IBM CICS Performance Analyzer for z/OS

Getting Started Guide

Version 3 Release 2

SC34-7155-01

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Version 3 Release 2

SC34-7155-01

Note
Before using this information and the product it supports, read the information in "Notices" on page 49.

This edition applies to Version 3 Release 2 of IBM CICS Performance Analyzer for z/OS (product number 5655-U87) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this book

This book contains information for IBM® CICS® Performance Analyzer for z/OS® Version 3 Release 2. The step-by-step instructions are intended to help you get up and running with using the dialog. This guide will introduce you to the basic functions so you understand enough to make better use of the tool to help you analyze and tune the performance of your CICS systems.

The tasks covered in this *Getting Started Guide* are:

- Setting up your CICS PA environment
- Defining systems and reports
- Submitting your first report
- Daily monitoring and trend analysis
- Using historical databases for trend analysis
- Service level management
- Statistics reporting
- System upgrade

Who should read this book

This book is intended for first time users of CICS Performance Analyzer for z/OS. It assumes that you understand basic CICS concepts and your installation's CICS systems. If you are new to MVS™, OS/390®, z/OS, DFSORT, or CICS, you might want to review the information in Bibliography before using this book and the CICS Performance Analyzer for z/OS.

Before you read this book, you need to have a good understanding of how CICS works. This assumes familiarity with many of the books in the CICS Transaction Server for z/OS library. You will also need to have a good understanding of the CICS Monitoring Facility (CMF), which is described in the *CICS Performance Guide.*

Conventions used in this book

This book uses the following conventions.

Highlighting conventions

This book uses the following highlighting conventions:

- **Boldface type** indicates dialog commands or user interface controls such as names of fields or menu choices.
- `Monospace type` indicates examples of text and batch commands that you enter exactly as shown.
- *Italic type* indicates variables that you should replace with a value. It is also used to indicate book titles and to emphasize significant words.

Command syntax notational conventions

The notational conventions used in this book to describe the syntax of CICS PA batch commands are as follows:

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Use of symbols

The levels of nesting in the syntax are separated by parentheses. When you enter the commands, enter the following symbols exactly as they appear in the list:

, comma
- hyphen
= equals
. period
: colon
( ) parentheses

The following symbols are used to distinguish operands and command syntax. Do ***not*** enter them when you enter commands:

brackets [ ]
mean that you ***can*** select one of the operands, but they can be omitted. If the brackets are nested, the outermost operand (enclosed by one pair of brackets) is the highest level of nesting. That operand must be selected to select the next lower-level operand nested within it, and so forth.

underscore _____
denotes a default option. If you don't specify an operand, this is the operand the system selects.

vertical bar |
separates operand alternatives within brackets.

Use of case

Uppercase letters represent information that you must enter as shown. Some operands can be abbreviated. The letters that must be used are in uppercase. The subsequent letters in lowercase can be omitted. For example, you can enter the operand `CROSSsystem` either as a full word or abbreviated. The uppercase letters `CROSS` are the shortest truncation that CICS PA accepts.

Lowercase letters represent variable information that you supply, such as start time, owner, delimiter, DDname, and so on. For example, `OUTPUT(ddname)` shows that the OUTPUT operand requires a DDname parameter.

$ (the dollar symbol)

In the character sets given in this book, the dollar symbol ($) is used as a national currency symbol and is assumed to be assigned the EBCDIC code point X'5B'. In some countries a different currency symbol, for example the pound symbol (£), or the yen symbol (¥), is assigned the same EBCDIC code point. In these countries, the appropriate currency symbol should be used instead of the dollar symbol.

Terminology used in this book

In this book, CICS Performance Analyzer for z/OS is referred to by its short name of CICS Performance Analyzer or the abbreviation CICS PA, and CICS Transaction Server for z/OS is referred to as CICS TS.

CICS PA can produce various types of output, including reports (text or numeric data formatted for human readers), graphs (also for human readers), and extracts (data intended for use by other software applications). These outputs are often referred to collectively as “reports”.

Much of the terminology in this book is based on CICS terminology. See *CICS Transaction Server for OS/390: Glossary*, GC33-1705.

The following Web site consolidates in one convenient location several of the main glossaries created for IBM products, including the *Glossary of Computing Terms*:

http://www.ibm.com/ibm/terminology/

Service updates and support information

To find service updates and support information, including software FixPaks, PTFs, Frequently Asked Question (FAQs), technical notes, troubleshooting information, and downloads, see the following Web page:

www.ibm.com/cics/support

Where to find information

The CICS Library Web page provides current product documentation and IBM Redbooks® that you can view, print, and download. To locate publications with the most up-to-date information, see the following Web page:

www.ibm.com/cics/library

Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully.

You can perform most tasks required to set up, run, and maintain your CICS system in one of these ways:

- using a 3270 emulator logged on to CICS
- using a 3270 emulator logged on to TSO
- using a 3270 emulator as an MVS system console

IBM Personal Communications provides 3270 emulation with accessibility features for people with disabilities. You can use this product to provide the accessibility features you need in your CICS system.

Chapter 1. What is CICS Performance Analyzer for z/OS?

CICS Performance Analyzer for z/OS (CICS PA) is a comprehensive performance reporting tool to help you develop, analyze, tune, and manage your CICS Transaction Server systems.

CICS PA provides an ISPF menu-driven dialog to request generation of reports and extracts from System Monitoring Facility (SMF) files.

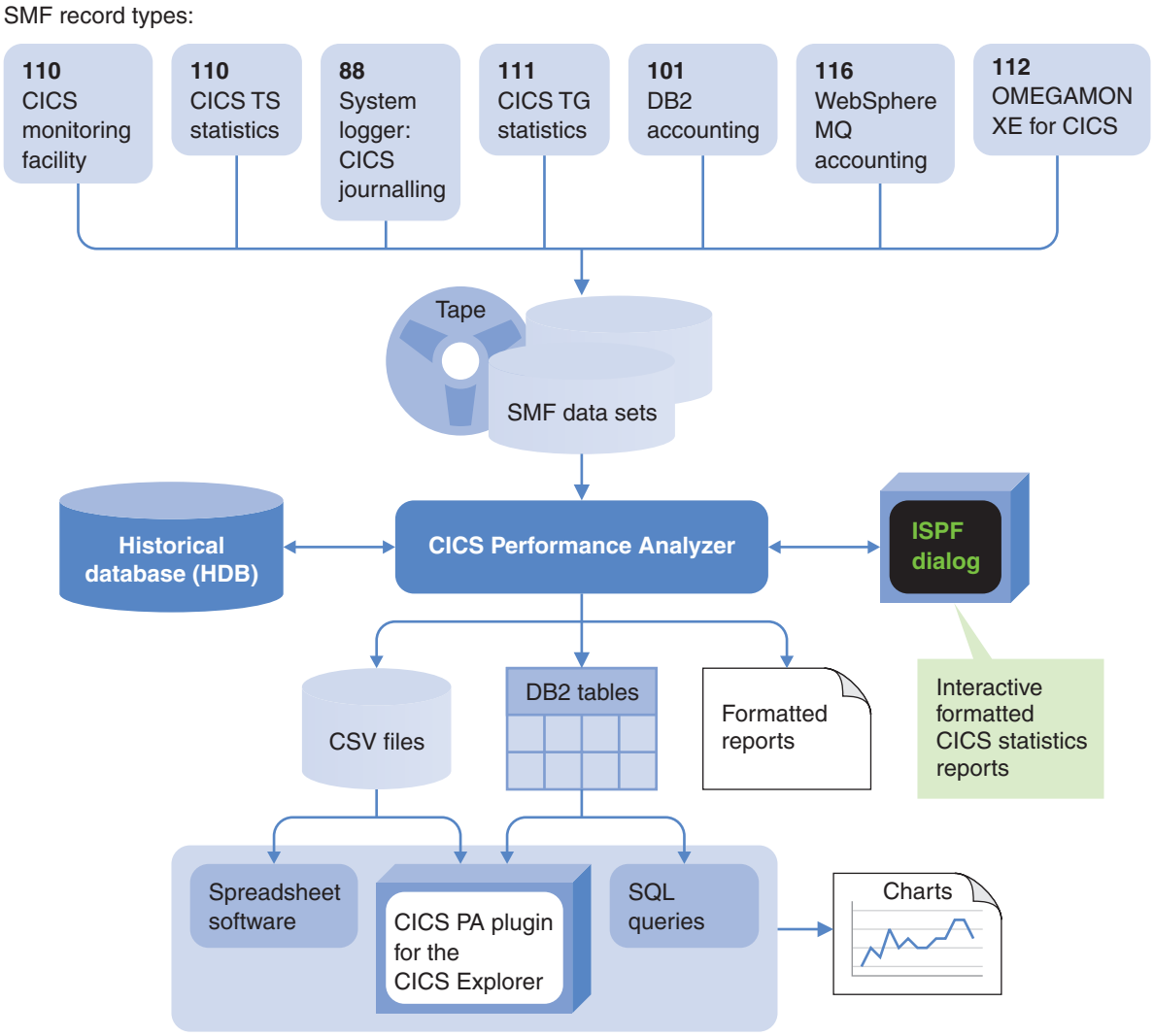

Figure 1. CICS Performance Analyzer overview

The dialog has many features to help you to specify your input files, filter the data, and tailor the reports and extracts to meet many different reporting requirements.

CICS PA helps you analyze the performance of your CICS systems using the following SMF record types:

- CICS Monitoring Facility (CMF) performance class, exception class, and transaction resource class (SMF 110, subtype 1)

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- CICS Transaction Server (CICS TS) statistics (SMF 110, subtype 2) and CICS Server statistics (SMF 110, subtypes 3, 4, and 5)
- z/OS System Logger for CICS journaling (SMF 88)
- CICS Transaction Gateway (CICS TG) statistics (SMF 111)
- DB2® accounting (SMF 101)
- WebSphere® MQ accounting (SMF 116)
- OMEGAMON® XE for CICS (SMF 112) containing transaction data for Adabas, CA-Datacom, CA-IDMS, and Supra database management systems

These data sources provide input for generating reports, storing in HDBs, or exporting for analysis using CICS Explorer®, spreadsheets or SQL.

The Historical Database (HDB) facility provides data warehousing of SMF data. It helps you to manage CICS transaction performance and CICS statistics data for long term analysis. HDBs are designed and managed from the dialog. You can submit batch jobs to report against data in a List or Summary HDB, and export data to DB2 tables or CSV files for further analysis.

CICS PA can be useful to anyone who needs to monitor and manage CICS system and CICS application performance:

- CICS System Programmers:
  - System performance monitoring and tuning
  - Improve CICS system resource usage
  - Improve transaction response times
- CICS Application Programmers:
  - Analyze CICS application performance
  - Transaction performance monitoring
  - DB2 and VSAM database performance monitoring
- Information Technology Managers:
  - Capacity planning
  - Service Level Agreements
  - Ongoing system management and measurement reports

Chapter 2. Setting up

To get started, you need CICS PA installed and SMF data files available for reporting.

This tutorial then steps you through setting up your CICS PA environment and system definitions ready for reporting to commence:

1. Start the CICS PA dialog
2. Check your dialog profile settings (optional)
3. Define the CICS systems and data files to be reported

Before you begin

Before you begin using CICS PA, do the following:

1. Install CICS PA by following the instructions in the Program Directory. This is typically completed by your system administrator.
2. If you are unfamiliar with SMF data files and how to prepare them for CICS PA reporting, refer to the CICS Performance Analyzer *User's Guide* to read the section on preparing SMF data for CICS PA processing. Liaise with your data administrator as required.

The CICS PA dialog requires no special customization. CICS PA assigns default settings that are sufficient to get started with reporting.

Displaying the Primary Option Menu

Start the CICS PA dialog either dynamically or statically as described in the *User's Guide.* For example, for dynamic startup, enter the following TSO command:

```
EX 'CICSPA.V3R2M0.SCPAEXEC(CPAOREXX)' 'CICSPA.V3R2M0 ENU'
```

If the high level qualifier for your CICS PA installation data sets is not `CICSPA.V3R2M0`, then alter the command accordingly.

On entry to the CICS PA dialog, the Primary Option Menu is displayed.

```
  File  Options  Help
-------------------------------------------------------------------------------
V3R2M0          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
8  Profiling             Request Transaction Profiling
9  Resource Definitions  Define Resource Lists, Application Groups and Alerts
X  Exit                  Terminate CICS PA
```

Figure 2. CICS PA Primary Option Menu

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Initial setup to customize your profile is optional, but is recommended to make it easier for you to work with the CICS PA dialog.

CICS PA uses default settings and prompts you to allocate data sets (with default allocation attributes) as they are required.

Customizing your profile settings

You can bypass this step as the default profile settings are adequate to get started. However, you might choose to customize the dialog to the way you like it so that you can work more efficiently.

You can use the standard ISPF commands **SETTINGS**, **CUAATTR**, and **PFSHOW.** It is recommended that you select the ISPF setting **Tab to point-and-shoot fields**, set point-and-shoot fields to a differentiating color, and, until you are familiar with using the CICS PA dialog, show function key settings.

To review your CICS PA profile settings, select CICS PA Primary Menu option 0 **CICS PA Profile.** Note that if you bypass this step and do not complete the profile settings yourself, then CICS PA will use default settings and allocate new data sets on your behalf when it needs them to save your report requests.

1. **CICS PA Settings.** This allows some customization of the CICS PA dialog and JCL used for generating reports and extracts.
2. **Reporting Allocation Settings.** Specify unit and space parameters for sort, work, or extract data sets that CICS PA might need to create during batch report processing.
3. **CICS PA Control Data Sets.** Specify the names of the partitioned data sets used to maintain Report Sets, Report Forms, and Object Lists. If the specified data sets do not exist, CICS PA will dynamically allocate them when required using the default allocation settings LRECL=80, BLKSIZE=6160, and SPACE=(CYL,(1,1,50)).

   Also specify the name of the HDB Register, a VSAM KSDS used to maintain shared system definitions, historical database (HDB) definitions, resource definitions (including application groups and performance alert definitions), and details used for transaction profiling. If the specified register does not exist, CICS PA will prompt you to create it when required.
4. **DB2 Settings.** If you plan to export HDB data to DB2 tables, specify your DB2 settings.

Defining systems and files

Before requesting CICS PA reports, you must first define the systems that you wish to report against.

The System Definitions facility allows you to define CICS APPLIDs, DB2 subsystems, and other system types (z/OS MVS Image, WebSphere MQ, MVS System Logger), group them for reporting purposes, and specify their associated SMF files.

In this tutorial, use option 1 **Personal System Definitions** to maintain system definitions for your own use. Alternatively, to maintain a central repository of system definitions that can be accessed by others, use option 6 **Shared System Definitions.**

To define systems and files for reporting, the steps are:

1. The first time that you select option 1 (Personal System Definitions), you are presented with a menu. You can choose to bypass this in the future.

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

Select an option then press Enter.
1  1. Define Systems, SMF Files and Groups
   2. Maintain SMF Files
   3. Maintain Group definitions
   4. Take-up from SMF File

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

   You can use Take-Up to automatically populate your system and file definitions with details extracted from specified SMF files.

   However, we will select option 1 to enter the details manually.

2. The initial System Definitions list is empty. Enter the **NEW** command to add a new system definition.

```
  File  Edit  Filter  View  Options  Help
-------------------------------------------------------------------------------
                         Personal System Definitions
Command ===> NEW_____________________________________________ Scroll ===> ____

Select a System to edit its definition, SMF Files and Groups.
                                                                    SMF Files
/   System   Type    Image                Description              System
******************************** End of list *********************************


System list is empty. Enter the NEW command to add a new System definition.
```

3. Specify the name and type of system. System names can be a masked pattern, for example, CICSP*. Then all CICS systems with names that match the pattern will share the system definition, SMF files, and so on.

```
               New System
Command ===> ____________________________

Select the name and type of system.

System Name  . . *_______

System Type  . . 1  1. CICS System
                    2. MVS Image
                    3. DB2 Subsystem
                    4. MQ Subsystem
                    5. System Logger
```

   You might have an SMF file to analyze but not know the name of the system. In this case, specify an asterisk (*) as the system name. Select type 1 to specify a CICS system and press Enter.

4. Specify the CICS system details including a meaningful description.

5. Then specify the data set name of an SMF file that belongs to this system. Enclose fully-qualified data set names in quotes.

```
  File  Edit  Dictionary  View  Options  Help
--------------------------------------------------------------------------------
                              CICS System              Row 1 of 1  More: >
Command ===> _____________________________________________ Scroll ===> ____

CICS System definition:
 APPLID . . . . . . . . *_______  MVS Image . . ________
 Description  . . . . . Generic APPLID for getting started___
 CICS Version (VRM) . . ___
 MCT Suffix . . . . . . __
 MCT Load Library . . . _____________________________________________
 SDFHLOAD Library . . . _____________________________________________
 Dictionary DSN . . . . _____________________________________________

/ Exc             SMF Data Set Name +                UNIT +  SEQ VOLSER +
_     'CICSGSG.CMF.FILE1'_____________________________ ________ ___ ______
******************************** End of list ****************************

 F1=Help        F3=Exit        F4=Prompt      F5=Rfind       F6=Resize
 F7=Backward    F8=Forward    F10=Actions    F11=Right      F12=Cancel
```

There are a number of fields of possible importance on this panel, so we'll pause here to explain some points:

- Context-sensitive help is available throughout the CICS PA dialog on every panel and every entry field. For example, position the cursor on the MCT Suffix field, and press **Help** (F1).
- You must specify the MCT Suffix and MCT Load Library if you want to include User Fields and Application Naming in your reporting. Otherwise, CICS PA will use the system default MCT for the particular CICS version. This is sufficient for our purpose now.
- Input fields with a **+** sign to the right signify that Prompt is available. Simply position the cursor on the input field and press **Prompt** (F4) to select from a list of allowable values. For example, prompt on SMF Data Set Name will display a list of SMF data set names that were previously defined.
- You can specify as many files for a system as you want to include in your reporting. CICS PA will process them all. However, to exclude a file from reporting, use line action **X**.
- Preferably specify the files in time sequence (earliest first) as CICS PA processes them in the order that they are specified. Line actions are available to help you do this: **I** (Insert), **R** (Repeat), **C** (Copy), **M** (Move), **D** (Delete).
- When you become more familiar with the CICS PA dialog, you will probably want to define your systems to groups. Groups enable you to connect systems together for consolidated reporting. This is especially useful for MRO, APPC or other systems that share workloads. Scroll **Right** (F11) to specify the groups that this system belongs to. **More: >** is displayed in the top right corner to remind you.

6. Exit to update the system and file definitions. The list of system definitions is displayed.

```
  File  Edit  Filter  View  Options  Help
--------------------------------------------------------------------------------
                         Personal System Definitions             Row 1 from 1
Command ===> ____________________________________________ Scroll ===> ____

Select a System to edit its definition, SMF Files and Groups.
                                                                      SMF Files
/   System   Type    Image                Description                System
_   *        CICS             Generic APPLID for getting started___ *
******************************** End of list *********************************
```

7. To save the updates, enter the **SAVE** command or exit to return to the menu.

The initial system definition is complete and you can now move on to requesting reports.

Chapter 3. Performance reporting

This tutorial is designed to get you started using the dialog to request form-based transaction performance reports.

Before you start, define your initial set of systems and SMF data files to CICS PA. Refer to the instructions in "Defining systems and files" on page 4.

The basic steps for performance reporting are:

1. Request reports to run against SMF data for defined systems
2. Submit your report requests to run in batch
3. View the report output
4. Tailor the report format using Report Forms (optional)
5. Filter the report data using Selection Criteria (optional)
6. Use Record Selection to create SMF extract files for more efficient processing (optional)

Requesting a List report

A Report Set defines a selection of reports and extracts with specified options that can be run against a single pass of the data. You can define as many Report Sets as you wish.

To build report requests, the steps are:

1. Select option 2 Report Sets from the Primary Option Menu. You are prompted to create the Report Sets data set where CICS PA will save your report requests.

   Press Enter to create the Report Sets data set with default attributes. (Otherwise, cancel and go to option 0.3 from the Primary Option Menu to specify the data set name of your choice.)
2. The initial Report Sets list is empty. Use the **NEW** command to create your first Report Set.

```
 File  Systems  Confirm  Options  Help
--------------------------------------------------------------------------------
                              Report Sets
Command ===> NEW REPORTS1_____________________________________ Scroll ===> PAGE

Report Sets Data Set . . : xxxx.CICSPA.RSET

 /    Name             Description               Changed        ID
******************************** End of list ********************************
```

3. You can now start editing your Report Set. We set the Report Set description to **Demonstration Report Set** so that we can easily identify the Report Set.

   The list of available reports is displayed in a tree structure (folder style) where the reports are grouped by category. This is similar to the way in which some PC tools display folders and their contents. The categories can be expanded (to

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show) or collapsed (to hide) the reports contained within them. Use your mouse as a lightpen or enter line action **S** to expand or collapse the categories and select reports within them.

```
 File  Systems  Confirm  Options  Help
------------------------------------------------------------------------------
EDIT                      Report Set - REPORTS1
Command ===> _____________________________________________ Scroll ===> PAGE

Description  . . . . Demonstration Report Set_______

Enter "/" to select action.

S__           ** Reports **                          Active
     -  ___   Options                                  No
              ___  Global                              No
     -  ___   Selection Criteria                       No
              ___  Performance                         No
              ___  Exception                           No
     -  S__   Performance Reports                      No
              ___  List                                No
              ___  List Extended                       No
              ___  Summary                             No
              ___  Totals                              No
              ___  Wait Analysis                       No
              ___  Transaction Profiling               No
              ___  Cross-System Work                   No
              ___  Transaction Group                   No
              ___  BTS                                 No
              ___  Workload Activity                   No
              ___  Transaction Tracking List           No
              ___  Transaction Tracking Summary        No
     -  ___   Exception Reports                        No
              ___  List                                No
              ___  Summary                             No
     -  ___   Transaction Resource Usage Reports       No
              ___  File Usage Summary                  No
              ___  Temporary Storage Usage Summary     No
              ___  DPL Usage Summary                   No
              ___  Transaction Resource Usage List     No
     -  ___   Statistics Reports                       No
              ___  Alert                               No
     -  ___   Subsystem Reports                        No
              ___  DB2                                 No
              ___  WebSphere MQ                        No
              ___  OMEGAMON                            No
     -  ___   System Reports                           No
              ___  System Logger                       No
     -  ___   Performance Graphs                       No
              ___  Transaction Rate                    No
              ___  Transaction Response Time           No
     -  ___   Extracts                                 No
              ___  Cross-System Work                   No
              ___  Performance                         No
              ___  Record Selection                    No
              ___  HDB Load                            No
              ___  System Logger                       No
              ___  Statistics                          No
              ** End of Reports **
```

4. Enter line action **S** to select a report. We'll select the Performance List report to get the details of every transaction that ran on our CICS system.

```
  File  Systems  Confirm  Options  Help
-------------------------------------------------------------------------------
EDIT                      Report Set - REPORTS1
Command ===> _____________________________________________ Scroll ===> PAGE

Description  . . . . Demonstration 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
              ___  Transaction Profiling               No
              ___  Cross-System Work                   No
              ___  Transaction Group                   No
              ___  BTS                                 No
              ___  Workload Activity                   No
              ___  Transaction Tracking List           No
              ___  Transaction Tracking Summary        No
     +  ___   Exception Reports                        No
     +  ___   Transaction Resource Usage Reports      No
     +  ___   Statistics Reports                      No
     +  ___   Subsystem Reports                       No
     +  ___   System Reports                          No
     +  ___   Performance Graphs                      No
     +  ___   Extracts                                No
              ** End of Reports **
```

5. The Performance List report options are specified here. The report will run without you specifying any additional options, but you might want to tailor the report.

```
  File  Systems  Options  Help
-------------------------------------------------------------------------------
                    REPORTS1 - Performance List Report
Command ===> ____________________________________________________________________

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

Report Focus:
 Form . . . ________  +
 Alert  . . ________  +
  Severity  ________  +

Report Options:
 Title  . . ____________________________________________________________
            ____________________________________________________________

Selection Criteria:
 _  Performance

HDB Register  . :
```

6. Exit to save your new report specification. A list of reports is displayed.
7. In one Report Set, you can define as many reports of the same type as you like. Use line action **I** (Insert) to define a new Performance List report.

```
  File  Filter  Edit  Systems  Options  Help
------------------------------------------------------------------------------
                     REPORTS1 - Performance List Reports          Row 1 from 1
Command ===> _____________________________________________ Scroll ===> PAGE

        ---- System Selection ----                                  Selection
/  Exc  APPLID +  Image +  Group +   Output     Form +    Alert +   Criteria
I       ________  ________ ________  LIST0001   ________  ________    NO
******************************** End of list ********************************
```

Tip: If you define more than one report of the same type, such as two List reports, specify a different Output DDname for each report to avoid multiple report outputs being interleaved.

When you have finished defining the reports, exit to return to the Report Set menu tree.

8. To save the Report Set updates, enter the **SAVE** command, or exit to save changes and return to the Report Sets list.

Having completed your report specifications, you can now run them to produce the reports.

Running the Report Set

When you have completed specifying all the reports that you want in this Report Set, it is ready to submit for batch processing. Note that it is optional to save the Report Set first as you can select report categories and individual reports for submission independently of the Report Set.

If you returned to the Report Sets list, select Report Set REPORTS1 to display the Report Set menu tree and proceed as follows:

1. Observe that the Performance List report is now Active (Yes). Also observe that the Performance Reports category and the Global Options are automatically Active (Yes). The Active status identifies which reports in the Report Set are requested.
2. Now we are ready to run the Report Set. Enter the **RUN** command on the command line. (Alternative commands are **JCL** or **SUBmit**.).

   When you run the Report Set, only active reports within active categories are selected. However, you can temporarily override inactive status by using the **RUN** line action to additionally select particular reports and categories listed as Active (No).

```
  File  Systems  Confirm  Options  Help
-------------------------------------------------------------------------------
EDIT                      Report Set - REPORTS1
Command ===> RUN_____________________________________________ Scroll ===> PAGE

Description  . . . . Demonstration Report Set______

Enter "/" to select action.

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

3. Before CICS PA generates the JCL, the Run Report Set panel intervenes.

```
  File  Systems  Options  Help
-------------------------------------------------------------------------------
                           Run Report Set REPORTS1
Command ===> ____________________________________________________________

Specify run options then press Enter to continue submit.

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

  _  Override System Selections specified in Report Set

                                      ------ Report Interval -----
Missing SMF Files Option:                  YYYY/MM/DD  HH:MM:SS.TH
2  1. Issue error message             From __________  ___________
   2. Leave DSN unresolved in JCL     To   __________  ___________
   3. Disregard offending reports

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

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

It prompts you to supply the following run-time options:

a. Which systems are to be reported. Press **Prompt** (F4) from the APPLID field to select from a list of systems. In our case, select *.

b. The date and time range of the SMF data that you wish to process. If not specified, CICS PA processes the entire SMF file. Note that any time ranges specified in Selection Criteria in your Report Set are then processed normally within this reduced period of data.

c. Missing SMF Files Option that specifies the remedial action to be taken if you have not defined SMF files for the systems to be reported.

d. Select to edit JCL before submitting the job.

4. Press Enter to generate the JCL. If you selected Edit JCL before submit, the generated JCL is displayed in an ISPF edit session.

```
 File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
-------------------------------------------------------------------------------
EDIT       xxxx.SPFTEMP1.CNTL                            Columns 00001 00072
Command ===> SUB_____________________________________________ Scroll ===> PAGE
****** ***************************** Top of Data ******************************
000001 //USERID JOB (ACCOUNT),'NAME'
000002 //* CICS PA V3R2 Report JCL
000003 //CICSPA   EXEC PGM=CPAMAIN
000004 //STEPLIB  DD DSN=CICSPA.V3R2M0.SCPALINK,DISP=SHR
000005 //CPAHDBRG DD DISP=SHR,
000006 //            DSN=CICSPA.HDB.REGISTER
000007 //SYSPRINT DD SYSOUT=*
000008 //* SMF Input Files
000009 //SMFIN001 DD DSN=CICSGSG.CMF.FILE1,
000010 //            DISP=SHR
000011 //* Command Input
000012 //SYSIN DD *
000013 * Report Set =REPORTS1
000014 * Description=Demonstration Report Set
000015 * Reports for System=*
000017 *             Description=Generic APPLID for getting started
000018          CICSPA IN(SMFIN001),
000019                 APPLID(*),
000020                 LINECNT(60),
000021                 FORMAT(':','/'),
000022              LIST(OUTPUT(LIST0001))
000023 /*
****** *************************** Bottom of Data ***************************
```

Observe the following JCL statements:

JOB
The job statement is derived from the **Job Statement Information** in your CICS PA Settings profile option (option 0.1 from the primary option menu).

PGM=CPAMAIN,PARM=*'parameter list'*
Request CICS PA reporting with optional parameters:

UPPER
UPPER translates all report output to upper case. This parameter is generated if you specify YES for **Reports in Upper Case** in your CICS PA Settings profile options. The default is mixed case (**UPPER** omitted).

STEPLIB DD
This is the library containing the CICS PA modules. It is specified in **CICS PA Load Library** in the CICS PA Settings profile options.

CPAHDBRG DD
This identifies the HDB Register data set. This is a VSAM KSDS that is the repository for shared information such as historical databases, application groups and shared system definitions. The HDB Register data set name is specified in your CICS PA Control Data Sets profile option 0.3. It can also

be specified when required for historical database, shared systems, statistics, profiling, or resource definitions.

SYSPRINT DD
CICS PA message data set. This DD statement defines the file used by CICS PA for its messages and run time information. It must be specified and should be checked for error messages.

SMFINnnn DD
One or more DD statements define the SMF data sets to be processed by CICS PA. This DDname corresponds to the **INPUT(ddname)** or **IN(ddname)** report operand.

The CICS PA dialog automatically generates these DD statements based on the CICS APPLIDs selected for reporting and their associated SMF files specified in system definitions.

Note: SMF file DDnames need not be prefixed by SMFIN. CICS PA will accept any DDname.

SYSIN DD
The **CICSPA** report command input built from the requested (active) reports and extracts in the Report Set.

INPUT(ddname)
The DDname of the corresponding SMF file as specified in the JCL. In this example, the DDname is SMFIN001.

APPLID(xxxxxxxx)
The CICS system APPLID specified in the Report Set Run panel. In this example, the APPLID was the non-specific * so the report will include all CICS systems in the SMF file.

LINECNT(nnn)
The number of report lines per page specified in the Report Set global option **Print Lines per Page.** The default is 60.

FORMAT(time,date)
The delimiters to use when formatting the time and date in reports and extracts. The values are specified in the Report Set global options **Time Delimiter** and **Date Delimiter.** The defaults are the colon (:) and forward slash (/) respectively.

LIST(...)
Requested (active) report in the Report Set. In this example, the Performance List report.

OUTPUT(ddname)
The DDname that identifies the report output file. It is the **Report Output DDname** specified on the report panel. In this example, the DDname is LIST0001.

Note that the corresponding DD statement for the report output file need not be specified in the JCL. CICS PA will dynamically allocate it when the report is generated.

5. Make any necessary changes, then enter **SUB** on the command line to submit the job.
6. Exit to return to the Report Set definition. Note that changes to the JCL are not saved.
7. Exit again until the Primary Option Menu is displayed.

Use standard ISPF facilities to follow the progress of the job and review the job output.

Viewing report output

Job output can be viewed using ISPF option 3.8 Outlist Utility or SDSF:

1. The CICS PA dialog automatically assigns each report in the Report Set a unique DDname. This allows you to view each report separately in SDSF by using the **?** action character in the **NP** column.

```
SDSF STATUS DISPLAY ALL CLASSES
COMMAND INPUT ===>                                          SCROLL ===> CSR
NP   JOBNAME  JobID    Owner    Prty Queue      C  Pos  SAff  ASys Status  PrtDest            SecLabel TGNum  TGPct OrigNode
?    USERIDX  JOB12345 xxxxxxxx    1 PRINT      A   113                    LOCAL                              1   0.00 LOCAL
```

Then enter the **S** action character to select your report output.

```
SDSF JOB DATA SET DISPLAY - JOB USERIDX  (JOB12345)    LINE 1-5 (5)
COMMAND INPUT ===>                                          SCROLL ===> CSR
NP   DDNAME   StepName ProcStep DSID Owner    C Dest              Rec-Cnt Page-Cnt Byte-Cnt CC   Rmt  Node O-Grp-N  SecLabel PrMod
     JESMSGLG JES2                2 SEC      X LOCAL                  23            1,474  1          1 1                 LINE
     JESJCL   JES2                3 SEC      X LOCAL                  11              488  1          1 1                 LINE
     JESYSMSG JES2                4 SEC      X LOCAL                  17            1,034  1          1 1                 LINE
     SYSPRINT CICSPA            102 SEC      X LOCAL                  47            3,717  1          1 1                 LINE
S    LIST0001 CICSPA            103 SEC      X LOCAL                 142           17,843  1          1 1                 LINE
```

2. Here is an example of the Performance List report that you might see when suitable input data is specified.

```
                                        Performance List

LIST0001 Printed at 12:03:45  3/15/2011    Data from 10:07:43  6/28/2010                APPLID CICSPAOR

 Tran SC Term Userid   RSID Program    TaskNo Stop         Response Dispatch User CPU  Suspend DispWait  FC Wait   FCAMRq  IR Wait
                                            Time           Time     Time     Time     Time     Time     Time               Time
 CQRY S  0004 CICSUSER      DFHQRY         26 10:09:37.011    .5971    .1371    .0341    .4600    .4553    .0000        0    .0000
 CSGM S  0004 CICSUSER      DFHGMM         27 10:09:37.506    .4864    .1624    .0245    .3239    .3234    .0000        0    .0000
 CEDA TO 0004 CICSUSER      DFHEDAP        28 10:10:04.867  22.3878   5.9004   1.0167  16.4873    .5643    .0674        1    .0000
 CEDA TO 0004 CICSUSER      DFHEDAP        29 10:11:21.675  75.8603   2.7834    .5313  73.0770    .0599    .1231       12    .0000
 CEDA TO 0004 CICSUSER      DFHEDAP        30 10:12:35.400  66.0356   1.8070    .4299  64.2286    .0160    .0650       12    .0000
 CATR S       CICSUSER      DFHZATR        32 10:15:37.706    .4334    .1143    .0282    .3191    .3187    .0000        0    .0000
 CEDA TO 0004 CICSUSER      DFHEDAP        31 10:21:22.924  526.216   2.8898    .3436  523.326    .0217    .0154        1    .0000
 CEDA TO 0004 CICSUSER      DFHEDAP        33 10:22:15.994  39.9497   2.5449    .6930  37.4048    .0167    .1159       56    .0000
 CEDA TO 0004 CICSUSER      DFHEDAP        34 10:22:26.559   4.2486   1.7076    .7248   2.5411    .0275    .0198       26    .0000
```

Now that you have run your first report, we'll move on to requesting other reports and show you how to format them to focus on fields of interest.

Defining Report Forms

CICS PA Report Forms help you access the wealth of information contained in CICS Transaction Server CMF Performance records. Report Forms allow you to design your own reports by specifying the fields to include, the order, the format of values, which summary statistics (average, total, minimum, maximum, percentile, range, or standard deviation), and what alert severity levels to include. For example, if you suspect that there is a performance problem with Transient Data, you can create a Report Form that focuses on that aspect of CICS performance.

A library containing more than 180 sample Report Forms is supplied with CICS PA. The samples are designed for specific purposes. For example, sample Report Forms TDLST and TDSUM are suggested formats to help you analyze Transient Data activity.

Form-based reporting is a two step process:

1. Design the report format by defining a new Report Form or editing a sample one
2. Assign the Report Form to the report and submit for batch execution

We will now design a report to show transaction performance on an hourly basis. In every hour, we want the report to show a summary of every transaction that ran in that hour.

To define the Report Form:

1. Select option 3 from the Primary Option Menu. If the Report Forms data set does not exist, you will be prompted to create it. This data set is where your Report Forms are stored. Press Enter to create it.

   Press Enter to create the Report Forms data set with default attributes. (Otherwise, cancel and go to option 0.3 from the Primary Option Menu to specify the data set name of your choice.)
2. The initial Report Forms list is empty. Enter the **NEW** command to create a new Report Form.

```
  File  Confirm  Samples  Options  Help
--------------------------------------------------------------------------------
                              Report Forms
Command ===> NEW_____________________________________________ Scroll ===> PAGE

Report Forms Data Set  . . .  xxxx.CICSPA.FORM

/   Name     Type              Description              Changed        ID
******************************** End of list ********************************

The Report Forms data set is empty. Use the NEW command to create a new
Report Form.
```

3. A New Report Form window is displayed so you can specify defining characteristics, such as the name, type, and CICS Version (VRM). Alternatively, you can choose to model the new Report Form on an existing one.

```
  File  Systems  Options  Help
--------------------------------------------------------------------------------
                              New Report Form
Command ===> ____________________________________________________________

Specify new Report Form options.

Name . . . HOURMON_  Version (VRM) . . . 660  +

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

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

Model . . . . . ________  +
Report Forms Data Set . . _____________________________________________  +
HDB Register  . . . . . _____________________________________________  +
```

Specify the following details:

- Form name **HOURMON** to indicate hourly monitoring

- VRM **660** to populate the default Report Form with fields relevant to CICS Transaction Server V4.1
- Form type **3** to create a SUMMARY Report Form relevant to Performance Summary reports

Then press Enter to display the Report Form.

4. If the Report Form does not meet your reporting requirements, you can change it. Since we want to report by hourly intervals, we will add the START field at the top of the Form. There are various ways to do this, but we will describe one:
   a. Change the page width from the default value 132 to 140 to allow for the addition of the 8 byte START field (otherwise the last field SC31UHWM will not fit on the report line).
   b. Enter line action **R** to repeat the first row.
   c. Change the first row to specify field name START, sort order A (ascending), and format type TIMES (hh:mm:ss).

```
   File  Edit  Confirm  Upgrade  Profiling  Options  Help
--------------------------------------------------------------------------------
                  EDIT SUMMARY Report Form - HOURMON    Row 1 of 337 More: >
Command ===> ____________________________________________ Scroll ===> PAGE

Description  . . . Summary Report Form_____________  Version (VRM): 660

Selection Criteria:
 _  Performance                                     Page width . . 140_

    Field    Sort
/   Name +   K  O Type    Fn   Description
R_  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_     _ TIME___ MAX  Suspend time
__  DISPWAIT     _ TIME___ AVE  Redispatch wait time
__  FCWAIT__     _ TIME___ AVE  File I/O wait time
__  FCAMCT__     _ _______ AVE  File access-method requests
__  IRWAIT__     _ TIME___ AVE  MRO link wait time
__  SC24UHWM     _ _______ AVE  UDSA HWM below 16MB
__  SC31UHWM     _ _______ AVE  EUDSA HWM above 16MB
__  EOR_____     _ _______ ___  ---------------- End of Report ----------------
__  EOX_____     _ _______ ___  ---------------- End of Extract ---------------
__  ABCODEC_ K   * _______ ___  Current ABEND code
__  ABCODEO_ K   * _______ ___  Original ABEND Code
__  ALERT___     _ _______ SEV  Total Alert count or percentage
__  APPLID__ K   * _______ ___  CICS Generic APPLID
__  APPLPROG K   * _______ ___  Application naming Program
__  APPLTRAN K   * _______ ___  Application naming Tran ID
__  TASKTCNT     _ _______ ___  Total Task Termination count
__  BAACDCCT     _ _______ AVE  BTS Activity Data Containers requests
__  BAACQPCT     _ _______ AVE  BTS Acquire Process/Activity requests
__  BADACTCT     _ _______ AVE  BTS Define Activity requests
__  BADCPACT     _ _______ AVE  BTS Cancel Process/Activity requests
__  BADFIECT     _ _______ AVE  BTS Define-Input Event requests
__  BADPROCT     _ _______ AVE  BTS Define Process requests
```

Note:

- The order of the fields in the report form (top-to-bottom) defines the order of the columns in the report (left-to-right).

- **EOR** indicates where the report line ends. CICS PA automatically adjusts this for you to ensure that the fields you specify fit within the specified page width (default 132). You can move EOR and adjust the page width to fit more or fewer fields in your report. Fields below EOR are not reported. Move fields above EOR to include them in the report.
- **EOX** signals the end of the extract record. There are no restrictions on record length. Fields above EOX are included in the extract, those below are ignored. If EOX is not specified, EOR is used. To include all fields in the extract, position EOX at the bottom of the list after the last field.
- You have the option to specify Performance Selection Criteria to filter the data that is included in the report or extract.

5. To complete the Report Form specification:
   - Provide a description that will help you identify this form in a list of forms.
   - **Scroll right** (F11) to view more columns and enter a meaningful report title.
   - Optionally, delete the unwanted fields below EOR that will not be reported.

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

Description  . . . Transaction monitoring by hour__  Version (VRM): 660

Selection Criteria:
 _  Performance                                      Page width . . 140_

    Field    Sort
/   Name +   K  O Type    Fn   Description
__  START___ K  A TIMES__ ___  Task start time
__  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
H_  SUSPEND_    _ TIME___ AVE  Suspend time
__  SUSPEND_    _ TIME___ MAX  Suspend time
__  DISPWAIT    _ TIME___ AVE  Redispatch wait time
__  FCWAIT__    _ TIME___ AVE  File I/O wait time
__  FCAMCT__    _ _______ AVE  File access-method requests
__  IRWAIT__    _ TIME___ AVE  MRO link wait time
__  SC24UHWM    _ _______ AVE  UDSA HWM below 16MB
__  SC31UHWM    _ _______ AVE  EUDSA HWM above 16MB
__  EOR_____    _ _______ ___  ---------------- End of Report ----------------
__  EOX_____    _ _______ ___  ---------------- End of Extract ---------------
```

   To help you understand the formatted report, familiarize yourself with the structure of the Report Form. To see all the columns of information, **scroll right** (F11) or **left** (F10) to cycle through four views: the field descriptions, data dictionary information, distribution (range) specifications, and performance alert specifications. The default values are appropriate for this exercise. For help on any column, position the cursor within the column and press **Help** (F1). For an expanded description of any field, enter line action **H** against the field name.

6. Exit from the Report Form to save it. The list of Report Forms is displayed.

```
  File  Confirm  Samples  Options  Help
-------------------------------------------------------------------------------
                              Report Forms              Member HOURMON saved
Command ===> ____________________________________________ Scroll ===> CSR_

Report Forms Data Set  . . . xxxx.CICSPA.FORM

/   Name    Type              Description              Changed        ID
_  HOURMON  SUMMARY Transaction monitoring by hour   2010/10/10 23:18 SEC
****************************** End of list *********************************
```

7. Exit Report Forms and return to the Primary Option Menu.

With the Report Form defined, you can now use it to format your report.

Formatting a Summary report

This section describes how to assign the Report Form to the report.

1. Select option 2 Report Sets from the Primary Option Menu. The list of Report Sets is displayed.

```
  File  Systems  Confirm  Options  Help
-------------------------------------------------------------------------------
                              Report Sets                  Row 1 to 1 of 1
Command ===> ____________________________________________ Scroll ===> PAGE

Report Sets Data Set . . : xxxx.CICSPA.RSET

 /    Name              Description               Changed        ID
S__  REPORTS1 Demonstration Report Set         2010/10/11 00:22 SEC
******************************** End of list ***********************************
```

2. Select the Report Set to display the Report Set edit tree.
3. Use line action **S** to select the Performance Summary report and line action **D** to deactivate the Performance List report as we do not want to run it this time. Press Enter.

```
  File  Systems  Confirm  Options  Help
-------------------------------------------------------------------------------
EDIT                      Report Set - REPORTS1
Command ===> _____________________________________________ Scroll ===> PAGE

Description  . . . . Demonstration Report Set______

Enter "/" to select action.

___           ** Reports **                          Active
     -  ___   Options                                  Yes
              ___  Global                              Yes
     -  ___   Selection Criteria                       No
              ___  Performance                         No
              ___  Exception                           No
     -  ___   Performance Reports                      Yes
              D__  List                                Yes
              ___  List Extended                       No
              S__  Summary                             No
              ___  Totals                              No
              ___  Wait Analysis                       No
              ___  Transaction Profiling               No
              ___  Cross-System Work                   No
              ___  Transaction Group                   No
              ___  BTS                                 No
              ___  Workload Activity                   No
              ___  Transaction Tracking List           No
              ___  Transaction Tracking Summary        No
```

4. The Summary report edit panel is displayed. To assign the Report Form to the report, enter the Report Form name HOURMON or press **Prompt** (F4) from the Report Form field to select from the list of forms.

```
  File  Systems  Options  Help
-------------------------------------------------------------------------------
                    REPORTS1 - Performance Summary Report
Command ===> ____________________________________________________________

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

Report Focus:                           Report by time interval:
 Form . . . HOURMON_  +                  Interval  . . . 01:00:00  (hh:mm:ss)
 Alert  . . ________  +                  Override Form   ________  +
  _  Eligible transactions only          Timestamp . . . ________  +

Reporting Options:
 Totals Level  . . 8         (blank or 0-8)
 Title  . . ____________________________________________________________
            ____________________________________________________________

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

HDB Register  . :
```

   As this report is for hourly monitoring, specify an interval of one hour (01:00:00).

   For an explanation of the report options, tab to the field of interest and press **Help** (F1).

   Exit to save your report specification.

5. The list of Summary reports is displayed. Exit to the Report Set panel.

The Summary report is ready to run. However, CICS PA can generate multiple reports from a single pass of the data, so we will request another and submit both to run in the one job.

Creating a Record Selection extract

The Record Selection extract allows you to create a small extract file containing only the types of SMF records of interest to you. The extract file can then be used as input to CICS PA, allowing for more efficient reporting. The Record Selection extract filters large SMF files, writing only SMF records that match specified criteria.

To request a Record Selection extract:

1. From the Report Set edit tree, select the Record Selection extract.

```
  File  Systems  Confirm  Options  Help
-------------------------------------------------------------------------------
                          Report Set - REPORTS1                  Row 1 of 26
Command ===> _____________________________________________ Scroll ===> PAGE

Description . . . Demonstration Report Set________

Enter "/" to select action.

___           ** Reports **                           Active
     +  ___   Options                                   Yes
     +  ___   Selection Criteria                        No
     -  ___   Performance Reports                       Yes
              ___  List                                 No
              ___  List Extended                        No
              ___  Summary                              Yes
              ___  Totals                               No
              ___  Wait Analysis                        No
              ___  Transaction Profiling                No
              ___  Cross-System Work                    No
              ___  Transaction Group                    No
              ___  BTS                                  No
              ___  Workload Activity                    No
              ___  Transaction Tracking List            No
              ___  Transaction Tracking Summary         No
     +  ___   Exception Reports                         No
     +  ___   Transaction Resource Usage Reports        No
     +  ___   Statistics Reports                        No
     +  ___   Subsystem Reports                         No
     +  ___   System Reports                            No
     +  ___   Performance Graphs                        No
     -  ___   Extracts                                  Yes
              ___  Cross-System Work                    No
              ___  Performance                          No
              S__  Record Selection                     Yes
              ___  HDB Load                             No
              ___  System Logger                        No
              ___  Statistics                           No
              ** End of Reports **
```

2. Specify record selection options. Select all record types and specify the name of the output data set.

```
  File  Systems  Options  Help
-------------------------------------------------------------------------------
                     REPORTS1 - Record Selection Extract
Command ===> ____________________________________________________________

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

Required Record Types:                        Extract Recap:
 /  Performance       /  Exception             DDname  . . . RSEL0001
 /  Resource          /  Statistics
 /  OMEGAMON          /  DB2
 /  WebSphere MQ      /  System Logger
 /  Identity

Output Data Set:
 Data Set Name  . . 'GSG.RECSEL.EXTRACT'_____________________________
 Disposition  . . . 1  1. OLD       Record Compression  . . 1  1. No
                      2. MOD                                  2. Yes

Selection Criteria:
 _  Performance
 _  Exception

Logger Selection Criteria:
 _  Logger
    Logstream Name . . . ____________________________
    Structure Name . . . ________________
```

Note:

- In this example, we selected all record types to allow you to use the extract file for all CICS PA functions that you may want to try. However, you may choose not to include certain record types to reduce the file size and improve performance.

  As a minimum, select **Performance** and **Statistics** record types if you intend to use the Record Selection extract file instead of the original SMF file to complete the reporting exercises in this tutorial.
- CICS PA will generate JCL to allocate the extract data set if it is not already defined. If the data set is already defined, it will be processed according to the Disposition option selected.

3. Exit to save the extract options. Exit again to return to the Report Set edit panel.
4. Enter **RUN** on the command line of the Report Set panel.
5. On the run-time prompt panel, specify appropriate options, select to edit JCL before submit, then press Enter.
6. CICS PA generates the JCL and displays it in an ISPF edit session.

```
. . .
===> SUB_____________________________________________ Scroll ===> CSR_
. . .
//* Command Input
//SYSIN DD *
* Report Set =REPORTS1
         CICSPA IN(SMFIN001),
                APPLID(*),
            SUMMARY(OUTPUT(SUMM0001),
                EXTERNAL(CPAXW001),
                TOTALS(8),
                INTERVAL(01:00:00),
                FIELDS(START(TIMES,ASCEND),
                       TRAN(ASCEND),
                       TASKCNT,
                       RESPONSE(AVE),
                       RESPONSE(MAX),
                       DISPATCH(TIME(AVE)),
                       CPU(TIME(AVE)),
                       SUSPEND(TIME(AVE)),
                       SUSPEND(TIME(MAX)),
                       DISPWAIT(TIME(AVE)),
                       FCWAIT(TIME(AVE)),
                       FCAMCT(AVE),
                       IRWAIT(TIME(AVE)),
                       SC24UHWM(AVE),
                       SC31UHWM(AVE))),
            RECSEL(OUTPUT(RSEL0001),
                   DDNAME(CPAORS01),
                PERFORMANCE,
                EXCEPTION,
                RESOURCE,
                STATISTICS,
                OMEGAMON,
                LOGGER,
                DB2,
                MQ,
                IDENTITY,
                NOCOMPRESS)
/*
```

7. Make any necessary changes, then enter the **SUBmit** command to submit the job.

When the job completes, review the report output and the extract data set.

Reporting using the Record Selection extract

Update your system definitions to use the Record Selection extract data set for subsequent reporting. The smaller SMF file will allow your reporting jobs to run more efficiently.

1. From the Primary Option Menu, select option 1 Personal Systems, then select option 1 from the sub-menu. The list of system definitions is displayed.
2. Select the system to be updated.

```
  File  Edit  Filter  View  Options  Help
--------------------------------------------------------------------------------
                        Personal System Definitions             Row 1 from 1
Command ===> _____________________________________________ Scroll ===> ____

Select a System to edit its definition, SMF Files and Groups.
                                                                     SMF Files
/   System   Type    Image               Description                System
S   *        CICS            Generic APPLID for getting started___ *
******************************** End of list ********************************
```

3. On the CICS system definition panel:
   - Enter line action **I** to insert a blank row ready for you to add another file name to list.
   - Enter the data set name of the Record Selection Extract file.
   - Enter line action **D** to delete the data set name of the original SMF file. Alternatively, enter line action **X** to keep it in the list but exclude it from reporting. An * displays in the **Exc** column to indicate that the file is excluded and reporting jobs will ignore it.

```
  File  Edit  Dictionary  View  Options  Help
--------------------------------------------------------------------------------
                             CICS System              Row 1 of 2  More: >
Command ===> _____________________________________ Scroll ===> ____

CICS System definition:
 APPLID . . . . . . . . . *_______  MVS Image . . ________
 Description  . . . . . Generic APPLID for getting started___
 CICS Version (VRM) . . ___
 MCT Suffix . . . . . . __
 MCT Load Library . . . _____________________________________________
 SDFHLOAD Library . . . _____________________________________________
 Dictionary DSN . . . . _____________________________________________

/ Exc            SMF Data Set Name +               UNIT +  SEQ VOLSER +
_  *  'CICSGSG.CMF.FILE1'_____________________________ ________ ___ ______
_     'GSG.RECSEL.EXTRACT'_____________________________ ________ ___ ______
******************************** End of list ****************************
```

4. Exit to update the system definition. Exit again to save the changes and return to the Primary Option Menu.

Now reporting jobs that run using this system will use the smaller Record Selection extract file instead of the original.

Chapter 4. Daily monitoring and trend analysis

You can define different Report Sets to run at different frequencies to satisfy daily, weekly, monthly or other reporting requirements. Historical databases provide an efficient mechanism for longer term trend analysis.

Defining a Report Set for daily monitoring

One way to define a Report Set for daily monitoring is to use Form-based reporting and take advantage of the many sample Report Forms supplied with CICS PA.

To setup a selection of Report Forms:

1. From the Primary Option Menu, select option 3 **Report Forms.**
2. The Report Forms list is displayed showing the names of Report Forms that you previously defined.

```
  File  Confirm  Samples  Options  Help
--------------------------------------------------------------------------------
                                Report Forms
Command ===> SAMPLES_____________________________________ Scroll ===> CSR_

Report Forms Data Set  . . . xxxx.CICSPA.FORM

/   Name    Type              Description              Changed        ID
_  HOURMON  SUMMARY Transaction monitoring by hour   2010/10/10 23:18 SEC
****************************** End of list *********************************
```

3. To select a set of sample Report Forms, enter the **SAMPLES** command or place the cursor on the **Samples** action bar option and press Enter. Available samples are listed in a window which you can resize to a full screen by pressing **RESIZE** (F6).
4. Use the **FIND** command or scroll up/down (F7/F8) to find the sample Report Forms that meet your requirements. For this exercise, we will use the following set of forms as an example of a daily monitoring Report Set:
   BADCPU
   LISTX Form: Top 20 Worst CPU Times
   BADRESP
   LISTX Form: Top 20 Worst Response Times
   CPULST
   LIST Form: Transaction CPU Analysis
   CPUSUM
   SUMMARY Form: Transaction CPU Analysis
   RESPRNGP
   SUMMARY Form: Response Time Distribution (%)

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```
                    Sample Report Forms                    Row 1 to 36 of 174
Command ===> _____________________________ Scroll ===> PAGE

Select one or more Sample Report Forms then press EXIT.

   Name      Type     Description
_  ABNDLST   LIST     Transaction Abend List
_  ABNDSUM   SUMMARY  Transaction Abend Summary
_  ACCTSUM   SUMMARY  Accounting Summary HDB Extract
_  ASSCLST   LIST     Association Data Analysis (V4)
_  BADCHMDS  LISTX    Top 20 Worst Change TCB Modes
S  BADCPU    LISTX    Top 20 Worst CPU Times
_  BADDB2RQ  LISTX    Top 20 Worst DB2 Requests
_  BADFCRQ   LISTX    Top 20 Worst File Requests
S  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
_  BADWMQRQ  LISTX    Top 20 Worst WebSphere MQ Reqsts
_  BTSACLST  LIST     CICS BTS Activity - Overview
_  BTSRQLST  LIST     CICS BTS Request Activity
_  BTSRQSUM  SUMMARY  CICS BTS Request Activity
_  CCLST     LIST     Channel Container Activity
_  CCSUM     SUMMARY  Channel Container Activity
_  CC3LST    LIST     Channel Container Activity (V3)
_  CC3SUM    SUMMARY  Channel Container Activity (V3)
_  CHMDSRNG  SUMMARY  Change TCB Mode Distribution
_  COMMWLST  LIST     Transaction Comms Wait Analysis
_  COMMWSUM  SUMMARY  Transaction Comms Wait Analysis
_  CPULEXTR  LIST     CPU Analysis and Extract
S  CPULST    LIST     Transaction CPU Analysis
_  CPULST1   LIST     Transaction CPU Analysis (1)
_  CPUSEXTR  SUMMARY  CPU Analysis and Extract
S  CPUSUM    SUMMARY  Transaction CPU Analysis
_  CPUSUM1   SUMMARY  Transaction CPU Analysis (1)
_  CPU3LEXT  LIST     CPU Analysis and Extract (V3)
_  CPU3SEXT  SUMMARY  CPU Analysis and Extract (V3)
 F1=Help      F3=Exit      F5=Rfind     F6=Resize   F12=Cancel
```

5. Enter line action **S** to select relevant forms. To select all forms, enter **S *** on the command line. When the selection is complete, press Exit (F3).
6. The selected sample Report Forms are saved to the Report Forms data set and are now available for report processing. Exit to return to the Primary Option Menu.
7. To use the Report Forms in your report requests, select option 2 **Report Sets** from the Primary Option Menu.
8. There are many ways to proceed from here. We will work through one of them.
9. From the list of Report Sets, select REPORTS1, the Report Set that we worked with earlier.
10. From the Report Set edit tree, select the Performance List report.
11. Since a List report has already been defined in this Report Set, the list of reports is displayed.
12. Enter line action **R** to repeat a row.
13. Enter line action **D** to delete unwanted reports. Alternatively, enter line action **X** to retain it in the list but exclude it from reporting.
14. In the new row, change the Output to a unique DDname and specify the Report Form name. You can press **Prompt** (F4) from the Form field to select from a list of available LIST forms.

15.

```
  File  Filter  Edit  Systems  Options  Help
------------------------------------------------------------------------------
                    REPORTS1 - Performance List Reports         Row 1 from 2
Command ===> ____________________________________________ Scroll ===> PAGE

       ---- System Selection ----                                  Selection
/  Exc  APPLID + Image +  Group +   Output    Form +    Alert +   Criteria
_   *   ________ ________ ________  LIST0001  ________  ________    NO
_       ________ ________ ________  LIST0002  CPULST__  ________    NO
****************************** Bottom of data ********************************
```

Exit to return to the Report Set edit panel.

16. Now select the Performance List Extended report.
17. In the Form field, specify the name of the first of our LISTX Report Forms. You can press **Prompt** (F4) from the Form field to select from a list of available LISTX forms.

```
  File  Systems  Options  Help
------------------------------------------------------------------------------
                 REPORTS1 - Performance List Extended Report
Command ===> ____________________________________________________________

System Selection:                      Report Output:
 APPLID . . ________  +                 DDname . . . . . . . . . . LSTX0001
 Image  . . ________  +                 Print Lines per Page . . ___ (1-255)
 Group  . . ________  +

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

Selection Criteria:
 _  Performance
```

For an explanation of the report options, tab to the field of interest and press **Help** (F1).

18. Exit to save your new report specification. The list of reports shows one report.
19. Now to request a second report of the same type, use line action **R** to repeat the first row. In the second row, change the Output field to a unique DDname, and specify the name of the second LISTX Report Form or press **Prompt** (F4) from the Form field to select from a list of available LISTX forms.

```
  File  Filter  Edit  Systems  Options  Help
------------------------------------------------------------------------------
                REPORTS1 - Performance List Extended Reports    Row 1 from 2
Command ===> ____________________________________________ Scroll ===> PAGE

       ---- System Selection ----                                  Selection
/  Exc  APPLID + Image +  Group +   Output    Form +    Alert +   Criteria
_       ________ ________ ________  LSTX0001  BADCPU__  ________    NO
_       ________ ________ ________  LSTX0002  BADRESP_  ________    NO
****************************** Bottom of data ********************************
```

Note: When you repeat an existing report definition, the new report inherits the reporting options, including selection criteria, from the original report

definition. To change the reporting options, you must select the new report definition and make the desired changes.

20. Exit to save the specification of both reports and return to the Report Set edit panel.
21. Now select the Performance Summary report. If you previously defined Performance Summary reports in this Report Set, the list of reports is displayed. Enter line action **S** to select a report.
22. The Summary report edit panel is displayed. To assign the first of our SUMMARY Report Forms to the report, enter the Report Form name CPUSUM or press **Prompt** (F4) from the Report Form field to select from the list of SUMMARY forms.

```
  File  Systems  Options  Help
-------------------------------------------------------------------------------
                     REPORTS1 - Performance Summary Report
Command ===> ____________________________________________________________

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

Report Focus:                            Report by time interval:
 Form . . . CPUSUM__  +                   Interval  . . . 00:01:00  (hh:mm:ss)
 Alert  . . ________  +                   Override Form   ________  +
  _  Eligible transactions only           Timestamp . . . ________  +

Reporting Options:
 Totals Level  . . 8         (blank or 0-8)
 Title  . . ____________________________________________________________
            ____________________________________________________________

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

HDB Register  . :
```

The default values for the report options might be adequate for your purposes, or you might choose to tailor the report. Some interesting options are:

Interval
Specifies a time interval when the report summarizes transaction activity over time. The interval is in the range 1 second to 24 hours in the format *hh:mm:ss* for hours, minutes, and seconds.

This operand applies only when the report or extract is sorted by transaction start or stop time. That is, when START, STOP, or OSTART is a summarization key field at the top of the Report Form. CICS PA accumulates data for each interval in the report period and writes a report line or extract record for each interval. The default interval is **00:01:00** (1 minute).

Override Form, Timestamp
For reporting by time interval, you can PREFIX, APPEND, or REPLACE the Report Form key fields with a timestamp field, either START, STOP, or OSTART. The Form itself is not affected.

Alert, Eligible transactions only
The name of a Performance Alert definition which specifies resource and threshold criteria for reporting non-compliant transactions. Eligible

transactions are those that match the specified resource criteria. Alert definitions are maintained in the **HDB Register.**

Totals Level
Indicates the level of totals to include in the report. Leave blank for no totals. Specify 0 (zero) for grand totals only. Specify 1 to 8 for sub-totals to that level (limited by the number of key fields in the Report Form or Alert Definition) plus grand totals. The default is **8** (the maximum number of key fields).

Selection Criteria
For filtering the input data to restrict reporting to values of interest. This specifies what to include or exclude from the report or extract based on field values.

Exit when your report specification is complete.

23. The list of Summary reports is displayed.
24. As before, to request a second report of the same type, use line action **R** to repeat the first row. In the second row, change the Output field to a unique DDname and specify the name of the second SUMMARY Report Form.

```
  File  Filter  Edit  Systems  Options  Help
--------------------------------------------------------------------------------
                  REPORTS1 - Performance Summary Reports         Row 1 from 2
Command ===> ____________________________________________ Scroll ===> PAGE

        ---- System Selection ----                                  Selection
/  Exc  APPLID + Image +  Group +   Output    Form +    Alert +    Criteria
_       ________ ________ ________  SUMM0001  CPUSUM__  ________     NO
_       ________ ________ ________  SUMM0002  RESPRNGP  ________     NO
******************************** Bottom of data ********************************
```

Exit to return to the Report Set edit panel.

25. If Record Selection extract or any other reports not relevant to daily monitoring are showing Active (Yes), enter line action **D** to deactivate so they will not be included when the Report Set is run.
26. Change the Report Set description to something appropriate for daily monitoring.
27. To save changes in a second Report Set without altering the first, enter **SAVEAS** on the command line. Enter the new name when prompted (for example, DAILYCHK) and press Enter to save.
28. When the message **Member DAILYCHK saved** is displayed, you can Cancel (F12) to discard changes to the first Report Set.
29. The DAILYCHK Report Set is now ready to run.

```
  File  Systems  Confirm  Options  Help
--------------------------------------------------------------------------------
                              Report Sets                   Row 1 to 2 of 2
Command ===> ____________________________________________ Scroll ===> PAGE

Report Sets Data Set . . : xxxx.CICSPA.RSET

 /    Name              Description               Changed        ID
RUN  DAILYCHK Daily monitoring form-based rpts 2010/10/11 17:40 SEC
___  REPORTS1 Demonstration Report Set         2010/10/11 17:14 SEC
****************************** Bottom of data ********************************
```

30. Enter the **RUN** command as a line action to run the Report Set from the Report Sets list. Alternatively, enter line action **S** to edit the Report Set, then enter **RUN** on the command line of the Report Set tree panel.
31. When the Run Report Set panel is displayed, ensure that you select the option **Edit JCL before submit.** Press Enter to proceed.
32. When the generated JCL is displayed in an ISPF edit session, you can use the **CREATE** command to save the JCL in an automated job scheduler JCL library to run in the future.
33. To submit the job from ISPF edit, enter **SUB** on the command line.
34. Exit to return.
35. To check the progress of the job and view the output, split the screen (F2) then use ISPF option 3.8 Outlist Utility or SDSF.
36. On the SDSF status display, enter the **?** action character in the **NP** column.

```
SDSF STATUS DISPLAY ALL CLASSES
COMMAND INPUT ===>                                    SCROLL ===> CSR
NP   JOBNAME  JobID    Owner    Max-RC     Prty Queue      C Pos   SAff  ASys Status           PrtDest            SecLabel TGNum
?    SECQ     JOB34420 SEC      CC 0004       1 PRINT      A  4633                           LOCAL                         26
```

37. Then enter the **S** action character to select the report output identified by their DDnames.

```
SDSF JOB DATA SET DISPLAY - JOB SECQ     (JOB34420)    LINE 1-10 (10)
COMMAND INPUT ===>                                      SCROLL ===> CSR
NP   DDNAME   StepName ProcStep DsID Owner    C Dest              Rec-Cnt Page-Cnt Byte-Cnt CC   Rmt  Node 0-Grp-N  SecLabel PrMod
     JESMSGLG JES2                2 SEC      X LOCAL                  31         2,331  1           1 1                 LINE
     JESJCL   JES2                3 SEC      X LOCAL                  30         1,547  1           1 1                 LINE
     JESYSMSG JES2                4 SEC      X LOCAL                  97         6,429  1           1 1                 LINE
     SYSPRINT CICSPA            102 SEC      X LOCAL                 192        15,304  1           1 1                 LINE
     SYSOUT   CICSPA            103 SEC      X LOCAL                 140         9,322  1           1 1                 LINE
S    LIST0002 CICSPA            104 SEC      X LOCAL              24,943         2M      1           1 1                 LINE
S    LSTX0001 CICSPA            105 SEC      X LOCAL                 263        32,730  1           1 1                 LINE
S    LSTX0002 CICSPA            106 SEC      X LOCAL                 263        32,755  1           1 1                 LINE
S    SUMM0001 CICSPA            107 SEC      X LOCAL                  28         3,328  1           1 1                 LINE
S    SUMM0002 CICSPA            108 SEC      X LOCAL               3,066       321,185  1           1 1                 LINE
```

38. Here is an example of the Performance Summary report output with DDname SUMM0002. It used sample Report Form RESPRNGP to show the percentage distribution minute-by-minute of transaction response times.

```
                                        Performance Summary

SUMM0002 Printed at  0:56:18 10/15/2010     Data from 15:30:33  9/29/2010 to 23:59:52  9/29/2010                      Page      52
Transaction Response Time Distribution Summary (Percentage) by Time-of-Day

                            <0.1 0.1-0.25 0.25-0.5 0.5-0.75 0.75-1.0  1.0-1.5  1.5-2.0 2.0-10.0   >=10.0      Max      Avg
Stop     Tran       #Tasks Response Response Response Response Response Response Response Response Response Response Response
Interval                    Time     Time     Time     Time     Time     Time     Time     Time     Time     Time     Time
 . . .
23:57:00 CCXD            1   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0489    .0489
23:57:00 CCXF            1   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0240    .0240
23:57:00 WMTD           24   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0072    .0025
23:57:00                26   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0489    .0051

23:58:00 WMTD           22   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0031    .0017
23:58:00                22   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0031    .0017

23:59:00 CCXD            1   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0182    .0182
23:59:00 CCXF            1   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0156    .0156
23:59:00 CSPM            1      .00      .00      .00      .00      .00      .00      .00      .00   100.00 1887.436 1887.436
23:59:00 WMTD           13   100.00      .00      .00      .00      .00      .00      .00      .00      .00    .0030    .0019
23:59:00                16    93.75      .00      .00      .00      .00      .00      .00      .00     6.25 1887.436 117.9684

Total                15127    97.92      .19      .28      .11      .03      .30      .00      .01     1.16 1887.676  21.4308
```

Using historical databases for trend analysis

The CICS PA historical database (HDB) is a repository of statistics and performance related data for your CICS systems.

The CICS PA HDB dialog provides a fully managed environment from where you can control all aspects of the collection and reporting of CICS statistics and performance data.

Implementing a statistics and performance data warehouse requires a considerable investment. Careful planning is required to ensure that the data you collect today is useful in the long term to measure CICS performance trends and workloads to help you plan for the future. It is important to be familiar with HDB features and capabilities before embarking on implementation.

Refer to the CICS PA *User's Guide* to learn about:

- Building a history of CICS transaction activity from CMF performance class data
- Collecting CICS TS, CICS TG and CICS Server statistics
- Generating customized reports to meet your various reporting requirements
- Extracting to DB2 tables or CSV files for external analysis

Chapter 5. Service level management

CICS PA provides a variety of mechanisms to help monitor and manage service levels. Statistics Alerts and Performance Alerts are useful in this regard.

We will have a brief look at Statistics Alerts.

Defining Statistics Alerts

Statistics Alert reports highlight non-compliant activity triggered by specified threshold values of CICS Statistics fields. The threshold values are called Alerts.

To define Statistics Alerts, do the following:

1. Select option 7 **Statistics** from the Primary Option Menu.
2. On the Statistics sub-menu, specify the name of a VSAM KSDS register to store the Alert definition. For now, use a personal data set, but for production use, you are more likely to use a shared repository.
3. Then select option 5 Define Alerts and press Enter.

```
  File  Options  Help
-------------------------------------------------------------------------
                    CICS Statistics Reporting Menu
Command ===> ____________________________________________________________

Select an option then press Enter.

5  1. SMF Files defined in Personal System Definitions
   2. SMF Files defined in Shared System Definitions
   3. Historical Databases for CICS Statistics
   4. Process SMF File
      ________________________________________________  +
   5. Define Alerts

Filter Criteria  NO_                       MM/DD/YYYY  HH:MM:SS
  APPLID . . . . ________       Start . . __________  ________
  Image  . . . . ____           Stop  . . __________  ________

  Type . . . . . /  EOD  /  INT  /  USS  /  REQ  /  RRT

Options 2, 3 and 5:
 HDB Register . . . MY.GETSTART.SANDBOX_____________________________  +
```

4. If the register data set does not exist, you will be prompted to create it.
5. A list of Statistics Alert Definitions is displayed. Initially, the list is empty. Enter the **NEW** command to create a new definition.
6. Follow the prompts to specify a name and select **Initialize with sample scenarios.**
7. From the list of sample definitions, select KEYALERT.
8. The Alert Definition edit panel is displayed. To familiarize with specifying Alert conditions, use the context-sensitive help. Tab to fields of interest and press **Help** (F1).

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```
 File  Edit  Lists  Options  Help
 ------------------------------------------------------------------------------
              EDIT Statistics Alert Definition - GSGALERT Row 1 of 79 More: >
Command ===> _____________________________________________ Scroll ===> PAGE

Description  . . . Key System Alerts___________________

Specify the Conditions for this Alert Definition.

_ Alert     Transaction dumpcode taken_____________________________
  Formula   TDRTTKN_____________________________________________________
            _____________________________________________________________ +
  Critical  >5_________   Warning  >0_________   Info  _____________
  Resource  _____________________________________________  List  ________ +
  APPLID    ________
-------------------------------------------------------------------------------
_ Alert     Transaction dumpcode requested_________________________
  Formula   TRANS_DUMP_TAKEN____________________________________________
            _____________________________________________________________ +
  Critical  >25________   Warning  >0_________   Info  _____________
  Resource  _____________________________________________  List  ________ +
  APPLID    ________
-------------------------------------------------------------------------------
_ Alert     System dumpcode taken__________________________________
  Formula   SDRSTKN_____________________________________________________
            _____________________________________________________________ +
  Critical  >1_________   Warning  >0_________   Info  _____________
  Resource  _____________________________________________  List  ________ +
  APPLID    ________
-------------------------------------------------------------------------------
_ Alert     System dumps requested_________________________________
  Formula   SYS_DUMPS_TAKEN_____________________________________________
            _____________________________________________________________ +
  Critical  >5_________   Warning  >0_________   Info  _____________
  Resource  _____________________________________________  List  ________ +
  APPLID    ________
-------------------------------------------------------------------------------
```

9. **Scroll right** (F11) to see the compressed view.

```
  File  Edit  Lists  Options  Help
 ____________________________________________________________________________
               EDIT Statistics Alert Definition - GSGALERT Row 1 of 79 More: >
Command ===> _____________________________________________ Scroll ===> PAGE

Description  . . . Key System Alerts____________________

Select a Condition to show its details.

  Alert
_ Transaction dumpcode taken
_ Transaction dumps requested
_ System dumpcode taken
_ System dumps requested
_ Maximum tasks reached
_ Peak tasks (% of maximum tasks)
_ Maximum active transactions in class reached
_ Storage violations for transaction ID
_ Peak transactions in tran. class (% of limit)
_ Storage: short-on-storage times in DSA
_ Cushion releases in DSA
_ Storage: times no storage in DSA
_ Storage: times suspended for storage
_ Storage violations
_ Storage: above the bar cushion releases
_ Transient data: NOSPACE on DFHINTRA
_ DFHINTRA in use (% of CIs)
_ String waits on DFHINTRA
_ Formatting writes on DFHINTRA
_ Buffer waits on DFHINTRA
_ I/O errors on DFHINTRA
_ Temporary storage: times hit NOSPACE on DFHTEMP
_ Formatting writes on DFHTEMP
_ Temporary storage: string waits on DFHTEMP
_ Writes greater than DFHTEMP CI size
_ Temporary storage: buffer waits on DFHTEMP
_ DFHTEMP in use (peak % CIs used of CIs in TS ds)
_ Temporary storage: I/O errors on DFHTEMP
_ Peak DFHTEMP strings in use
_ OPEN TCBs (L8 and L9), times at maximum
_ OPEN TCBs peak (% of pool limit)
_ JVM TCBs (J8 and J9), times at maximum
_ JVM TCBs peak (% of pool limit)
```

10. Exit to save the definition.

With the Statistics Alert Definition specified, you can now use it to format your report.

Reporting Statistics Alerts

This section describes how to assign the Statistics Alert Definition to the report.

1. Select option 2 **Report Sets** from the Primary Option Menu. The list of Report Sets is displayed.
2. Select a Report Set or enter the **NEW** command to create a new Report Set. We will select the DAILYCHK Report Set as the Alert we have defined is an ongoing monitoring function likely to be run on a daily rather than ad-hoc basis.

```
  File  Systems  Confirm  Options  Help
-------------------------------------------------------------------------------
                              Report Sets                    Row 1 to 2 of 2
Command ===> _____________________________________________ Scroll ===> PAGE

Report Sets Data Set . . : xxxx.CICSPA.RSET

 /    Name             Description               Changed        ID
S__  DAILYCHK Daily monitoring form-based rpts 2010/10/11 17:40 SEC
___  REPORTS1 Demonstration Report Set         2010/10/11 17:14 SEC
****************************** Bottom of data ********************************
```

3. The Report Set edit panel is displayed. Enter line action **S** to select the Statistics Alert report.

```
  File  Systems  Confirm  Options  Help
-------------------------------------------------------------------------------
EDIT                      Report Set - DAILYCHK                  Row 1 of 11
Command ===> _____________________________________________ Scroll ===> PAGE

Description  . . . . Daily monitoring form-based rpts

Enter "/" to select action.

___           ** Reports **                            Active
     +  ___   Options                                    Yes
     +  ___   Selection Criteria                         No
     +  ___   Performance Reports                        Yes
     +  ___   Exception Reports                          No
     +  ___   Transaction Resource Usage Reports         No
     -  ___   Statistics Reports                         No
              S__  Alert                                 No
     +  ___   Subsystem Reports                          No
     +  ___   System Reports                             No
     +  ___   Performance Graphs                         No
     +  ___   Extracts                                   No
              ** End of Reports **
```

4. The Statistics Alert report edit panel is displayed. Enter the name of the Alert Definition or press **Prompt** (F4) from the Alert field to select from the list of Alert Definitions.

```
  File  Systems  Options  Help
-------------------------------------------------------------------------------
                     DAILYCHK - Statistics Alert Report
Command ===> ____________________________________________________________

System Selection:                        Report Output:
 APPLID . . ________  +                   DDname . . . . . . . . . . STAL0001
 Image  . . ________  +                   Print Lines per Page . . ___  (1-255)
 Group  . . ________  +

Alert . . . GSGALERT  +

Report Sorted By:                        Report Type (APPLID and Alert only):
 1  1. APPLID                             /  List   /  Summary
    2. Alert
    3. Collection Time
    4. Statistics Interval
    5. Resource

Report Format:
 Title  . . Key Daily Statistics Alerts by APPLID_____________________________
            ____________________________________________________________

Filter Criteria:
 Type . . . . . /  EOD  /  INT  /  USS  /  REQ  /  RRT

HDB Register  . : xxxx.MY.GETSTART.SANDBOX
```

Select the List or Summary or both reports, select a sort order, specify a report title, and filter criteria. Exit to save your report specification.

5. The list of Statistics Alert reports is displayed. We have defined one report sorted by APPLID. To define Statistics Alert reports sorted by Alert, Collection Time, Statistics Interval, or Resource, you need to specify separate reports in the Report Set assigning a unique DDname to each.
6. Exit to return to the Report Set edit panel. Enter the **RUN** command to run the Report Set.
7. Specify run time options and press Enter to generate the JCL.
8. Submit the job then check the report output using SDSF.

Examples of the Statistics Alerts List and Summary reports follow.

Statistics Alerts - List by APPLID

```
STAL0001 Printed at 0:56:18 10/15/2010     Data from 02:33:10  1/12/2009 to 09:24:07  1/14/2009


System: CCVQ32C    Image: FTS1   VRM: 650   Type: TS

Sev Alert                                              Threshold       Actual  Collection Time      Type
W   Program load requests that waited                         >0            2  2009-01-13 00.00.01   EOD
I   DSA limit                                              >=0K        5120K  2009-01-13 00.00.01   EOD
I   DSA allocated                                          >=0K        2304K  2009-01-13 00.00.01   EOD
I   DSA peak                                               >=0K        2304K  2009-01-13 00.00.01   EOD
I   EDSA limit                                            >=0K      614400K  2009-01-13 00.00.01   EOD
I   EDSA allocated                                        >=0K       49152K  2009-01-13 00.00.01   EOD
I   EDSA peak                                             >0K       49152K  2009-01-13 00.00.01   EOD
I   MEMLIMIT size                                        >=0M           0M  2009-01-13 00.00.01   EOD
I   Active address space: current                        >=0M           0M  2009-01-13 00.00.01   EOD
I   Active address space: peak                           >=0M           0M  2009-01-13 00.00.01   EOD
I   Active GDSA: current                                 >=0M           0M  2009-01-13 00.00.01   EOD
I   Active GDSA: peak                                    >=0M           0M  2009-01-13 00.00.01   EOD
I   Dispatcher settings: ICV (ms)                            *        5.000  2009-01-13 00.00.01   EOD
I   Dispatcher settings: ICVR (ms)                           *        5.000  2009-01-13 00.00.01   EOD
I   Dispatcher settings: ICVTSD (ms)                        *        5.000  2009-01-13 00.00.01   EOD
I   Dispatcher settings: PRTYAGE (ms)                       *       32.768  2009-01-13 00.00.01   EOD
I   Dispatcher settings: SUBTSKS                            *            1  2009-01-13 00.00.01   EOD
I   Dispatcher settings: MROBTCH                           *            1  2009-01-13 00.00.01   EOD
I   Open TCBs limit                                        *           12  2009-01-13 00.00.01   EOD
    TCB Pool = OPEN
 Open TCBs current                                         *            0  2009-01-13 00.00.01   EOD
    TCB Pool = OPEN
⋮
I   Program load-to-use ratio (%)                        >=25          100  2009-01-13 00.00.01   EOD
    Program Name = CEEEV003
⋮

System: CCVQ32D1   Image: FTS1   VRM: 650   Type: TS

Sev Alert                                              Threshold       Actual  Collection Time      Type
W   Program load requests that waited                         >0            8  2009-01-13 00.00.00   EOD
W   Maximum active transactions in class reached              >0          329  2009-01-13 00.00.00   EOD
    Tclass Name = DFHTCL02
⋮
```

Statistics Alerts - Summary by APPLID

```
STAL0001 Printed at 0:56:18 10/15/2010     Data from 02:33:10  1/12/2009 to 09:24:07  1/14/2009


System: CCVQ32C    Image: FTS1   Type: TS

Sev Alert                                                                Intervals  Alerts
W   Program load requests that waited                                           1       1
I   Tasks: limit                                                               1       1
I   Tasks: current                                                             1       1
I   Tasks: peak                                                                1       1
I   Tasks: total                                                               1       1
I   Transaction class: task limit                                             6      14
    Tclass Name = DFHCOMCL                                                             1
    Tclass Name = DFHEDFTC                                                             1
    Tclass Name = DFHTCIND                                                             1
⋮

System: CCVQ32D1   Image: FTS1   Type: TS

Sev Alert                                                                Intervals  Alerts
W   Maximum active transactions in class reached                                 1       1
    Tclass Name = DFHTCL02                                                             1
W   Temporary storage: buffer waits on DFHTEMP                                   1       1
W   Program load requests that waited                                           1       1
I   Tasks: limit                                                               1       1
I   Tasks: current                                                             1       1
I   Tasks: peak                                                                1       1
I   Tasks: total                                                               1       1
I   Transaction class: task limit                                             6      14
    Tclass Name = DFHCOMCL                                                             1
    Tclass Name = DFHEDFTC                                                             1
    Tclass Name = DFHTCIND                                                             1
⋮
```

Chapter 6. Statistics reporting

CICS PA provides comprehensive reporting of CICS Statistics stored in SMF files or historical databases. We will have a brief look at the statistics in the Record Selection Extract data set we created earlier. It is best to use smaller SMF files for interactive analysis.

For online statistics reporting:

1. Select option 7 **Statistics** from the Primary Option Menu.
2. The CICS Statistics Reporting Menu is displayed.

```
  File  Options  Help
------------------------------------------------------------------------
                    CICS Statistics Reporting Menu
Command ===> ____________________________________________________________

Select an option then press Enter.

4  1. SMF Files defined in Personal System Definitions
   2. SMF Files defined in Shared System Definitions
   3. Historical Databases for CICS Statistics
   4. Process SMF File
      'GSG.RECSEL.EXTRACT'_____________________________  +
   5. Define Alerts

Filter Criteria  NO_                      MM/DD/YYYY  HH:MM:SS
  APPLID . . . . ________       Start . . __________  ________
  Image  . . . . ____           Stop  . . __________  ________

  Type . . . . . /  EOD  /  INT  /  USS  /  REQ  /  RRT

Options 2, 3 and 5:
 HDB Register . . . MY.GETSTART.SANDBOX_____________________________  +
```

   Specify the data set name of an SMF file to browse. Statistics Reporting is interactive so for efficiency, use smaller SMF files such as the Record Selection extract file 'GSG.RECSEL.EXTRACT' that you created in an earlier session. Set Filter Criteria to NO to show all intervals. Select option 4 to process the SMF file and press Enter.
3. Select statistics intervals of different types to analyze.

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```
  File  Edit  Filter  Options  Help
--------------------------------------------------------------------------------
REPORT                       Statistics Intervals              Row 13 from 28
Command ===> ____________________________________________ Scroll ===> PAGE

Select the required CICS Statistics interval.

/   System    Image  VRM  Type    --- Collection Time ---   Reset    Duration
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:44:58 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:45:00 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:45:03 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:45:09 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:48:02 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:48:04 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:48:08 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:48:16 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:48:31 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:48:50 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:48:53 Wed  15:00:00
_   CCVT41M   FTS1   660  TS USS  2010/09/29 16:51:51 Wed  15:00:00
_   CCVT41CX  FTS1   660  TS INT  2010/09/29 18:00:00 Wed  15:00:00  03:00:00
_   CCVT41M   FTS1   660  TS INT  2010/09/29 18:00:00 Wed  15:00:00  03:00:00
S   CCVT41CX  FTS1   660  TS INT  2010/09/29 21:00:00 Wed  18:00:00  03:00:00
_   CCVT41M   FTS1   660  TS INT  2010/09/29 21:00:00 Wed  18:00:00  03:00:00
******************************* Bottom of data ********************************
```

4. The reports for one statistics interval are presented in a tree structure. Select different reports to analyze. The **size** is the number of records in the report.

```
  File  Edit  Options  View  Help
--------------------------------------------------------------------------------
                           Statistics Reports                 Line 1 of 101
Command ===> _____________________________________________ Scroll ===> PAGE

System: CCVT41CX/FTS1      Type: INT  Interval: 2010/09/29 21:00:00 Wednesday

___          ** Reports **                              Size
     -  ___  Regions                                     518
            ___  Transaction Manager                      1
          -  ___  CICS Dispatcher                        46
                 ___  Dispatcher Overview                 1
                 ___  Dispatcher TCB Modes               21
                 ___  Dispatcher TCB Pools                5
                 ___  MVS TCB Overview                    1
                 ___  MVS TCBs                           18
          -  ___  CICS Storage                          442
                 ___  Storage Overview                    1
                 ___  DSAs                                9
                 S__  Domain Subpools                   428
                 ___  Task Subpools                       4
          -  ___  CICS Dumps                             9
                 ___  Transaction Dump Overview           1
                 ___  Transaction Dumps                   5
                 ___  System Dump Overview                1
                 ___  System Dumps                        2
            ___  Enqueue Pools                          20
            ___  BUNDLE Resources                        0
     -  ___  Connectivity                               46
            ___  VTAM                                    1
            ___  Terminal Autoinstall                    1
            ___  Terminals                              31
            ___  ISC/MRO Connections                     7
            ___  LU62 Mode Names                         0
            ___  ISC Security                            1
            ___  TCP/IP Overview                         1
            ___  TCPIPSERVICE Resources                  4
            ___  IPCONN Resources                        0
            ___  FEPI Connections                        0
            ___  FEPI Pools                              0
            ___  FEPI Targets                            0
     -  ___  Files and Databases                        112
            ___  Files                                  51
```

5. To analyze the report data, you can do any of the following:
   - **Scroll left/right** (F10/F11) to see more columns of data.
   - Toggle **sort** on any column by tabbing to the point-and-shoot heading underline and pressing Enter.
   - Format the report using the **FORM** command.
   - Use point-and-shoot on selected field values to **hyperlink** to a related report.
   - Press **Help** (F1) from anywhere in the body of the report to see field descriptions.

```
  File  Edit  Form  Options  Help
--------------------------------------------------------------------------------
REPORT    Domain Subpools                          Line 00000001 Col 002 008   >
Command ===> ____________________________________________ Scroll ===> PAGE

System: CCVT41CX/FTS1      Type: INT  Interval: 2010/09/29 21:00:00 Wednesday

Subpool   DSA       Element        Fixed  Element      Element
Name      Name      Type          Length  Chaining    Boundary  Location  Access
________  ________  ________  __________  ________  __________  ________  _____
>LGJMC    ECDSA     FIXED            124  NO                 4  ABOVE     CICS
AITM_TAB  ECDSA     FIXED            584  NO                 8  ABOVE     CICS
AP_TCA24  CDSA      FIXED           1664  NO               128  BELOW     CICS
AP_TCA31  ECDSA     FIXED           1792  NO               256  ABOVE     CICS
AP_TXDEX  ECDSA     FIXED             72  NO                 8  ABOVE     CICS
APAID31   ECDSA     FIXED            152  NO                 8  ABOVE     CICS
APBMS     ECDSA     VARIABLE           0  YES               16  ABOVE     CICS
APCOMM31  ECDSA     VARIABLE           0  NO                16  ABOVE     CICS
APDWE     ECDSA     FIXED             32  NO                 8  ABOVE     CICS
APECA     SDSA      FIXED              8  NO                 8  BELOW     USER
APICE31   ECDSA     FIXED            216  NO                 8  ABOVE     CICS
APURD     ECDSA     VARIABLE           0  NO                16  ABOVE     CICS
ASYNCBUF  ECDSA     FIXED           4096  NO                 4  ABOVE     CICS
```

Chapter 7. System upgrade

CICS PA provides facilities to accommodate CICS system upgrades.

We will step through two functions:

- Take-up system definitions from an SMF file
- Mass update system definitions

Take-up systems from an SMF file

To take-up system definitions from an SMF file, the steps are:

1. Select option 1 **Personal System Definitions.**
2. Then from the sub-menu, select option 4 **Take-up from SMF File.**
3. Enter the data set name of the SMF file. We suggest using the Record Selection Extract data set.

```
  File  Options  Help
------------------------------------------------------------------------
                       Data Take-Up from SMF
Command ===> ____________________________________________________________

Specify the SMF File for data take-up.

Data Set Name . . . 'GSG.RECSEL.EXTRACT'_____________________________

Specify details if data set is not cataloged:
 UNIT  . . . . . ________  +       VOLSER  . . . ______  +
 SEQ Number  . . ___  (1 to 255)

Execution Mode:
2  1. Submit Batch JCL
   2. Edit Batch JCL
```

4. Press Enter to submit the job. Use SDSF to check the output when the job completes.
5. Exit to return to the Primary Option Menu.
6. Again select option 1 Personal System Definitions. If the take-up job completed successfully, a prompt window is displayed.

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```
                  Data Take-Up from SMF
Command ===> ____________________________________________

       ******************************************
       *             Take-Up from SMF           *
       ******************************************

CICS PA has completed extracting systems from the following
SMF File:

Data Set . . : 'GSG.RECSEL.EXTRACT'

Instructions:
  Press ENTER to continue adding the systems.
  Enter DEFER command to defer adding the systems.
  Enter END or CANCEL command to cancel adding the systems.
```

7. Press Enter to add the system definitions. Look for the message in the top right hand corner: **Take-up was successful.**

Now the system definitions can be selected for mass update.

Mass update

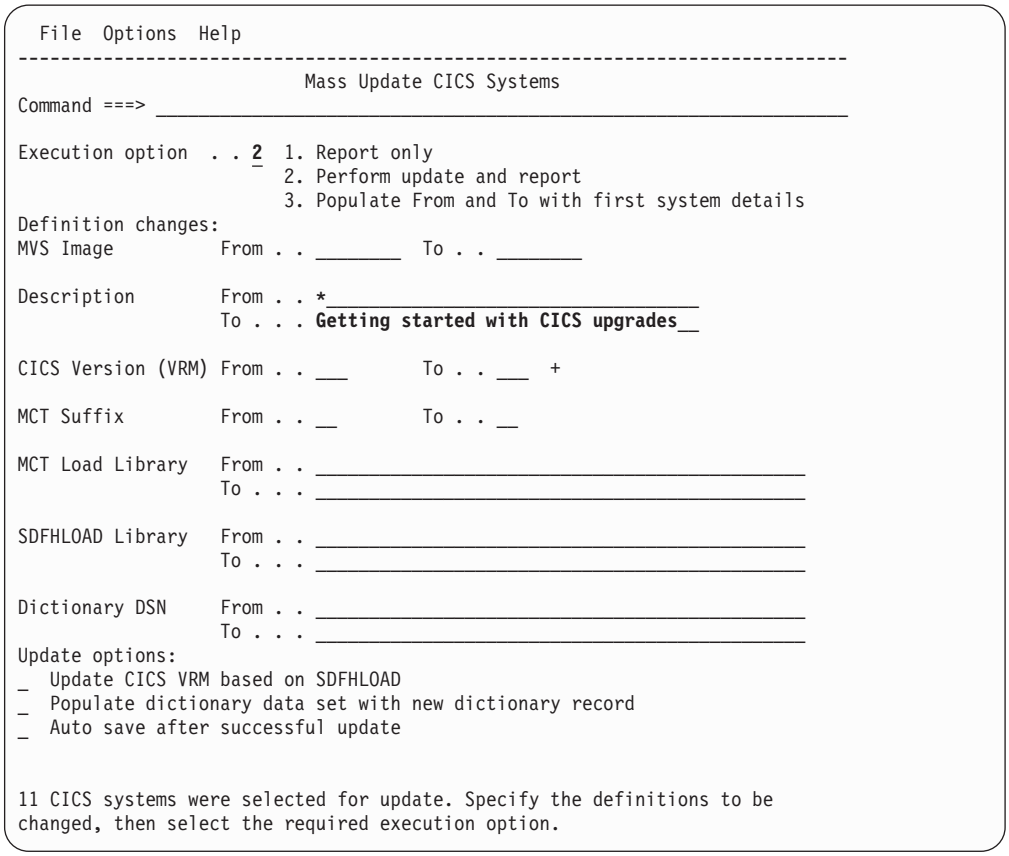
To update system definitions for the system upgrade, do the following:

1. From the Primary Option Menu, select option 1 **Personal System Definitions.**
2. Then from the sub-menu, select option 1 **Define Systems, SMF Files and Groups.**
3. The list of system definitions is displayed.
4. The systems just added by take-up have the description **System added by take-up.** For this exercise, we will update the system description.
5. Select **Mass_Update** in the action bar. Press Enter.
6. Line action **U** is displayed against all CICS systems. We do not want to update the first CICS system (APPLID *) so clear line action U by overtyping with a space.

```
 File  Edit  Filter  View  Mass_Update  Options  Help
--------------------------------------------------------------------------------
                        Personal System Definitions            Row 1 from 13
Command ===> _____________________________________________ Scroll ===> ____

Select a System to edit its definition, SMF Files and Groups.
                                                                    SMF Files
/   System   Type    Image               Description               System
_   *        CICS            Generic APPLID for getting started__ *
_   FTS1LOGR Logger  FTS1     System added by take-up_____________ FTS1
U   CCVT41C  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVQ41C  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT32C  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT31C  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT32T  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT32M  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT41T  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT31T  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT41CX CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT41M  CICS    FTS1     System added by take-up_____________ FTS1
U   CCVT31M  CICS    FTS1     System added by take-up_____________ FTS1
******************************* Bottom of data ********************************
```

7. Press Enter to select all CICS systems that have line action U for mass update.
8. The mass update panel is displayed where you can specify changes to be applied to the selected CICS systems.
9. Enter * in the From description to indicate all matches. Enter the new description in the To field.



10. Select execution option **2** to do the update and report the changes.
11. Exit to return to the system definition list where you will see the changes that you just made.

That concludes the initial tour of the CICS PA dialog.

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Additional information can be found in the following publications.

CICS Performance Analyzer books

User's Guide, SC34-7153
Report Reference, SC34-7154
Getting Started Guide, SC34-7155
Program Directory, GI13-0562

Books from related libraries

You might find the following publications useful when using CICS Performance Analyzer to analyze and tune the performance of your CICS systems.

CICS Transaction Server for z/OS Version 4

CICS System Definition Guide, SC34-6999
CICS Customization Guide, SC34-7001
CICS Resource Definition Guide, SC34-7000
CICS Operations and Utilities Guide, SC34-7002
CICS Supplied Transactions, SC34-7004
CICS Application Programming Guide, SC34-7022
CICS Application Programming Reference, SC34-7023
CICS System Programming Reference, SC34-7024
CICS Business Transaction Services, SC34-7029
CICS External Interfaces Guide, SC34-7019
CICS Internet Guide, SC34-7021
CICS Performance Guide, SC34-7033
CICS DB2 Guide, SC34-7011

CICS Transaction Server for z/OS Version 3

CICS System Definition Guide, SC34-6813
CICS Customization Guide, SC34-6814
CICS Resource Definition Guide, SC34-6815
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z/OS Administration, SC34-6961

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