
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	18
		Max	0	0	3	3	0	0	Length	0 0 36
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
		Max	0	2	0	2	0	0	Length	0 120
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
		Max	0	2	3	3	0	3	Length	0 600 36

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.



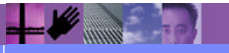
- This is a notes page for the audience.

Resource Usage Reports - Temp Storage Usage Summary

BM0 CICS Performance Analyzer
 Temporary Storage Usage Summary

0001 Printed at 16:55:16 7/15/2003 Data from 14:49:42 6/19/2003 to 15:16:15 6/19/2003 APPLID IYK221V1 Page

Queue	Tran	#Tasks	***** TS Calls ***** *** I/O Waits ***							***** TS Item *****							
			Get	Put_Aux	Put_Main	Total	TS	Shr_TS	Get	Put_Aux	Put_Main						
CEBR	1	E 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							
		Max	16	0	0	16	0	0	Length 24228	0							
	CECI	1	E 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								
	Max	0	2	0	2	0	3	Length 0	600								
Totl	2	E Elapse	Avg	.0017	.0035	.0000	.0052	.0000	.0022								
			Max	.0035	.0070	.0000	.0070	.0000	.0044								
			Count	8	1	0	9	0	1	12114	300						
Max	16	2	0	16	0	3	Length	24228	600								
C28CBAKER	STAT	1	E 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					
				Max	0	1	0	1	0	0	Length 0	69					

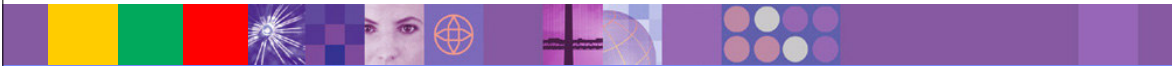




IBM Software Group

CICS Performance Analyzer for z/OS

DB2, WebSphere MQ, and z/OS System Logger Reports



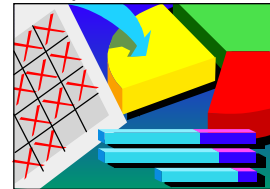
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- ▶ In this section of the presentation we will cover the CICS PA Reports that are available for the CICS related subsystems, including DB2, WebSphere MQ and the MVS System Logger.

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), ...
 - ▶ Information provided to '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.

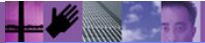
The CICS PA DB2 Reports are:-

- 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.



- This is a notes page for the audience.

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.

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DB2 Reports - List

M0 CICS Performance Analyzer
DB2 - List

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

Userid/ Program/ Authid Planname APPLID	UOW R Task Seq T Term LUName	DB2 Wait Time Connect Thread	DB2 ReqCnt	User CPU Time	Start Time	Stop Time	Response Time
RAIMAN CRWWPPOS STM4IRA1	34695 1 T <ADQ STM4IRT1	.0000 .0000	18	3112	13:31:23.053	13:31:34.349	11.295
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= .00	
		Buffer Manager Summary	GtPgRq= 8120	SyPgUp= 8			
		Locking Summary	Suspnd= 11	DeadLk= 0	TmeOut= 0	MxPgLk=	
		SQL DML Query/Update	Sel= 2	Ins= 0	Upd= 0	Del= 0	
		SQL DML 'Other'	Des= 0	Pre= 0	Ope= 3	Fet= 13	Clo=
RAIMAN CRWWPNO STM4IRA1	34869 1 T <ACY STM4IRT1	.0000 .0000	67	0114	13:31:38.853	13:31:45.875	7.022
STM4IRA1 CRWWPNO STM4IRA1	34869	Thread Identification	ID=ENTRWRRN00051	NETName=USIBMSY.LE000081	UOWID=1637397E8927	Begin Time: 13:31:38.954 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= .00	
		Buffer Manager Summary	GtPgRq= 173	SyPgUp= 36			
		Locking Summary	Suspnd= 2	DeadLk= 0	TmeOut= 0	MxPgLk= 1	
		SQL DML Query/Update	Sel= 1	Ins= 12	Upd= 11	Del= 0	
		SQL DML 'Other'	Des= 0	Pre= 0	Ope= 12	Fet= 21	Clo=

Performance data (blue arrows pointing to the first thread's details)

Associated DB2 Accounting data (red arrows pointing to the second thread's details)

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- ▶ This visual shows an example of the format of the DB2 List Report.

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.



- This is a notes page for the audience.

DB2 Reports - Long Summary

2M0 CICS Performance Analyzer
DB2 - Long Summary

0001 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

Program/ Planname	#Tasks/ #Threads	Avg DB2ConWt Time	Max DB2ConWt Time	Avg DB2ThdWt Time	Max DB2ThdWt Time	Avg DB2Rqst Count	Max DB2Rqst Count	Avg UserCPU Time	Max UserCPU Time	Avg Response Time	Max Response Time	#Abends
CRWWPPCI	10	.0000	.0000	.0000	.0000	1.0	1	.001112	.001312	.1085	.4716	0
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										

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- ▶ This visual shows an example of the format of the DB2 Long Summary Report.

DB2 Reports - Long Summary Totals

CICS Performance Analyzer												
DB2 - Long Summary												
0001 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												
Program/ Planname	#Tasks/ #Threads	Avg DB2ConWt Time	Max DB2ConWt Time	Avg DB2ThdWt Time	Max DB2ThdWt Time	Avg DB2Rqst Count	Max DB2Rqst Count	Avg UserCPU Time	Max UserCPU Time	Avg Response Time	Max Response Time	#Abends
Total ***	2336	.0000	.0000	.0000	.0000	26.4	67	.006671	.066704	1.9644	23.3695	0
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

- ▶ This visual shows an example of the format of the DB2 Long Summary Report Totals by DB2 Subsystem ID.

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 are 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.



- ▶ This is a notes page for the audience.



DB2 Reports - Short Summary

CICS Performance Analyzer DB2 - Short Summary												
001 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												
Program/ Planname	#Tasks/ #Threads	Response	Average Elapsed Time			Average CPU Time			Average Count			#Aben
			Thread	In-DB2	DB2ConWt	DB2ThdWt	User	Thread	In-DB2	DB2Reqs	GetPage	SysPgUpd
CRWWPPCI	10	.1085			.0000	.0000	.001112			1.0		
CRWWPPCI	6		5.4859	.0037				.000439	.000327		3.0	.0
CRWWPPDF	9	1.2535			.0000	.0000	.006832			46.0		
CRWWPPDF	5		6.5634	.9419				.006247	.004860		61.2	28.0
CRWWPPDI	3	.3111			.0000	.0000	.001578			4.0		
CRWWPPDI	2		12.1418	.2181				.000811	.000593		8.0	.0

CICS Performance Analyzer DB2 - Short Summary													
001 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													
Program/ Planname	#Tasks/ #Threads	Response	Thread	In-DB2	DB2ConWt	DB2ThdWt	User	Thread	In-DB2	DB2Reqs	GetPage	SysPgUpd	#Aben
total ***	2336	1.9644			.0000	.0000	.006671			26.4			
	2216		3.0187	1.9274				.005208	.004944		167.8	14.6	

- ▶ This visual shows an example of the format of the DB2 Short Summary Report, including an example of the DB2 Short Summary Report Totals.

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.



► This is a notes page for the audience.



DB2 Recap Report

M0 CICS Performance Analyzer
DB2 - Recap

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

ds processed by the DB2 report processor:

	Count	% of Total
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	
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	

rk units-of-work with DB2 activity:

.....

.....

► The next two visuals show an example of the DB2 Recap Report.



DB2 Recap Report ...

RM0 CICS Performance Analyzer
DB2 - Recap

0001 Printed at 10:14:46 2/13/2002 Data from 13:31:17 1/24/2002 to 13:32:08 1/24/2002 Page

.....

ork units-of-work with DB2 activity:

	Count	% of Total
ork 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	

formance class records with DB2 activity:

atched to a DB2 accounting record	636	86.1%
Not matched to any DB2 accounting records	103	13.9%
Total	739	

formance class records with no DB2 activity:

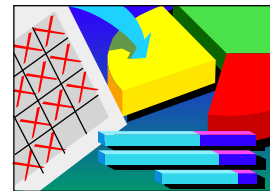
Total	N/A	
-------	-----	--

DB2 accounting records:

Eligible for summary reporting	636	100.0%
atched to a single CICS task	636	100.0%
atched 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



- ▶ 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 and Class 3 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, records how much CPU was spent processing WebSphere MQ API calls and the number of MQGET and MQPUT calls.
 - ▶ Class 3 (Subtypes 1 and 2) - Accounting data for each task, at thread and queue level.

WebSphere MQ Reports - 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 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.



- ▶ This is a notes page for the audience.

Requesting an WebSphere MQ Report

```
File Systems Options Help
MQRPTS - WebSphere MQ Report
Command ==> _____

MQ System Selection:
SSID . . . _____ +
Image . . _____ +
Group . . _____ +

Report Output:
DDname . . . . . MQ000001
Print Lines per Page . . _____ (1-255)

Reports Required:
_ List report
/ Summary report

Process Accounting Class Records:
1 1. Class 1
2 2. Class 3

Sort Summary by:
1 1. Transaction 2. Queue 3. Transaction/Queue 4. Queue/Transaction

Report Filter:
Queue Name _____

Report Format:
Title . . _____

Selection Criteria:
_ Performance
```

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).



- ▶ This is a notes page for the audience.



WebSphere MQ Reports - Class 1 (Subtype 0) List

M0 CICS Performance Analyzer
WebSphere MQ Class 1 List

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

ID	SSID	Tran	Time	Task	CPU	GET Counts				PUTx Counts			
						<=99	<=999	<=9999	>=10000	<=99	<=999	<=9999	>=10000
TST	CBA1	CKBP	10:45:00.11	13458	0.001069	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.11	13459	0.000999	0	1	0	0	0	1	0	
RD2	CBP1	CKBP	10:45:00.11	37690	0.000518	1	0	0	0	0	0	0	
TST	CBA1	CKBP	10:45:00.37	13463	0.001086	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.38	13465	0.000978	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.38	13461	0.000909	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.38	13464	0.000824	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.38	13462	0.000875	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.42	13466	0.000940	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.42	13467	0.001077	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.47	13471	0.001014	0	1	0	0	0	1	0	
RD2	CBP1	CKBP	10:45:00.50	37693	0.000492	1	0	0	0	0	0	0	
TST	CBA1	CKBP	10:45:00.50	13469	0.000863	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.50	13468	0.000877	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.50	13474	0.000914	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.50	13470	0.000996	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.51	13473	0.000899	0	1	0	0	0	1	0	
TST	CBA1	CKBP	10:45:00.51	13472	0.000934	0	1	0	0	0	1	0	
RD2	CBP1	Q412	10:45:00.57	37694	0.001148	0	1	0	0	0	1	0	
RD2	CBP1	Q431	10:45:00.60	37695	0.001271	0	1	0	0	0	0	0	
RD2	CBP1	Q411	10:45:00.61	37696	0.000948	0	1	0	0	0	1	0	

- ▶ This visual shows an example of the format of the MQ List Class 1 (Subtype 0) Report.

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.



- ▶ This is a notes page for the audience.

WebSphere MQ Reports - Class 1 (Subtype 0) Summary

M0 CICS Performance Analyzer
WebSphere MQ Class 1 Summary

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

- ▶ This visual shows an example of the format of the MQ Summary Class 1 Report.



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

R3M0 CICS Performance Analyzer
WebSphere MQ Class 3 Summary (By TRAN)

00002 Printed at 14:39:28 7/23/2003 Data from 18:05:59 07/09/2003 to 19:34:42 07/09/2003 Page 2

D: KML0	APPLID: ANKCL0	TRAN: AOPC	Threads:	3					
OMMIT	Avg Count	5491.7	Avg Elapsed	35.08398	Avg CPU	0.312663			
ACKOUT	Avg Count	4.0	Avg Elapsed	33.73157	Avg CPU	0.000000			
/S 0	Avg Count	0.7	Avg Elapsed	0.030944					
ther	Avg Count	5492.7	Avg Elapsed	54.80571	Avg CPU	0.467525			
	Avg #Old Pages	54055.0	Avg #New Pages	5807.3					
nl/Log	Avg Bytes	505233.3	Avg FORCES	5491.7	Avg WAIT Elp	31.80120	Avg SUSPEND Elp	34.74149	
D: KML0	APPLID: ANKCL0	TRAN: AOPD	Threads:	1					
ther	Avg Count	1.0	Avg Elapsed	0.000054	Avg CPU	0.000053			
D: KML0	APPLID: ANKCL0	TRAN: AOQ1	Threads:	2,838					
OMMIT	Avg Count	1.0	Avg Elapsed	0.013155	Avg CPU	0.000067			
ACKOUT	Avg Count	0.0	Avg Elapsed	0.000002	Avg CPU	0.000000			
ther	Avg Count	1.5	Avg Elapsed	0.007837	Avg CPU	0.000095			
	Avg #Old Pages	32.9	Avg #New Pages	2.4					
nl/Log	Avg Bytes	160.7	Avg FORCES	1.0	Avg WAIT Elp	0.012470	Avg SUSPEND Elp	0.013137	
D: KML0	APPLID: ANKCL0	TRAN: CKTI	Threads:	3					
D: KML0	APPLID: ANKCL0	TRAN: OS6D	Threads:	1					
ther	Avg Count	1.0	Avg Elapsed	0.000062	Avg CPU	0.000061			
D: KML0	APPLID: ANKCL0	TRAN: OS6E	Threads:	29					
ther	Avg Count	1.0	Avg Elapsed	0.000057	Avg CPU	0.000057			

- This visual shows an example of the format of the MQ Summary Class 3 Report.

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:-

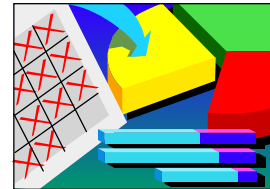
1. System Selection
2. Reports Required:-
 - a. List and/or Summary.
3. Process MQ Accounting records:-
 - a. Class 1 records (Subtype 0)
 - b. Class 3 records (Subtypes 1 and 2).
4. Sort Options:-
 - a. Transaction, Queue, Transaction/Queue or Queue/Transaction.
5. Report Filter:-
 - a. The MQ Accounting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



► This is a notes page for the audience.

z/OS System Logger Reports

- z/OS 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 z/OS System Logger Reports
 - ▶ Logstream Name, Structure Name, ...
 - Masking characters % and * are supported



z/OS System Logger Reports - Notes

The CICS PA z/OS 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 z/OS 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.



- ▶ This is a notes page for the audience.

z/OS System Logger Reports ...

```
File  Systems  Options  Help
LOGRTEST - System Logger Report

Command ==> _____

System Selection:
Logger . . MV2CLOGR +
Image . . MV2C +
Group . . _____ +

Report Output:
DDname . . . LOGR0001

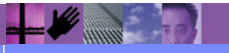
Reports Required:
/ Summary
_ List _ Include ALTER records
_ Sort by Time

Report Options:
1. Sort by Logstream Name
2. Sort by Structure Name
SMF Recording Interval . . _ (mins)

Report Filter:
Logstream Name . . . _____
Structure Name . . . _____

Report Format:
Title . . _____
```

Showing Defaults





z/OS System Logger Reports - Logstream List

CICS Performance Analyzer System Logger - List									
001 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									
Stream name	Structure name			MVSID	Flag	Interval expired at		Level	
.DPHLOG	LOG_JG_20M			SYSD		23:10:00.00 1/05/2002		SP7.0.2	
----- IXGWITES -----					----- DELETIONS -----				
				Bytes	Count	Count	Bytes	Bytes	
				Writn to	With	Without	After	Int Stor	
				Interim	DASD	DASD	Offload	w/o DASD	
Count	Total	Average		Storage	Write	Write	w DASD	Write	
	Bytes	Bytes							
46322	12736K	275		22236K	14998	32681	4129047	8983482	
----- EVENTS -----									
		Demand		Entry		Demand		Minimum	Maximum
		DASD		Struct		Init'd		Block	Block
Offloads	Staging	Shifts		Staging	Struct	Offloads		Length	Length
	Threshold			Full	Full				
22	0	5		0	0	0		116	1427
----- EVENTS -----									
				Struct	Struct	DASD Writes			
				Rebuilds	Rebuilds				
				Init'd	Complt'd	Count	Total	Average	Waits
Type1	Type2	Type3					Bytes		
45424	898	0		0	0	37	4728967	0	21

- ▶ This visual shows an example of the format of the z/OS System Logger - Logstream List Report.

CICS Performance Analyzer
System Logger - Logstream Summary

0001 Printed at 16:10:37 2/13/2002 Data from 02:53:00:00 1/05/2002 to 23:35:00:00 1/05/2002 Page

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

IXGWITES			DELETIONS				
Count	Total Bytes	Average Bytes	Bytes	Count	Count	Bytes	Bytes
			Writn to Interim Storage	With DASD Write	Without DASD Write	After Offload w. DASD	Int Stor w/e DASD Write
628147	172706K	275	301535K	216244	467717	59484K	128572K
(/Sec) 225	62080		108388	77	168	21382	46216
num 4	4292		4864	0	0	0	0
num 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
314	0	78		0	0	0	0
(/Sec) 0	0	0		0	0	0	0
num 0	0	0	116	0	0	0	0
num 48	0	12	1427	0	0	0	0

EVENTS				DASD Writes				
Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Compl't'd	Count	Total Bytes	Average	Waits
612865	15277	5	0	0	551	68133K	0	315
(/Sec) 220	5	0	0	0	0	24491		0
num 4	0	0	0	0	0	0		0
num 91995	2458	5	0	0	84	10314K		48

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- ▶ This visual shows an example of the format of the z/OS System Logger - Logstream Summary Report.

2M0 CICS Performance Analyzer
System Logger - Structure Summary

0001 Printed at 16:03:22/13/2002 Data from 23:00:00 1/05/2002 to 23:55:00:00 1/05/2002 Page

Structure name	MVSID	First interval start	Last interval stop	Total Interval			
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	Count	Count	Bytes	Bytes
			Written to Interim Storage	With DASD Write	Without DASD Write	After Offload w. DASD	Int Stor w/o DASD Write
1895819	521260K	275	910084K	650666	1412682	179002K	388332K
(/Sec) 675	185832		324450	231	503	63815	138443
num 0	0		0	0	0	0	0
num 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
1 948	0	235		0	0	0	0
(/Sec) 0	0	0		0	0	0	0
num 0	0	0	116	0	0	0	0
num 48	0	12	1427	0	0	0	0

EVENTS			DASD Writes						
Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Compl't'd	Count	Total Bytes	Average	Waits	
1 1850214	45600	5	0	0	1651	205029K	0	942	
(/Sec) 659	16	0	0	0	0	73094		0	
num 0	0	0	0	0	0	0		0	
num 93387	2508	5	0	0	84	10314K		48	

- ▶ This visual shows an example of the format of the z/OS System Logger - CF Structure Summary Report.

CICS Performance Analyzer
System Logger - Structure Summary

001 Printed at 7:25:51 2/11/2002 Data from 1/10 00:00 1/03/2002 to 22:00:00 1/03/2002 Page

Structure name	MVSID	First interval start	Last interval stop	Total Interval			
ONLY*	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	Count	Count	Bytes	Bytes
			Written to Interim Storage	With DASD Write	Without DASD Write	After Offload w. DASD	Int Stor w/o DASD Write
20159	5547225	275	82571K	16571	3584	67875K	14680K
/Sec) 8	2403		35776	7	1	29408	6361
um 1207	336654		4943872	0	0	0	0
um 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
17	120	2		0	0	0	0
/Sec) 0	0	0		0	0	0	0
um 0	0	0	116	0	0	0	0
um 3	26	1	1427	0	0	0	0

EVENTS				DASD Writes				
Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Compl't'd	Count	Total Bytes	Average	Waits
0	0	0	0	0	20	5258226	0	2
/Sec) 0	0	0	0	0	0	2278		0
um 0	0	0	0	0	0	0		0
um 0	0	0	0	0	3	1158911		2

- ▶ This visual shows an example of the format of the z/OS System Logger - 'DASDONLY' Structure Summary Report.

z/OS System Logger Reports - Alter List

IM0 CICS Performance Analyzer
System Logger - List

001 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

Stream name	Structure name	Flag	MVSID	Level
IR RECORD*	LOG_JG_20M		SYSD	SP7.0.2

----- STRUCTURE ALTER -----

Record timestamp 23:05:00:00 1/05/2002

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

Stream name	Structure name	Flag	MVSID	Level
IR RECORD*	LOG_JG_20M		SYSD	SP7.0.2

----- STRUCTURE ALTER -----

Record timestamp 23:10:00:00 1/05/2002

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

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- ▶ This visual shows an example of the format of the z/OS System Logger - Alter Detail Report.

Tailoring the z/OS System Logger Reports

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

System Selection:
Logger . . MV2CLOGR +
Image . . MV2C +
Group . . _____ +

Report Output:
DDname . . . LOGR0001

Reports Required:
/ Summary
List _ Include ALTER records

Report Options:
_ 1. Sort by Logstream Name
2. Sort by Structure Name

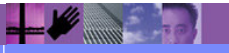
SMF Recording Interval . . _ (mins)

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

Report Format:
Title . . _____
```

Masking characters supported

Specify the report options



Tailoring the z/OS 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 System Logger address space. These SMF records are:-

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



- ▶ This is a notes page for the audience.



IBM Software Group

CICS Performance Analyzer for z/OS Historical Database (HDB)



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- ▶ In this section of the presentation we will cover the new CICS PA Historical Database (HDB) support that was first introduced in CICS PA Version 1 Release 3.

CICS PA Historical Database (HDB)

- Flexible and easy-to-use facility for collecting and managing historical performance and statistics 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 that can be used for trend analysis, capacity planning and accounting purposes
 - ▶ Statistics history data for use in performance analysis and reporting
 - ▶ 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 export history data to a DB2 table for further analysis and reporting
 - ▶ Optionally extract history data into a CSV format data set
 - ▶ Trending, capacity planning and accounting



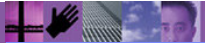
- ▶ This slide is an overview of the CICS PA Historical Database (HDB) capability.

CICS PA Historical Database (HDB) - Notes

The CICS PA Historical Database (HDB) provides a flexible and easy-to-use facility for managing historical performance and statistics 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, capacity planning and accounting purposes
- ▶ Statistics history data for use in performance analysis and reporting
- ▶ 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 DB2 Query Management Facility (QMF)
- ▶ A facility to extract history data into a CSV format data set
- ▶ Trending, Capacity Planning and Accounting capabilities.



- ▶ This is a notes page for the audience.

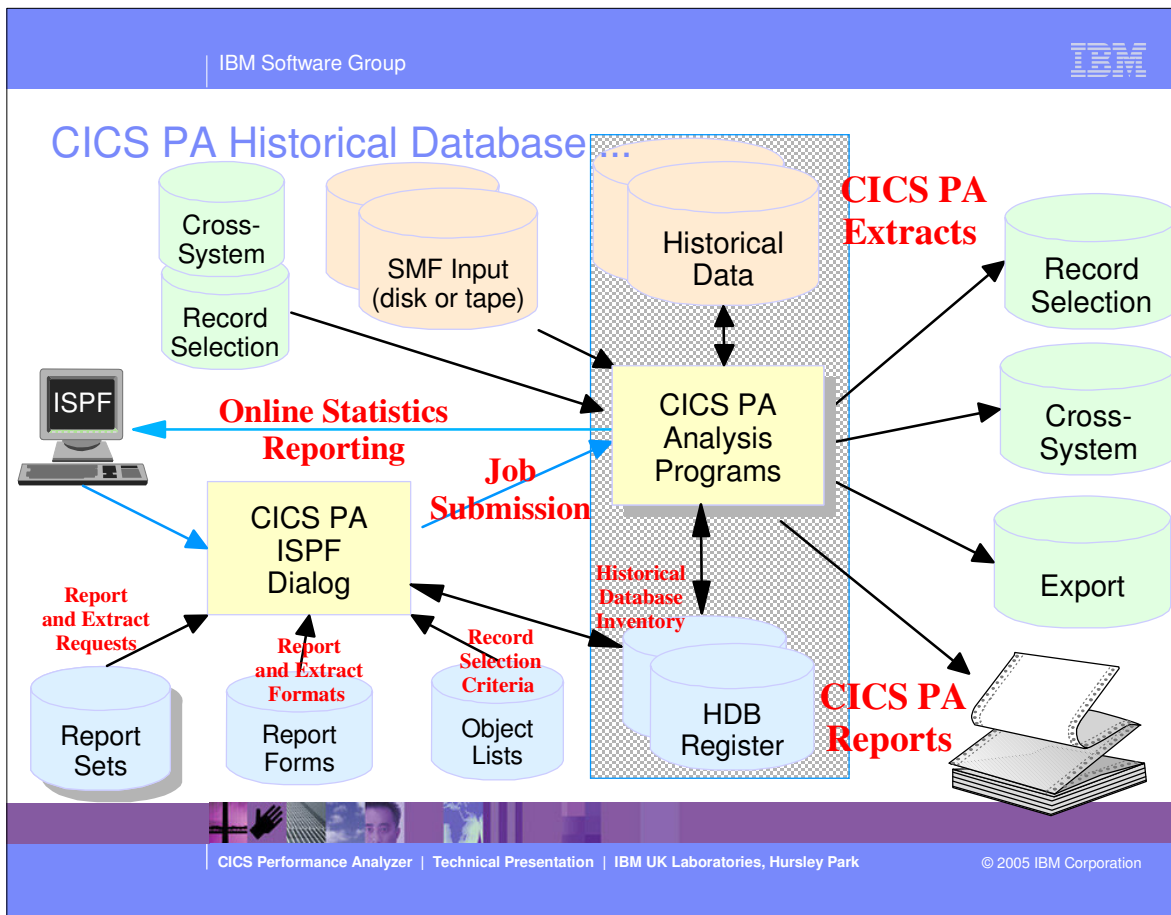
CICS PA Historical Database (HDB) ...

```
File  Options  Help
V1R4M0          CICS Performance Analyzer - Primary Option Menu
Option ==>> 5

0  CICS PA Profile      Customize your CICS PA dialog profile
1  Personal Systems     Specify personal 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
6  Shared Systems       Specify shared CICS Systems, SMF Files and Groups
7  Statistics           Report CICS Statistics
X  Exit                 Terminate CICS PA

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restricted by GSA ADP Schedule Contract with IBM Corp.
```






- ▶ This foil shows the main components of CICS PA; including the TSO Interactive System Productivity Facility (ISPF) dialog, it's related data sets and the CICS PA batch analysis and reporting programs.
- ▶
- ▶ This section of the presentation focuses on the CICS PA Historical Database support.

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 Extract        Extract HDB data sets to CSV
7 Maintenance    Maintain HDB definitions and data sets
8 Housekeeping   Perform HDB housekeeping

HDB Register . . . CICSPA.SAMPLE.REGISTER +
```



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

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 and Shared System Definitions. The HDB register contains the following information:-

1. HDB Templates
2. HDB definitions, including the dataset definitions for HDB repositories
3. Selection Criteria
4. Object Lists
5. Container data set information
6. Load Audit records
7. Shared System definitions.

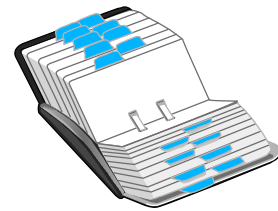
You can define as many HDB Registers as required; however only one Register can be used at a time and each Register acts independently. Information cannot be shared between Registers.



► This is a notes page for the audience.

CICS PA Historical Database - HDB Register

- Inventory of all information associated with the CICS PA Historical Database Manager and Shared System Definitions
- HDB Register contains ...
 - ▶ HDB Templates
 - ▶ HDB definitions
 - ▶ Dataset definitions for HDB repositories
 - ▶ Container data set information
 - ▶ Load Audit records
 - ▶ Shared System Definitions
- 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



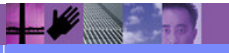
- ▶ The HDB Register dataset is the inventory of all information associated with the CICS PA Historical Database Manager and Shared System Definitions. The HDB register contains the following information:-
 - ▶ HDB definitions
 - ▶ Dataset definitions for HDB repositories
 - ▶ HDB Templates
 - ▶ HDB Load Audit records
 - ▶ SharedSystem Definitions.
- ▶ 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 ...

```

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 (Performance data)
 - ▶ Field names and associated attributes
 - ▶ Selection Criteria

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 List and Summary 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 HDB template

Transparency - you can see at a glance what information is recorded in the HDB.





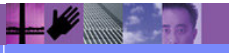
CICS PA Historical Database - HDB Template ...

```

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 - Notes

Each Template contains information on the type of HDB (CMF 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 panel 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.



- ▶ This is a notes page for the audience.



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 Redispach 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 - New HDB Definition

```
File  Options  Help
-----
|
|           New Historical Database
|
0 |
| Select an HDB type then press Enter.
1 | 1. Performance - CMF List or Summary
2 | 2. Statistics - CICS Statistics
3 |
4 |
5 -----
6 Extract      Extract HDB data sets to CSV
7 Maintenance  Maintain HDB definitions and data sets
8 Housekeeping Perform HDB housekeeping

HDB Register . . . CICSPA.SAMPLE.REGISTER +
```



CICS PA Historical Database - New HDB Definition - Notes

An HDB (Historical Database) is a definition that allows you to collect, report and manage CICS statistics and transaction performance data. In the CICS PA Historical Database (HDB) environment, you can create as many HDBs as required.

An HDB has the following components:-

- Options that allow you to tailor the HDB to meet your requirements.
- A Template that defines the CICS performance data to be included in the HDB. Templates allow you to customize what information is to be contained in the HDB. They are similar to Report Forms. Templates are relevant only to Performance HDBs (List and Summary), they are not required for Statistics HDBs.
- Selection Criteria that allow you to filter the CMF Performance Class data used to build the HDB.
- Container data sets that contain either the HDB performance data or the HDB statistics data.

There are two types of Performance HDB, List and Summary where the HDB type is determined by the HDB Template. There is a third type of HDB for CICS Statistics and CICS Server statistics data.

For a Statistics HDB, instead of a Template, you select from a menu the statistics categories and reports that identify the data that you want collected.



► This is a notes page for the audience.

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 Performance HDB definition. The details required for a new HDB include:-

1. HDB Name
2. APPLID/Image (optional)
3. Description (optional)
4. Template (the format and type of the HDB is determined by the Template)
5. Selection Criteria (optional)
6. Data Retention Period specifies how long the HDB container data sets are to be kept. Typically:-
 - Summary HDBs need to keep their container data sets for many years for long term trend analysis.
 - List HDBs used for ad-hoc reporting may only need to keep their container data sets for a couple of hours or days.
7. Data Set Allocation Settings:-
 - DSN Prefix, Management Class, Storage Class, Volume Serial and Device Type, Data Class, Space Units and Space Quantities.



► This is a notes page for the audience.

CICS PA Historical Database - HDB Definition ...

- Time Interval (Summary HDBs)
 - ▶ Shorter intervals write more records ...
 - Increasing the HDB data set size
 - ▶ Longer intervals - Restrict reporting, for example ...
 - 1 hour time interval means that you can only report hourly intervals
 - 15 minute interval reporting would not be possible
- Selection Criteria ...
 - ▶ Use Template selection criteria to ...
 - Focus on the Performance data used in building the HDB
 - File or Temporary Storage activity, CICS Web support usage, ...
 - ▶ Use HDB selection criteria to ...
 - Focus on the Application targeted by the HDB
 - Trending and Capacity Planning, Accounting and Chargeback, ...
 - ▶ HDB Object Lists are stored in the HDB Register ...
 - Object Lists for Report Sets are stored in the Object Lists data set





CICS PA Historical Database - HDB Definition ...

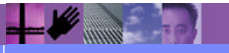
```

File Edit Object Lists Options Help
TEST630S - 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 Field --- Value or Range --- Object
/ Exc Name + Type Value/From To List +
INC FCTOTAL >0
-----
-----
-----
-----
-----
-----
-----
***** End of list *****

```



CICS PA Historical Database - HDB Definition - Statistics

```

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

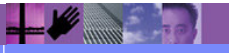
Specify new HDB definition options then press EXIT to save.

Name . . . . . STATSDLY APPLID _____ + Image _____
Description . . . _____

Statistics Categories:
/ Select to specify Statistics Categories

Data Retention Period:
Years . . 1 Months . . ____ Weeks . . ____ 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

A Statistics HDB provides the ability to warehouse and analyze CICS statistics data via powerful online viewing and reporting facilities. Short-term in-depth analysis or long-term trend analysis for your CICS statistics data is possible.

Defining a Statistics HDB allows you to collect (load) and report historical CICS Statistics and CICS Server Statistics SMF data. However, unlike Performance HDBs, Statistics HDBs do not require a HDB Template, so you can immediately define the HDB and its options, such as the characteristics of the HDB data sets and the retention period of the data. Also, unlike Performance HDBs that are reported in batch, Statistics HDBs are reported in the dialog only.

For a Statistics HDB, instead of a HDB Template, you select from a menu the statistics categories and reports that identify the data that you want collected, as shown on the next slide ...



CICS PA Historical Database - HDB Definition - Statistics

File Edit Options Help		Statistics Reports		Line 1 of 72
Command ==>				Scroll ==> CSR
				DB2
	** Report **		Collect	Load
-	Regions		Yes	Yes
	Transaction Manager		Yes	Yes
-	CICS Dispatcher		Yes	Yes
	Dispatcher Overview		Yes	Yes
	Dispatcher TCB Modes		Yes	No
	Dispatcher TCB Pools		Yes	No
	MVS TCB Overview		No	No
	MVS TCBs		No	No
-	CICS Storage		Yes	Yes
	Storage Overview		Yes	Yes
	DSAs		Yes	Yes
	Domain Subpools		Yes	No
	Task Subpools		No	No
+	CICS Dumps		No	No
	Enqueue Pools		No	No
+	Connectivity		Yes	Yes
-	Files and Databases		Yes	Yes
	Files		Yes	No
	VSAM LSR Pools		Yes	No
	VSAM LSR Pool Buffers		Yes	No
	VSAM LSR Pool Files		Yes	No

CICS PA Historical Database - HDB Functions ...

- Load ...
 - ▶ Creates the JCL that builds the HDBs
 - ▶ Optionally, Export the HDB to a pre-defined DB2 Table
 - ▶ Recap Report from the HDB Load process
 - ▶ HDB Load Audit
 - Verify that load requests have completed, Highlight gaps in the data, ...
 - ▶ HDB Load requests can also be requested in a Report Set
- Report ...
 - ▶ Generates the Report JCL for HDBs
- Export ...
 - ▶ Creates the DDL to define the DB2 Table
 - ▶ Generates the JCL to load an HDB into a DB2 Table



CICS PA Historical Database - HDB Functions ...

- Extract ...
 - ▶ Generates the JCL to extract an HDB into CSV format data set
- Maintenance ...
 - ▶ Maintenance functions that can be performed against HDBs ...
 - Display the HDB definition and its associated data sets
 - Delete the HDB definition and its associated data sets
 - Display the HDB Load Audit Trail
- Housekeeping ...
 - ▶ Housekeeping functions that can be performed against HDBs ...
 - Submit HDB Housekeeping JCL ...
 - Delete an entire HDB or individual data sets in the HDB
 - Repair the 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.

System Selection:
APPLID . . _____ +
Image . . MV2C +
Group . . _____ +

Report Interval -----
YYYY/MM/DD HH:MM:SS.TH
From _____
To _____

DB2 Export Options:
_ Load DB2 Table

Table Load Options
1 1. Resume 2. Replace

Include Clock Field Components
1 1. Time and Count
2. Time only
3. Count only

Summary Options
_ Include Sums of Squares

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



CICS PA Historical Database - HDB Load - 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.

Following HDB load, the data can optionally be exported to a pre-defined DB2 table. (To define the DB2 table, use the Export option from the Historical Database menu.) To request DB2 export, select Load DB2 Table and specify Resume or Replace.

HDB Load requests can also be requested in a Report Set which allows users to run their reports and also produce historical performance and statistics data in a single pass of the SMF File. Multiple HDB load requests are supported although they must use the same HDB Register.

The HDB Load 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 the container data set added to the HDB, the number of records loaded into the data set and the date/time range of the data.



- This is a notes page for the audience.

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

```
MO                                CICS Performance Analyzer
                                HDB LOAD Recap Report
-----
001 Printed at 12:06:38 7/18/2003   Data from 11:10:00 02/04/1999 to 08:10:00 02/16/1999   Page

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

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

process complete.
```

- HDB Load Recap Report ...
 - ▶ HDB name, Register data set name ...
 - Container(s) data set name ...
 - No. of records, start and end timestamps of the data loaded, ...
 - Each HDB Load will create one (or more) container data sets



CICS PA Historical Database - HDB Load Audit ...

```
File Edit Options Help
-----
HDB Load Audit Trail                               Row 1 to 3 of 3
Command ==> _____ Scroll ==> PAGE

SMF Data Set Name          ----- Start ----- Status
- CBAKER.CJB.SMFAPO.DATA2  2004/12/09 02:03:25  OK
- CBAKER.CJB.SMFAPO.DATA3  2004/12/16 06:03:37  OK
- CBAKER.CJB.SMFAPO.DATA   2004/11/09 02:08:17  OK
***** Bottom of data *****
```

- HDB Load Audit ...
 - ▶ Verify that all HDB Load requests have completed successfully
 - ▶ Highlight gaps in the data due to HDB Load requests not being run



CICS PA Historical Database - Load Audit - Notes

An HDB Load Audit trail is also provided in the HDB Register to prevent duplicate container data sets being generated and to highlight gaps in the collected data.

Each HDB load request creates an audit record that includes the following information:-

- Date/time range of the data used to create the HDB containers
- Status indicator, OK or Failed.

The purpose of the HDB Load Audit is two-fold:-

1. Verify that all load requests have completed successfully
2. Highlight gaps in the data due to Load requests not being run.

The HDB Audit records can be viewed and maintained from the CICS PA HDB dialog.



► This is a notes page for the audience.

CICS PA Historical Database - Reporting ...

```
File Options Help
-----
                                Historical Database Menu
Option ==> 4
-----
1 Templates      Design HDB Templates
2 Define         Define a new HDB
3 Load          Load data into the HDBs
4 Report         Submit HDB report requests
5 Export         Export HDB data sets to DB2
6 Extract        Extract HDB data sets to CSV
7 Maintenance    Maintain HDB definitions and data sets
8 Housekeeping   Perform HDB housekeeping

HDB Register . . . CICSPA.SAMPLE.REGISTER +
```



CICS PA Historical Database - HDB 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 - HDB Reporting ...

```

File Options Help
| File Options Help
|----- Run SUMMARY HDB Report - ACCTDLY
S | Command ==> _____
|
| Specify run options then press Enter to continue submit.
S |
| Report Format:          ----- Report Interval -----
* | Report Form . . . TRTODSUM +          YYYY/MM/DD HH:MM:SS.TH *
|                               From _____
|                               To   _____
|
| Reporting Options:
| Time Interval . . . 00:15:00 (hh:mm:ss)
| Totals Level . . . _ (blank or 0-8)
| Precision . . . . 4 (4-6)
|
| Enter "/" to select option
| / Edit JCL before submit
|
| HDB contains data from 2005/02/09 13:00 to 2005/02/10 09:00.
|
|_____
    
```



CICS PA Historical Database - HDB 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, the Summary time interval and the Totals level. 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.



- ▶ This is a notes page for the audience.



CICS PA Historical Database - HDB Reporting - List ...

M0 CICS Performance Analyzer
Historical Database List

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

Start Time	APPLID	Tran	Term	Userid	Program	TCLSName	SC	TaskNo	Response Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time
0:29.803	11:10:29.789	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	16	.0139	.0007	.0006	.0133	.0000
0:29.809	11:10:29.791	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	17	.0185	.0010	.0014	.0175	.0001
0:29.861	11:10:29.793	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	18	.0674	.0196	.0027	.0479	.0269
0:30.194	11:10:29.782	IYK2Z1V1	CGRP	CBAKER	DFHZCGRP		U	12	.4123	.0420	.0074	.3702	.3223
0:30.207	11:10:29.787	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	15	.4204	.0568	.0100	.3636	.1744
0:30.456	11:10:29.782	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	13	.6743	.0728	.0134	.6015	.4000
0:30.531	11:10:29.781	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	10	.7498	.1910	.0228	.5588	.1997
0:31.121	11:10:29.787	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	14	1.3344	.3202	.0378	1.0142	.2626
0:31.211	11:10:29.781	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	11	1.4292	.1497	.0313	1.2794	.3461
0:45.642	11:10:29.651	IYK2Z1V1	CPLT	CBAKER	DFHSIPLT		U	7	15.9915	.3383	.0369	15.6532	.0155
0:45.856	11:10:29.780	IYK2Z1V1	CSSY	CBAKER	DFHAPATT		U	III	16.0761	9.3488	2.3435	6.7273	1.1645
0:46.196	11:10:46.170	IYK2Z1V1	CWBG	CBAKER	DFHWBGB		S	24	.0262	.0248	.0041	.0013	.0012
0:46.856	11:10:46.774	IYK2Z1V1	CRSQ	CBAKER	DFHCRO		S	25	.0818	.0449	.0040	.0369	.0367
0:47.134	11:10:46.908	IYK2Z1V1	CXRE	CBAKER	DFHZXRE		S	27	.2255	.0243	.0049	.2011	.2009
0:48.317	11:10:48.290	IYK2Z1V1	CLR2 R11	CBAKER	DFHLUP		TO	29	.0263	.0030	.0020	.0232	.0000
0:48.471	11:10:46.774	IYK2Z1V1	CSFU	CBAKER	DFHFCU		S	26	1.6968	1.5899	.1136	1.069	.0294
0:51.227	11:10:50.706	IYK2Z1V1	CSAC SAMA	CBAKER	DFHACP		TO	31	.5217	.0028	.0011	.5189	.0002
0:51.840	11:10:48.014	IYK2Z1V1	CLQ2	CBAKER	DFHLUP		U	28	3.8259	.0818	.0068	3.7441	.0035
0:51.942	11:10:51.755	IYK2Z1V1	CEMT SAMA	CBAKER	DFHEMTP		TO	32	.1877	.1842	.0264	.0035	.0030
0:52.549	11:10:52.540	IYK2Z1V1	CEMT SAMA	CBAKER	DFHEMTP		TO	33	.0091	.0068	.0026	.0023	.0001
0:53.074	11:10:53.065	IYK2Z1V1	CEMT SAMA	CBAKER	DFHEMTP		TO	34	.0092	.0068	.0025	.0024	.0000
0:54.113	11:10:53.602	IYK2Z1V1	CSAC SAMA	CBAKER	DFHACP		TO	35	.5109	.0042	.0012	.5067	.0001
0:55.159	11:10:54.644	IYK2Z1V1	CSAC SAMA	CBAKER	DFHACP		TO	36	.5150	.0011	.0011	.5139	.0001
0:55.884	11:10:55.742	IYK2Z1V1	CSTE	CBAKER	DFHTACP		U	37	.1420	.1381	.0126	.0039	.0037
1:05.421	11:11:05.367	IYK2Z1V1	CATA	CBAKER	DFHZATA		U	38	.0537	.0394	.0121	.0143	.0003
1:06.055	11:11:05.707	IYK2Z1V1	CQRY S208	CBAKER	DFHQRY		S	39	.3476	.0451	.0048	.3025	.0038

CICS PA Historical Database - Export and Extract ...

```

File  Options  Help
-----
                                Historical Database Menu
Option ==> 5
-----
1  Templates      Design HDB Templates
2  Define         Define a new HDB
3  Load          Load data into the HDBs
4  Report         Submit HDB report requests
5  Export         Export HDB data sets to DB2
6  Extract        Extract HDB data sets to CSV
7  Maintenance    Maintain HDB definitions and data sets
8  Housekeeping   Perform HDB housekeeping

HDB Register . . . CICSPA.SAMPLE.REGISTER +
    
```



CICS PA Historical Database - HDB Export

- 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 ...
 - ▶ DB2 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



CICS PA Historical Database - HDB Export ...



```
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 - HDB Export - 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).



- ▶ This is a notes page for the audience.

CICS PA Historical Database - Export HDBs ...

```

File Options Help
Export HDBs Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE

Select to export HDB to DB2.

Name      Type      Description      Changed      ID
S ACCTDLY  SUMMARY  Daily Accounting HDB      2005/01/06 11:33 CBAKER
_ SAMPLE  STATS
***** Bottom of data *****

```





CICS PA Historical Database - Export HDBs ...

```

File Options Help
Export SUMMARY HDB - ACCTDLY Row 1 to 18 of 18
Command ==> _____ Scroll ==> PAGE
Select to export HDB data sets to DB2.
HDB Name . . . : ACCTDLY Type . . . : SUMMARY

Data Set Name          ----- Start ----- Volume
S CBAKER.ACCTDLY.D05041.T101302.HDB      2005/02/09 13:00:00 P2P0CD
- CBAKER.ACCTDLY.D05041.T103035.HDB      2005/02/09 23:00:00 P2P0C5
- CBAKER.ACCTDLY.D05042.T080708.HDB      2005/02/09 14:00:00 P2P144
- CBAKER.ACCTDLY.D05042.T080739.HDB      2005/02/09 19:00:00 P2P0C6
- CBAKER.ACCTDLY.D05042.T080759.HDB      2005/02/09 10:00:00 P2P204
- CBAKER.ACCTDLY.D05042.T080820.HDB      2005/02/10 05:00:00 P2P111
- CBAKER.ACCTDLY.D05042.T080913.HDB      2005/02/09 11:00:00 P2P106
- CBAKER.ACCTDLY.D05042.T080933.HDB      2005/02/10 09:00:00 P2P205
- CBAKER.ACCTDLY.D05042.T080954.HDB      2005/02/10 08:00:00 P2P0D4
- CBAKER.ACCTDLY.D05042.T081202.HDB      2005/02/10 13:00:00 P2P0C4
- CBAKER.ACCTDLY.D05042.T081220.HDB      2005/02/10 15:00:00 P2P0C0
- CBAKER.ACCTDLY.D05042.T081237.HDB      2005/02/10 15:00:00 P2P202
- CBAKER.ACCTDLY.D05042.T081257.HDB      2005/02/10 16:00:00 P2P14A
- CBAKER.ACCTDLY.D05042.T081318.HDB      2005/02/10 16:00:00 P2P147
- CBAKER.ACCTDLY.D05042.T081331.HDB      2005/02/10 16:00:00 P2P202
- CBAKER.ACCTDLY.D05042.T081352.HDB      2005/02/10 17:00:00 P2P115
- CBAKER.ACCTDLY.D05042.T081357.HDB      2005/02/10 20:00:00 P2P101
- CBAKER.ACCTDLY.D05042.T081402.HDB      2005/02/10 23:00:00 P2P14F
***** Bottom of data *****
    
```



CICS PA Historical Database - Export HDB Data Set ...

File Options Help	
Export HDB Data Set	
Command ==> _____	
HDB Name : ACCTDLY	
Data Set Name . . : CBAKER.ACCTDLY.D05041.T101302.HDB	
Select option	
<u>1</u> 1. Create DDL to define table	2. Load data into table
Create Options	
_ Create Database	<u>1</u> 1. Resume
_ Create Storage Group	2. Replace
DB2 Settings:	
DB2 Subsystem ID . . .	<u>DB01</u>
DSNTIAD Plan Name . .	<u>DSNTIA71</u>
DB2 Load Library . . .	<u>'DB2710.SDSNLOAD'</u>
DB2 Exit Library . . .	<u>'DB2710.SDSNEXIT'</u>
DB2 RUNLIB Library . .	<u>'DB2710.RUNLIB.LOAD'</u>
Database	<u>CICSPAHD</u> Storage Group . . <u>CPA14STG</u>
VCAT Catalog name . .	<u>DB2CAT</u> Volume
Allocation: Primary	Secondary
Include Clock Field Components	
<u>1</u> 1. Time and Count	Summary Options
2. Time only	_ Include Sums of Squares
3. Count only	

CICS PA Historical Database - Export HDB ...

```

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 - Extract HDB ...



```

File Options Help
Extract HDBs Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR
Select to extrace HDB.

Name      Type      Description      Changed      ID
S ACCTDLY SUMMARY Daily Accounting HDB      2005/01/06 11:33 CBAKER
***** End of list *****
    
```

- Extract an HDB to a CSV data set ...
 - ▶ Generates the JCL to extract an HDB into CSV format data set
 - Suitable as input to PC-based spreadsheet applications



CICS PA Historical Database - Extract HDB - Notes ...

The HDB Extract facility allows you to export data from your HDB data sets to an Extract data set in CSV format, suitable as input into PC-based spreadsheet applications.

The panel shown on the previous slide lists the defined HDBs. Entering a line action "S" to select an HDB for extract processing displays the Run HDB Extract panel as shown on the next slide (you can select multiple HDBs to extract in succession, SORT and LOCATE commands are also available to help you work with the list of HDBs).

The Run HDB Extract panel displays the time period spanned by the data in the HDB and allows you to enter run-time options such as Report Interval, Report Form, Output Data Set Name, etc, before the JCL is generated to run the HDB extract.



- ▶ This is a notes page for the audience.

CICS PA Historical Database - Extract HDB ...

```

File  Options  Help
-----
Run SUMMARY HDB Extract - ACCTDLY
Command ==> _____

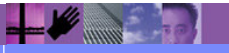
Specify Extract request options then press Enter to continue submit.

----- Report Interval -----  HDB contains data
      YYYY/MM/DD  HH:MM:SS.TH  in the range:
From  _____  _____  2005/01/21 05:00  Extract Recap:
To    _____  _____  2005/01/21 10:00  DDname . . . EXPT0001

Output Data Set:
Data Set Name . . . DAILY.ACCTDATA
Disposition . . . 1 1. OLD  2. MOD  (If cataloged)

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


Processing Options:
Time Interval . . . 01:00:00 (hh:mm:ss) /  Edit JCL before submit
Precision . . . . . 4      (4-6)
    
```



CICS PA Historical Database - Maintenance ...

```
File Options Help
-----
Historical Database Menu
Option ==> 7
-----
1 Templates      Design HDB Templates
2 Define         Define a new HDB
3 Load          Load data into the HDBs
4 Report         Submit HDB report requests
5 Export        Export HDB data sets to DB2
6 Extract       Extract HDB data sets to CSV
7 Maintenance   Maintain HDB definitions and data sets
8 Housekeeping  Perform HDB housekeeping

HDB Register . . . CICSPA.SAMPLE.REGISTER +
```



CICS PA Historical Database ...

- HDB Maintenance functions ...
 - ▶ Display the HDB definition and its associated data sets
 - ▶ Delete the HDB definition and its associated data sets
 - HDB Definition will be deleted immediately
 - HDB data sets will be deleted when Housekeeping is next run
 - ▶ Display the HDB Load Audit Trail

- HDB Housekeeping functions ...
 - ▶ Submit HDB Housekeeping JCL ...
 - Delete an entire HDB or individual data sets in the HDB
 - Repair the HDB Register using VERIFY command



CICS PA Historical Database - Maintenance

```

File Systems Options Help
Maintain HDB                                     More: >
Command ==> _____

Review and update HDB definition options then press EXIT to save.

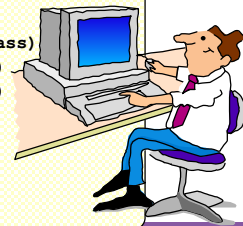
Name . . . . . : HDBDAILY Type SUMMARY System _____ + Image _____
Description . . _____

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 reinstates the data set as active in this HDB. Undo is only available on a Deleted data set until Housekeeping is run.



- ▶ This is a notes page for the audience.

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 - HDB Audit ...

```
File Options Help
HDB Maintenance Row 1 to 2 of 2
Command ==> _____ Scroll ==> PAGE

Select to maintain HDB definition and its data sets.

Name      Type      Description      Changed      ID
A ACCTDLY  SUMMARY  Daily Accounting HDB      2005/01/06 11:33 CBAKER
_ SAMPLE  STATS
***** Bottom of data *****
```



CICS PA Historical Database - HDB Audit - Notes

An HDB Load Audit trail is also provided in the HDB Register to prevent duplicate container data sets being generated and to highlight gaps in the collected data.

Each HDB load request creates an audit record that includes the following information:-

- Date/time range of the data used to create the HDB containers
- Status indicator, OK or Failed.

The purpose of the HDB Load Audit is two-fold:-

1. Verify that all load requests have completed successfully
2. Highlight gaps in the data due to Load requests not being run.

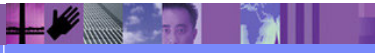
The HDB Audit records can be viewed and maintained from the CICS PA HDB Maintenance function. Entering line command "A" next to the desired HDB will display all the Audit records for the HDB (as shown on the next slide). An HDB Audit "Fail" command is also available in order to change the HDB Audit Status from "OK" to "Failed" in order to allow an HDb Load to be rerun.

► This is a notes page for the audience.



CICS PA Historical Database - HDB Audit ...

File Edit Options Help			
HDB Audit		Row 1 to 18 of 18	
Command ==>		Scroll ==> PAGE	
SMF Data Set Name	-----	Start	----- Status
S CPPSS.SMFDUMP.MV2C.G1186V00		2005/02/10 07:40:58	OK
- CPPSS.SMFDUMP.MV2C.G1185V00		2005/02/10 04:36:46	OK
- CPPSS.SMFDUMP.MV2C.G1184V00		2005/02/10 02:39:06	OK
- CPPSS.SMFDUMP.MV2C.G1183V00		2005/02/10 00:01:00	OK
- CPPSS.SMFDUMP.MV2C.G1187V00		2005/02/10 09:19:44	OK
- CPPSS.SMFDUMP.MV2C.G1188V00		2005/02/10 10:41:21	OK
- CPPSS.SMFDUMP.MV2C.G1189V00		2005/02/10 11:50:36	OK
- CPPSS.SMFDUMP.MV2C.G1190V00		2005/02/10 13:00:21	OK
- CPPSS.SMFDUMP.MV2C.G1191V00		2005/02/10 14:15:41	OK
- CPPSS.SMFDUMP.MV2C.G1192V00		2005/02/10 15:24:00	OK
- CPPSS.SMFDUMP.MV2C.G1193V00		2005/02/10 15:46:59	OK
- CPPSS.SMFDUMP.MV2C.G1194V00		2005/02/10 17:08:55	OK
- CPPSS.SMFDUMP.MV2C.G1195V00		2005/02/10 18:47:04	OK
- CPPSS.SMFDUMP.MV2C.G1196V00		2005/02/10 20:25:30	OK
- CPPSS.SMFDUMP.MV2C.G1197V00		2005/02/10 22:39:00	OK
- CPPSS.SMFDUMP.MV2C.G1198V00		2005/02/11 00:01:00	OK
- CPPSS.SMFDUMP.MV2C.G1199V00		2005/02/11 02:23:19	OK
- CPPSS.SMFDUMP.MV2C.G1200V00		2005/02/11 04:28:00	OK
***** Bottom of data *****			



CICS PA Historical Database - HDB Audit ...

```

File Edit Options Help
----- HDB Audit -----
                          Audit Statistics
| Command ==> _____|
|                          |
| SMF Data Set . . . : CPPSS.SMFDUMP.MV2C.G1186V00|
|                          |
| Status . . . . . : OK|
|                          |
| Data Start . . . . : 2005/02/10 07:40:58|
| Data End . . . . . : 2005/02/10 09:19:44|
| Record Count . . . : 735|
| Container Count : 1|
|                          |
| First SMF Record:|
| .-... ..MV2CSMF ....."SYSTASK ØØICFCAT.SYSPLEX2.MCAT|
| 0C001402330001DEFCEDC4444403300007EEEECED488CCCCE4EEEDDCEF4DCCE|
| 1A00E00A4B154F4523246000000385152F2823122000936313B28273572B4313|
|                          |
|-----|
| CPPSS.SMFDUMP.MV2C.G1198V00                2005/02/11 00:01:00 OK|
| CPPSS.SMFDUMP.MV2C.G1199V00                2005/02/11 02:23:19 OK|
| CPPSS.SMFDUMP.MV2C.G1200V00                2005/02/11 04:28:00 OK|
|***** Bottom of data *****|
    
```



CICS PA Historical Database - Housekeeping

```

- File Options Help
|
| HDB Housekeeping
0 | Command ==> _____
|
1 | Register . . . : CBAKER.TEST.HDB.REGISTER
2 |
3 | Select one of the following options
4 | 1 1. Submit HDB Housekeeping JCL
5 | 2 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.

```
3M0                                CICS Performance Analyzer
                                   HDB Housekeeping Report
-----
Housekeeping started.  HDB Register is CBAKER.TEST.SYSTEMS.REGISTER           Page
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

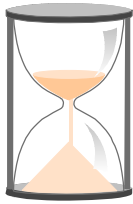
Housekeeping process complete.
```



CICS Performance Analyzer | Technical Presentation | IBM UK Laboratories, Hursley Park © 2005 IBM Corporation

- This is a notes page for the audience.

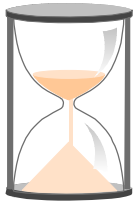
CICS PA Historical Database - Hints and Tips



- Focus on HDB purpose, consider carefully the requirements
 - ▶ Key fields, data fields, recording interval, ...
 - Trending and Capacity Planning versus Accounting and Chargeback
- If a Template is already being used to load data into an HDB
 - ▶ Changing the Template can potentially cause reporting problems
 - ▶ A few simple rules will ensure that an HDB is not compromised ...
 - Do not change the key fields of a Summary template
 - Do not change the focus of a template ...
 - Add/change data fields with care - consider creating a new template
 - Select the recording time interval carefully ...
 - Shorter intervals write more records - increasing the HDB data set size
 - Longer intervals - restrict reporting
 - ▶ Template Selection Criteria, HDB Selection Criteria, ...
 - Use them consistently to avoid confusion later

CICS PA Historical Database - Hints and Tips ...

- Use HDBs to Export CMF performance data to DB2 ...
 - ▶ Rather than the Performance Data Extract
- Statistics HDBs ...
 - ▶ Consider the Statistics Categories that you collect
 - Do you 'really' need to collect everything!
 - ▶ Exploit the use of Exporting the data to DB2 and/or CSV Files
 - Access to other performance analysis and reporting tools



CICS PA Historical Database - HDB Reporting

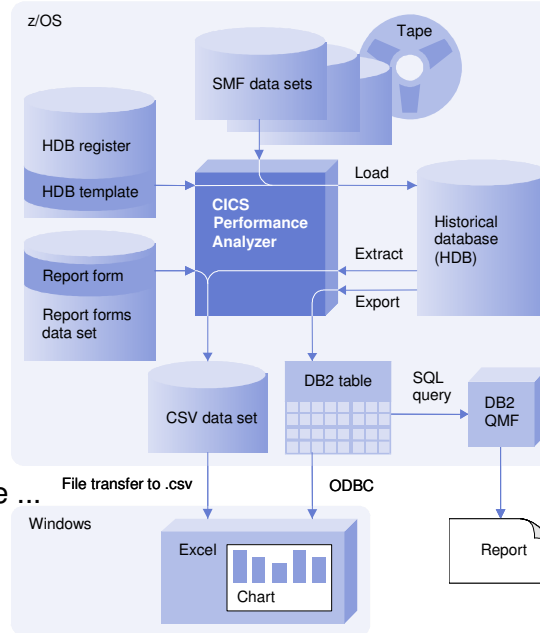
- [SupportPac - CP12: Historical Database Reporting ...](#)
 - ▶ Step-by-step procedure ...
 - CICS Statistics and Performance data - From SMF to HDB
 - Exporting data - From HDB to DB2 table or CSV file
 - ▶ Reporting Tools ...
 - Custom Reports and Charts
 - Excel and DB2 Query Management Facility (QMF)
 - ▶ Example Scenarios ...
 - Are we meeting Service Level Agreements (SLAs)?
 - Why is a transaction slow?
 - Tuning VSAM File and LSR Buffer Pools
 - ▶ Automating tasks ...
 - Using FTP to transfer a CSV file from z/OS to your PC
 - ▶ SupportPac - Technical document and samples available ...
 - <http://www.ibm.com/software/htp/cics/panaly/support/>



CICS PA Historical Database - HDB Reporting ...

HDB Reporting ...

- Step-by-step procedure ...
 - ▶ HDB Definition ...
 - Template, Define, ...
 - ▶ From SMF into an HDB
 - Load, ...
 - ▶ From an HDB ...
 - Export into a DB2 table
 - Extract into a CSV file
 - ▶ From a DB2 table ...
 - using an SQL query
 - ▶ From a DB2 table or CSV File ...
 - into a chart
 - using a Windows application
 - Excel



Tivoli Decision Support Accounting Workstation for z/OS

- CICS PA can be a data source for Accounting and Chargeback
 - ▶ Using CICS PA's Historical Database (HDB) support ...
 - To collect and summarize the CICS transaction performance data
 - To Extract to CSV or Export to DB2 to provide flexible data access
 - HDB Load Audit trail to provide information on the data collected
 - ▶ Using Tivoli Accounting Workstation for z/OS ...
 - Stand-alone IT Accounting and Chargeback application
- IBM Tivoli Decision Support Accounting Workstation for z/OS V2.1.1
 - ▶ Program Product – 5698-A42
- More Information ...
 - ▶ <http://www.ibm.com/software/tivoli/products/tds-acct/>





IBM Software Group

CICS Performance Analyzer for z/OS

CICS PA Online Statistics Reporting



CICS Tools | IBM UK Laboratories, Hursley Park

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- ▶ In this section of the presentation we will cover the new CICS PA CICS Statistics support that was introduced in CICS PA Version 1 Release 4.

CICS PA Online Statistics Reporting ...

- CICS PA provides comprehensive reporting and analysis of CICS statistics and CICS server statistics data
- The CICS PA Statistics online reporter provides comprehensive reporting of CICS Statistics data ...
 - ▶ Directly from an unloaded SMF data set or a CICS PA HDB
 - ▶ The reporting facility has QMF-like features; including ...
 - Tabular reporting, Sorting by field (column), ...
 - Forms to design personalized reports
 - Print facility (to a data set or to SYSOUT)
- CICS Statistics data can also be collected into a CICS PA Historical Database (HDB)
 - ▶ Facilities to Export to a DB2 table or Extract to a CSV file
 - ▶ Historical statistics data can also be reported using online reporting
- Supported for CICS Transaction Server for z/OS V2.2 or later

CICS PA Online Statistics Reporting - Notes

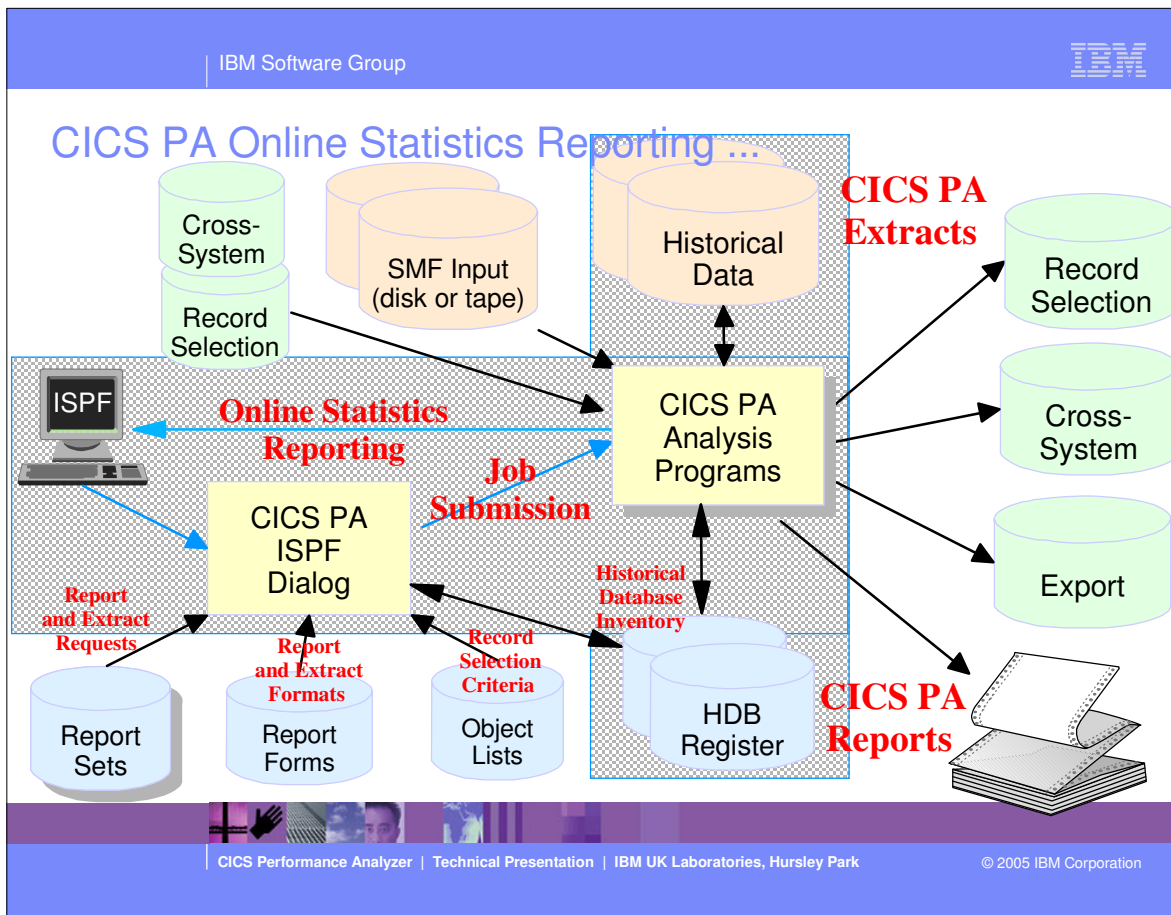
CICS PA provides comprehensive reporting for CICS statistics and server statistics in SMF 110 records. Short-term in-depth analysis or long-term trend analysis for your CICS statistics is available via the CICS PA Historical Database (HDB) and Statistics Reporting facilities.

The CICS PA statistics reporting complements the CICS utilities DFH0STAT and DFHSTUP. CICS PA presents CICS statistics in a similar way to DFH0STAT, the CICS sample statistics program. It does not accumulate and report statistics intervals like DFHSTUP. All statistics reporting is available from the CICS PA dialog. The procedure is:-

1. Specify an SMF File or HDB. A list of CICS statistics intervals for all systems is displayed.
2. Select the desired interval. A menu of statistics categories and reports is displayed.
3. Select the desired report. There are two types of reports: label reports or tabular reports:-
 - In label-based reports, fields are reported vertically. This is used when there is only one record for the report, typically an overview report.
 - In tabular reports, fields are reported horizontally. This format is displayed when there can be multiple records in the report, typically for CICS resources.
4. Sort on any column in the report, ascending or descending, using point-and-shoot column heading underlines.
5. Hyperlink to related reports using point-and-shoot field values.
6. Press Help (F1) to display descriptions of all fields in the report, together with their CICS field name and DB2 column name.
7. Press Form (F6) to edit the Report Form which controls the fields that are displayed in the report.



- This is a notes page for the audience.



- ▶ This foil shows the main components of CICS PA; including the TSO Interactive System Productivity Facility (ISPF) dialog, it's related data sets and the CICS PA batch analysis and reporting programs.

CICS PA Online Statistics Reporting ...

```
File  Options  Help
V1R4M0          CICS Performance Analyzer - Primary Option Menu
Option ==>> 7

0  CICS PA Profile      Customize your CICS PA dialog profile
1  Personal Systems     Specify personal 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
6  Shared Systems      Specify shared CICS Systems, SMF Files and Groups
7  Statistics          Report CICS Statistics
X  Exit                Terminate CICS PA

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restricted by GSA ADP Schedule Contract with IBM Corp.
```



CICS PA Online Statistics Reporting - Notes ...

From the CICS Statistics Reporting Menu, shown on the previous slide, you can select whether the data source is an SMF file or an HDB. Select from the following options to display a list of eligible SMF files or HDBs:-

1. SMF Files defined in Personal System Definitions. The list of SMF files in your Personal System Definitions
2. SMF Files defined in Shared System Definitions.
3. Historical Databases for CICS Statistics. The list of Statistics HDBs defined in the HDB Register.
4. Process SMF File. Process an ad hoc SMF File. Specify the SMF data set name immediately below.

For options 2 and 3, specify the HDB Register data set name that contains the Shared System Definitions and Statistics HDB definitions.

CICS PA scans the specified SMF Files for statistics intervals and presents the list of intervals for further analysis as shown on the next slide ...



► This is a notes page for the audience.



CICS PA Online Statistics Reporting ...

```

File Edit Filter Options Help
REPORT                               Statistics Intervals           Row 1 from 519
Command ==>                          Scroll ==> PAGE

Select the required CICS Statistics interval.

/  System   Image  VRM  Type  --- Collection Time ---  Reset   Duration
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:08:17 Tue  01:46:53
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:08:32 Tue  01:46:53
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:09:09 Tue  01:46:53
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:09:34 Tue  01:46:53
-  S IYK3ZOF6  MV2C   640  INT   2004/11/09 02:10:00 Tue  02:05:00  00:05:00
-  IYK3ZOF9  MV2C   640  INT   2004/11/09 02:10:00 Tue  02:05:00  00:05:00
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:10:01 Tue  01:46:53
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:10:06 Tue  01:46:53
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:10:55 Tue  01:46:53
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:11:16 Tue  01:46:53
-  IYK3ZOF9  MV2C   640  INT   2004/11/09 02:15:00 Tue  02:10:00  00:05:00
-  IYK3ZOF6  MV2C   640  INT   2004/11/09 02:15:00 Tue  02:10:00  00:05:00
-  IYK3Z7BA  MV2C   640  USS   2004/11/09 02:19:50 Tue  01:46:53
-  IYK3ZOF9  MV2C   640  INT   2004/11/09 02:20:00 Tue  02:15:00  00:05:00
-  IYK3ZOF6  MV2C   640  INT   2004/11/09 02:20:00 Tue  02:15:00  00:05:00
-  IYK3Z7BB  MV2C   640  USS   2004/11/09 02:20:13 Tue  01:47:01
-  IYK3Z7BB  MV2C   640  USS   2004/11/09 02:21:21 Tue  01:47:01
-  IYK3Z7BB  MV2C   640  USS   2004/11/09 02:21:45 Tue  01:47:01
-  IYK3ZOF6  MV2C   640  INT   2004/11/09 02:25:00 Tue  02:20:00  00:05:00
    
```




CICS PA Online Statistics Reporting ...

```

File Edit Options Help
REPORT                               Statistics Reports                Line 1 of 39
Command ==>>                        Scroll ==>> CSR

System: IYK3ZOF6/MV2C      Type: INT  Interval: 2004/11/09 02:10:00 Tuesday

** Reports **
- --- Regions                               Size
- --- Transaction Manager                   1
- --- CICS Dispatcher                       35
  / --- Dispatcher Overview                 1
  --- Dispatcher TCB Modes                  18
  --- Dispatcher TCB Pools                  4
  --- MVS TCB Overview                      1
  --- MVS TCBs                              11
+ --- CICS Storage                          359
+ --- CICS Dumps                             5
  --- Enqueue Pools                         18
+ --- Connectivity                           6
- --- Files and Databases                    5
  --- Files                                 5
  --- VSAM LSR Pools                        0
  --- VSAM LSR Pool Buffers                 0
  --- VSAM LSR Pool Files                   0
  --- DB2 Connections                       0
  --- DB2 Entries                           0
  --- IMS DBCTL Subsystems                  0
    
```



CICS PA Online Statistics Reporting ...

```

File Edit Options Help
Command ==>
----- Line Actions -----
System: IYK3ZOF6/MV |
|
| ** Rep | Select by number or action code then press Enter. |
- Region | 1 1. Display report... (S) |
| T | 2. Display report information... (I) |
- C | 3. Print report... (P) |
| / | 4. Delete report (D) |
|
|-----|
| MVS TCBS | 11 |
+ CICS Storage | 359 |
+ CICS Dumps | 5 |
| Enqueue Pools | 18 |
+ Connectivity | 6 |
- Files and Databases | 5 |
| Files | 5 |
| VSAM LSR Pools | 0 |
| VSAM LSR Pool Buffers | 0 |
| VSAM LSR Pool Files | 0 |
| DB2 Connections | 0 |
| DB2 Entries | 0 |
| IMS DECTL Subsystems | 0 |

```



CICS PA Online Statistics Reporting - Notes ...

For a selected interval, the CICS statistics are displayed in a tree structure (folder style) of categories and reports. This is similar to the way in which some PC tools display folders and their contents. The categories can be expanded (to show) or collapsed (to hide) the reports contained within them.

The valid line actions for the Statistics Reports menu tree are:-

- /** Display the selection list of line actions
- S** Depends on the position in the tree:-
 - ** Reports **** Expand all categories, or collapse all categories if already expanded
 - Category** Expand/Collapse the category
 - Report** Display the report. You can then edit the Form to dynamically change the format of the report.
- I** Display information about the report
- P** Print the report, or all reports in the category. You will be prompted for print options.
- D** Delete the category or report. The RESET command reinstates them.

The next slide shows an example of label-based reports where the fields are represented vertically. This format is used when there is only one statistics record for the report, typically an overview or global type of report.



► This is a notes page for the audience.



CICS PA Online Statistics Reporting ...

```

File Form Options Help
REPORT Dispatcher Overview Line 00000001
Command ==> Scroll ==> CSR

System: IYK3ZOF6/MV2C Type: INT Interval: 2004/11/09 02:10:00 Tuesday

Global Statistics Length . . . . . : 128
CICS TCB MODEs . . . . . : 18
CICS TCB POOLs . . . . . : 4
Current ICV Time . . . . . : 5,000
Current ICVR Time . . . . . : 0
Current ICVTS Time . . . . . : 500
Current PRTYAGE Time . . . . . : 32,768
Concurrent Subtask TCBs . . . . . : 0
Current MRO (QR) Batching . . . . . : 1
Current Tasks . . . . . : 17
Peak Tasks . . . . . : 18
Dispatcher Start Time GMT . . . . . : 2004-11-08-08.40.59
Dispatcher Start Time Local . . . . . : 2004-11-08-08.40.39
Address Space CPU Time . . . . . : 00.00.00.044659
Address Space SRB Time . . . . . : 00.00.00.001885
Excess TCB Scans . . . . . : 1
Excess TCB Scans No TCB Detached . . . . . : 1
Excess TCBs Detached . . . . . : 0
    
```



CICS PA Online Statistics Reporting ...

File Form Options Help							
Command ==>						Scroll ==> CSR	
System: IYK3ZOF9/MV2C Type: INT Interval: 2004/11/09 02:15:00 Tuesday							
Subpool Name	DSA Name	Element Type	Fixed Length	Element Chaining	Element Boundary	Location	Access
>LGJMC	ECDSA	FIXED	60	NO	4	ABOVE	CICS
AITM_TAB	ECDSA	FIXED	584	NO	8	ABOVE	CICS
AP_TCA24	CDSA	FIXED	1536	NO	128	BELOW	CICS
AP_TCA31	ECDSA	FIXED	1536	NO	128	ABOVE	CICS
AP_TXDEX	ECDSA	FIXED	72	NO	8	ABOVE	CICS
APAI31	ECDSA	FIXED	152	NO	8	ABOVE	CICS
APBMS	ECDSA	VARIABLE	0	YES	16	ABOVE	CICS
APCOMM31	ECDSA	VARIABLE	0	NO	16	ABOVE	CICS
APDWE	ECDSA	FIXED	32	NO	8	ABOVE	CICS
APECA	SDSA	FIXED	8	NO	8	BELOW	USER
APICE31	ECDSA	FIXED	208	NO	8	ABOVE	CICS
APURD	ECDSA	VARIABLE	0	NO	16	ABOVE	CICS
ASYNCFUF	ECDSA	FIXED	4096	NO	4	ABOVE	CICS
BAGENRAL	ECDSA	VARIABLE	0	NO	16	ABOVE	CICS
BAOFBUSG	ECDSA	FIXED	24	NO	8	ABOVE	CICS
BAOFT_ST	ECDSA	FIXED	136	NO	8	ABOVE	CICS
BR_BFB	ECDSA	FIXED	80	NO	16	ABOVE	CICS
BR_BFN	ECDSA	FIXED	96	NO	16	ABOVE	CICS



CICS PA Online Statistics Reporting - Notes ...

The previous slide shows an example of tabular reports where the fields are reported horizontally. This format is used when there can be multiple records in the report, typically for CICS resources.

In Statistics tabular reports, you can sort on any column. To sort on a column, tab to the point-and-shoot underline of the column heading and press Enter. Repeated point-and-shoot sorting flips the sequencing between ascending and descending. To reset the report to the original sort order, select Edit->Reset in the action bar or enter the RESET or RES command.

In Statistics tabular reports, you can also hyperlink from one report to another. Selected fields in the report will hyperlink to a related report. The hyperlink candidate fields are point-and-shoot fields. Position your cursor on the field value of interest and press Enter to link to that value in the related report.

The next slide shows an example of the Statistics Report Forms which allow you to tailor the format of each Statistics report. Each line in the Form represents a row heading in the label report or a column heading in the tabular report. The order of the fields in the Form dictates the order of the fields in the report. You can move the fields to the desired position. You can OMIT fields that you do not want reported. You can also FIX fields at the start of the report so that they remain in view when you scroll right.



- ▶ This is a notes page for the audience.



CICS PA Online Statistics Reporting - Report Forms ...

```

File Edit Options Help
FORM      Domain Subpools                               Line 1 of 16
Command ==> _____                               Scroll ==> CSR

----- Width -----
/  Heading                               Usage Column  Max Report
-  Subpool Name                           FIX          8      8
-  DSA Name                               _____    8     18
-  Element Type                            _____    8     28
-  Fixed Length                            _____   10     40
-  Element Chaining                        _____    8     50
-  Element Boundary                        OMIT        10
-  Location                               _____    8     60
-  Access                                 _____    8     70
-  DSA Index                              _____    8     80
-  Initial Free Area                       _____   10     92
-  GETMAIN Requests                        _____   10    104
-  FREEMAIN Requests                       _____   10    116
-  Element Storage                         _____   10    128
-  Current Page Storage                    _____   10    140
-  Storage Elements                        _____   10    152
-  Peak Page Storage                       _____   10    164
***** End of Form *****
    
```



CICS PA Online Statistics Reporting - Printing ...

```

File Edit Options Help
R |                                     Print Statistics Report
C | Command ==> _____
S | Specify Statistics Report print options.
  |
  | Report Destination:
  | 1 1. Data Set   2. SYSOUT
  |
  | Output Data Set:
  | Data Set Name . . SM.DOMAIN.SUBPOOL.STATS
  | Disposition . . . 1 1. OLD  2. MOD  (If cataloged)
  |
  | Enter "/" to select option
  | / Browse output data set
  |
  | Report Output:
  | SYSOUT Class . . . A   Print Lines per Page . . 60 (0-255)
  |
  |-----|-----|-----|
          Enqueue Pools                18
+         Connectivity                   6
-         Files and Databases            5
          Files                          5
          VSAM LSR Pools                  0
          VSAM LSR Pool Buffers          0
          VSAM LSR Pool Files            0
    
```

CICS PA Online Statistics Reporting - Notes ...

The previous slide shows an example of printing Statistics reports.

Statistics reports can be printed, either to a DASD data set or SYSOUT file (The data set can be PDS (with member) or PS (including GDG)). Printed Statistics reports also honor your current Form.

To print a statistics report, enter line action P against the report in the menu tree.

The next slide is a review of the CICS PA Online Statistics Reporting functions ...



- ▶ This is a notes page for the audience.

CICS PA Online Statistics Reporting - Review ...

- CICS PA provides comprehensive reporting and analysis of CICS statistics and CICS server statistics data
- The CICS PA Statistics online reporter provides comprehensive reporting of CICS Statistics data ...
 - ▶ Directly from an unloaded SMF data set or a CICS PA HDB
 - ▶ The reporting facility has QMF-like features; including ...
 - Tabular reporting, Sorting by field (column), ...
 - Forms to design personalized reports
 - Print facility (to a data set or to SYSOUT)
- CICS Statistics data can also be collected into a CICS PA Historical Database (HDB)
 - ▶ Facilities to Export to a DB2 table or Extract to a CSV file
 - ▶ Historical statistics data can also be reported using online reporting



Summary

- CICS Performance Analyzer for z/OS
 - ▶ Comprehensive Performance Reporting and Analysis for CICS
 - Including DB2, IMS (DBCTL), WebSphere MQ, and z/OS System Logger
 - ▶ CICS Monitoring Facility (CMF) and CICS Statistics SMF 110 data
 - ▶ Extensive Tabular Reports and Extract Data Sets
 - ▶ Historical Database
 - Trending, Capacity Planning and Accounting
 - ▶ ISPF Dialog to build, maintain, and submit reports and extracts
- CICS PA Version 1.4 - Product information ...
 - ▶ Program Product - 5655-F38
 - ▶ Releases Supported ...
 - CICS Transaction Server for z/OS, Version 3 and Version 2
 - CICS Transaction Server for OS/390, Version 1
- More Information

<http://www.ibm.com/cics/>



▶ So to summarize:-

- ▶ The CICS Performance Analyzer for z/OS provides a comprehensive Performance Reporting tool for CICS and related subsystems. It includes many reports and extracts, including DB2, WebSphere MQ, and the MVS System Logger.
- ▶ CICS PA Version 1 Release 4 was announced on the 22nd February 2005 and was generally available on the 25th March 2005.
- ▶ CICS PA Version 1 Release 4 supports CICS Transaction Server for z/OS Version 3.1 and Version 2 (all releases), CICS Transaction Server for OS/390 Version 1 (all releases), and CICS for MVS/ESA Version 4.1.

Summary - Notes

CICS Performance Analyzer for z/OS provides a comprehensive CICS performance analysis and reporting tool using the CICS Monitoring Facility (CMF), CICS Statistics and CICS Server Statistics data (SMF 110), DB2 Accounting data (SMF 101), WebSphere MQ Accounting data (SMF 116), and z/OS System Logger data (SMF 88).

CICS Performance Analyzer for z/OS, Version 1 Release 4 was announced on February 22nd 2005 and available on March 18th 2005.

CICS PA Version 1.4 supports CICS Transaction Server for z/OS Version 3, 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 1.4 supports DB2 Version 5, Version 6, Version 7, and Version 8. For the WebSphere MQ Reports, CICS PA Version 1.4 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.



- ▶ This is a notes page for the audience.

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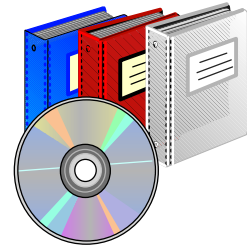
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- ▶ This appendix has a couple of visuals showing reference material and useful web sites.

Appendix

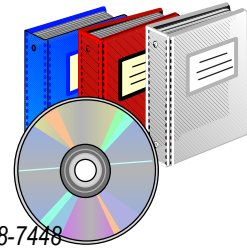
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- ▶ This appendix has a couple of visuals showing reference material and useful web sites.

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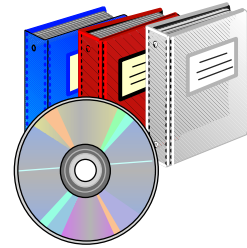
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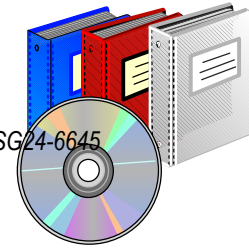
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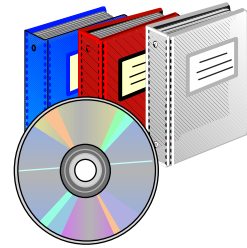
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■ Other IBM Performance Reporting Tools ...

- ▶ Resource Measurement Facility (RMF)
- ▶ IBM DB2 Performance Expert for z/OS (DB2 PE)
- ▶ DB2 Performance Monitor (DB2 PM)
- ▶ IMS Performance Analyzer for z/OS (IMS PA)
- ▶ IBM Tivoli Decision Support for z/OS
- ▶ IBM Tivoli Decision Support Accounting Workstation for z/OS

Other IBM Performance Reporting Tools

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