

IBM CICS Performance Analyzer for z/OS



Getting Started Guide

Version 5 Release 3

IBM CICS Performance Analyzer for z/OS



Getting Started Guide

Version 5 Release 3

Note

Before using this information and the product it supports, read the information in “Notices” on page 53.

This edition applies to Version 5 Release 3 of IBM CICS Performance Analyzer for z/OS (product number 5655-Y23) and to all subsequent releases and modifications until otherwise indicated in new editions.

The technical changes for this edition are indicated by a vertical bar in the left margin.

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Contents

About this book	v
Who should read this information	v
Conventions used in this book	v
Highlighting conventions	v
\$ (the dollar symbol)	v
Terminology used in this book	vi
Service updates and support information	vi
Where to find information	vi
Accessibility	vi

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

Chapter 2. Setting up	3
Before you begin	3
Displaying the Primary Option Menu	3
Customizing your profile settings	4
Defining systems and files	4

Chapter 3. Performance reporting.	9
Requesting a List report	9
Running the Report Set	12
Viewing report output.	16
Report Set samples	16
Installing Report Set samples	17
Unexpected increase in CPU (CPUINCRS) report set	18
Importing sample forms	19

Defining report forms	20
Formatting a Summary report	23
Creating a Record Selection extract	25
Reporting using the Record Selection extract	28

Chapter 4. Daily monitoring and trend analysis	31
Defining a report set for daily monitoring	31
Using historical databases for trend analysis	36

Chapter 5. Service level management	39
Defining Statistics Alerts	39
Reporting Statistics Alerts	41

Chapter 6. Statistics reporting.	45
---	-----------

Chapter 7. System upgrade	49
Take-up systems from an SMF file.	49
Mass update	50

Notices	53
Trademarks	55
Terms and conditions for product documentation.	55
Privacy policy considerations	55

Index	57
------------------------	-----------

About this book

This book contains information for IBM® CICS® Performance Analyzer for z/OS® Version 5 Release 3. 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 information

This information 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™, z/OS, DFSORT, or CICS, you might want to refer to IBM Knowledge Center when using this information and the CICS Performance Analyzer for z/OS.

Before you read this information, you need to have a good understanding of how CICS works. This assumes familiarity with many of the books in the IBM 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.

\$ (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 CICS terminology. For explanations of these terms, see the glossary of the *CICS Transaction Server for z/OS Knowledge Center*.

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:

<http://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:

<http://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.

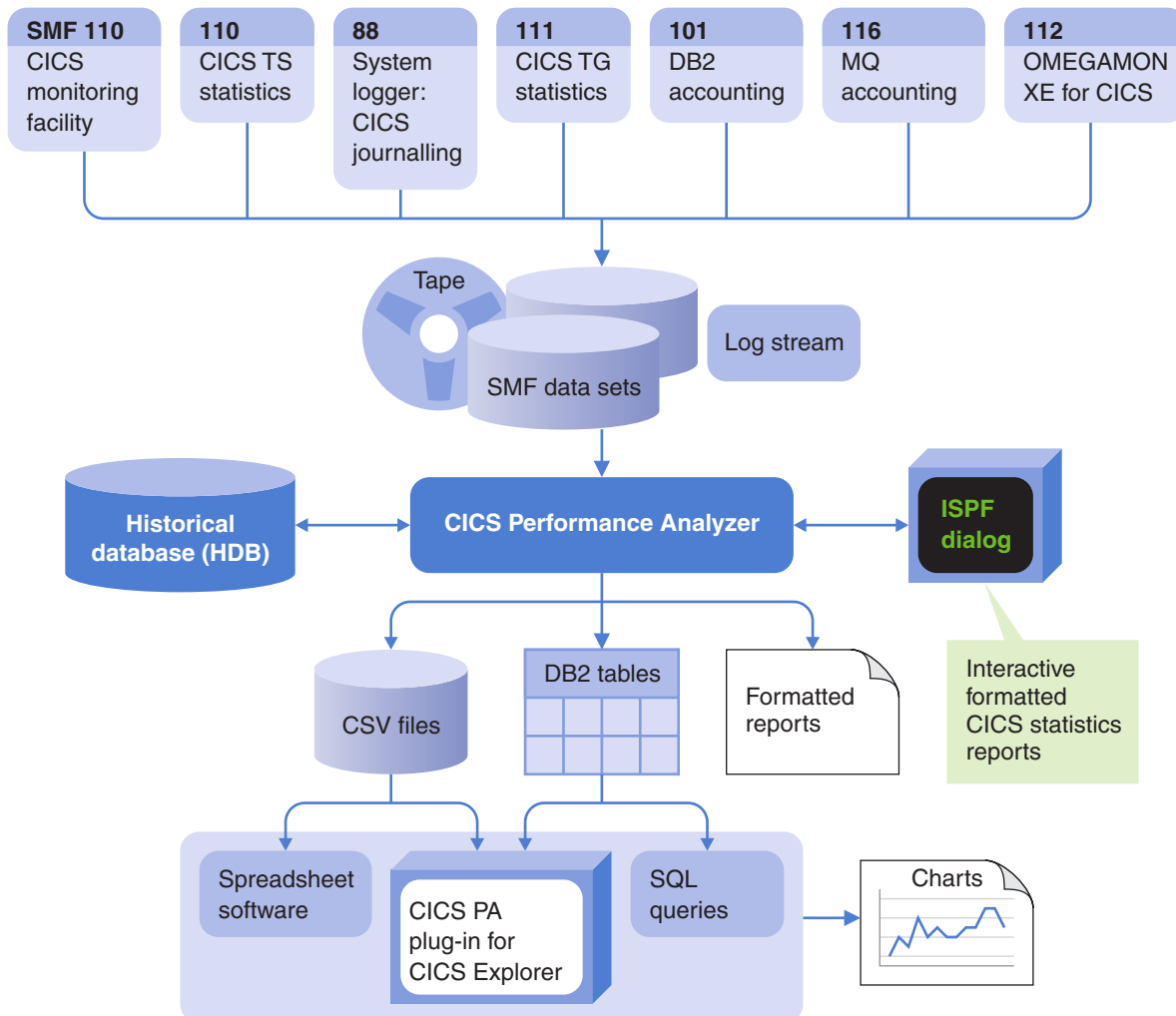


Figure 1. CICS Performance Analyzer overview

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)
- CICS Transaction Server (CICS TS) statistics (SMF 110, subtype 2) and CICS Server statistics (SMF 110, subtypes 3, 4, and 5)

- IBM z/OS System Logger for CICS journaling (SMF 88)
- IBM CICS Transaction Gateway (CICS TG) statistics (SMF 111)
- IBM DB2[®] accounting (SMF 101)
- IBM WebSphere[®] MQ accounting (SMF 116)
- IBM OMEGAMON[®] XE for CICS (SMF 112) containing transaction data for Adabas, CA-Datcom, CA-IDMS, and Supra database management systems

These data sources provide input for generating reports, storing in HDBs, or exporting for analysis using IBM 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.V5R3M0.SCPAEXEC(CPAOREXX)' 'CICSPA.V5R3M0 ENU'
```

If the high level qualifier for your CICS PA installation data sets is not CICSPA.V5R3M0, then alter the command accordingly.

When the CICS PA dialog starts, the Primary Option Menu is displayed.

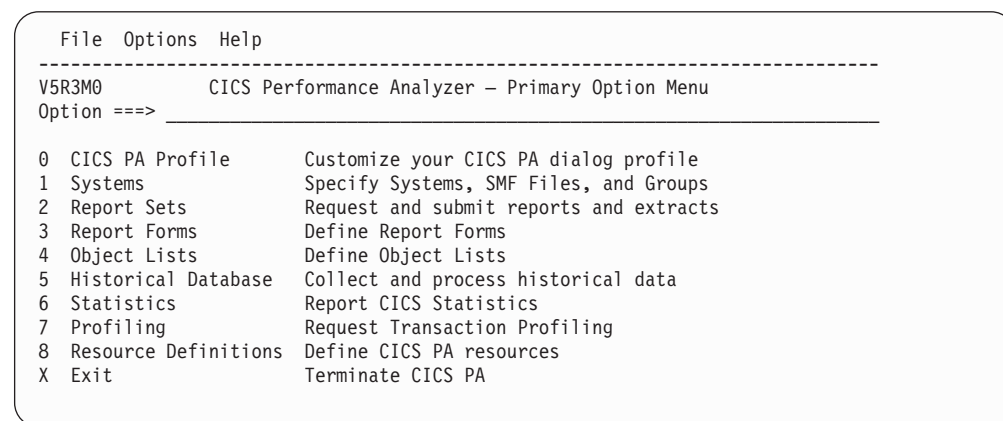


Figure 2. CICS PA Primary Option Menu

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 and use the default profile settings, which are adequate when you are getting 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, 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 repository, 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 repository 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.
5. **File Selection.** Specify which system definitions (personal or shared) to use at run time and options for using log streams across CICS PA.

Defining systems and files

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

The System Definitions facility (option 1 on the Primary Option Menu) 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** on the Systems menu 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 2 **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. Select option 1 (Define Systems, SMF Files and Groups).
3. 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.

/  System  Type  Image                Description                SMF Files
***** End of list ***** System

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

```

4. 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.

5. Specify the CICS system details including a meaningful description.
6. 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
_____
Command ==> _____ CICS System Row 1 of 1 More: >
                               Scroll ==> _____

CICS System definition:
APPLID . . . . . * _____ MVS Image . . _____ VRM . . :
Description . . . . . Generic APPLID for getting started _____

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 that end with a + sign signify that **Prompt** is available. Move the cursor to 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) because 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 after the panel title to remind you.
7. 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.

/  System  Type  Image          Description          SMF Files
_  *      CICS          Generic APPLID for getting started_  *
***** End of list *****

```

8. 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

This procedure shows you how to create a Report Set, which you need to request a report. You can define as many Report Sets as you want.

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 show) or collapsed (to hide) the reports contained within them. 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
      List                                     No
      Summary                                 No
      Alert                                  No
      CICS Transaction Gateway                No
-      Subsystem Reports                       No
      DB2                                    No
      WebSphere MQ                           No
      OMEGAMON                               No
-      System Reports                          No
      System Logger                          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
+ ---    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

Repository . . . :

```

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 ----
/  Exc  APPLID +  Image +  Group +  Output  Form +  Alert +  Selection
I      _____  _____  _____  LIST0001  _____  _____  Criteria
***** End of List ***** NO

```

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 **
+ --- Options                                     Active
+ --- Selection Criteria                         Yes
- --- Performance Reports                       No
      --- 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
+ --- 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 using Personal System Definitions
CICS APPLID . . *_____ + Image . . _____ + Group . . _____ +
DB2 SSID . . . _____ + Image . . _____ + Group . . _____ +
MQ SSID . . . _____ + Image . . _____ + Group . . _____ +
Logger . . . . _____ + Image . . _____ + Group . . _____ +

_ Override System Selections specified in Report Set
_ Read SMF File to EOF

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

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:
- 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 want 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 V5R3 Report JCL
000003 //CICSPA EXEC PGM=CPAMAIN
000004 //STEPLIB DD DSN=CICSPA.V5R3M0.SCPALINK,DISP=SHR
000005 //CPAHDBRG DD DISP=SHR,
000006 //          DSN=CICSPA.REPOSTRY
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          PRECISION(4),
000023          LIST(OUTPUT(LIST0001))
000024 /*
***** ***** 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 Repository 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 Repository 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 or log streams specified in system definitions.

Note: SMF file ddnames do not need to 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(xxxxxxx)

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.

PRECISION(n)

The precision to use in the report for numeric fields. Possible values are 4, 5, and 6. The default value is 4.

- PRECISION(4) is 0.0001 precision
- PRECISION(5) is 0.00001 precision
- PRECISION(6) is 0.000001 (microsecond) precision

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.

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 ==>
NP  JOBNAME JobID  Owner  Prty Queue  C  Pos  SAff  ASys Status  PrtDest  SecLabel TGNM  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 ==>
NP  DDNAME  StepName ProcStep DSID Owner  C Dest  Rec-Cnt Page-Cnt Byte-Cnt CC  Rmt  Node O-Grp-N  SecLabel PrMod
JESMSG LG 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 CICS PA 102 SEC X LOCAL  47      3,717  1      1  1      LINE
S  LIST0001 CICS PA 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 12:34:56 02/15/2015 Data from 10:07:43 1/28/2015 APPLID CICS PAOR
```

Tran	SC	Term	Userid	RSID	Program	TaskNo	Stop Time	Response Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time	FC Wait Time	FCAMRq	IR Wait Time
CQRY	S	0004	CICSUSER	DFHQR	26	10:09:37.011	.5971	.1371	.0341	.4600	.4553	.0000	0	.0000	
CSGM	S	0004	CICSUSER	DFHGM	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.

Report Set samples

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 create new Report Sets, as shown in this tutorial, or you can install predefined Report Set samples. Each of the Report Set samples help you investigate a particular problem scenario.

The following Report Sets samples are provided:

Table 1. Report Set samples

Report Set sample	Scenario
MAXTASK	A CICS region has reached the MXT limit specified for the region and you want to know what reports to run to determine the causes of the MXT condition.
SOS	A CICS region is experiencing a Short on Storage (SOS) condition. The report helps identify the cause of the SOS condition, which might be resource constraints, a large number of tasks, or flaws in application design.
TSQUEUE	A CICS region is experiencing temporary storage queue issues.
FILEACCS	A CICS systems is experiencing file access issues.
CPUINCRS	Some of the transactions on one or more CICS systems are experiencing increases in CPU time.
RESPINCR	Some of the transactions on one or more CICS systems are experiencing increases in response time.
THRDSAFE	The CICS systems programmer has to provide details of transactions that are incurring TCB switches (dispatch mode delays).
BFORAFTR	The CICS applications programmer makes updates to an application as part of a modernization project and needs to compare CPU usage for transactions before and after the changes.
CONSOLDT	You want to consolidate regions for improved performance.
PLUGIN	The CICS performance specialist wants to make performance summary, statistics alert, and performance alert data available to systems and application programmers.

Installing Report Set samples

You can run the JCL provided in the SCPASAMP library, member CPARSSJC, to install the sample report sets.

1. Make a copy of *qualifier*.SCPASAMP(CPARSSJC).
2. In the copy of CPARSSJC, on the //INXMIT DD line for SCPASAMP, edit the DSN parameter so that the data set name of *qualifier*.SCPASAMP(CPARSSAM) is a correct data set and member name on your system. It is likely that you will have to edit the qualifier.
3. Choose new data set names to hold the sample report sets, and the associated forms, object lists, REPRO repository and VSAM repository REPRO data sets.
4. **CAUTION:**
It is recommended that you use new data sets rather than existing data sets. The JCL deletes the data sets before recreating them, so any existing report sets, report forms, or other objects in those data sets are also deleted.
Edit the JCL to use the data set names you chose. That is, edit the names of all the data sets with a suffix FORM, RSET, OBJL, or REPOSTRY.
5. Submit the JCL.
6. In CICS PA, select option 0.3, CICS PA Control Data Sets.
7. Change the names of the control data sets to the data sets that the JCL created.
For example, if the JCL specified CPA.V5R3M0.RSSAMP.RSET as the name of the data set for report sets, in option 0.3, against Report Sets, type 'CPA.V5R3M0.RSSAMP.RSET'.

Note: Against Repository, type the name of the VSAM repository that is specified by the DEFINE CLUSTER statement in the JCL.

Unexpected increase in CPU (CPUINCRS) report set

As an example, consider the CPUINCRS report set. Imagine that a CICS® systems programmer sees a notification that some of the transactions on one or more CICS systems are experiencing increases in CPU time. The information about increase in CPU time was provided by the delivery manager from service level agreement (SLA) reports. The systems programmer wants to know which reports to run to determine the causes of the increase in CPU. The reports in this sample can help identify the cause of the CPU increase.

The report set produces the following reports:

Table 2. CPUINCRS reports

Report short name	Report description
BADCPU	CPU increase - top 20 worst CPU times
CPU5SUM	CPU increase - transaction CPU analysis (V5)
TRANMNGR	CPU increase - Transaction Manager statistics analysis
DISPOVRV	CPU increase - Dispatcher statistics overview
TCBMODES	CPU increase - Dispatcher statistics TCB modes
TCBPOOLS	CPU increase - Dispatcher statistics TCB pools
MONTORNG	CPU increase - Monitoring global statistics

TRANMNGR report

When you run the report set, you can view the output for each report. The following figure shows the output of the TRANMNGR Statistics Summary report, which shows you the workload for each CICS region. It might show an unexpectedly large increase in transaction activity.

V5R3M0		CICS Performance Analyzer Statistics Summary								
TRANMNGR Printed at 8:25:08 1/27/2016		Data from 00:00:00 2014/06/24 to 00:00:00 2014/06/25								
CPU increase - Transaction Manager statistics analysis										
Collection Time	APPLID	Fin Current MAXTASK	Fin Transact	Tot Times at MAXTASK	Max Peak Active User	Max Peak Queued User	Tot Total Active User	Tot Total Delayed User	Tot Total Queuing Time for MAXTASK	Fin Total number o Transact
2014/06/25-15:00:00	T64CICTB	500	12426	0	16	0	12361	0	00.00.00.000000	12426
2014/06/25-15:00:00	T64CICTC	500	23157	0	11	0	23141	0	00.00.00.000000	29066
2014/06/25-15:00:00	T64CICTE	500	15308	0	12	0	15251	0	00.00.00.000000	15308
2014/06/25-15:00:00	T64CICTG	500	23118	0	11	0	23107	0	00.00.00.000000	28875
2014/06/25-15:00:00	T64CICTH	500	31937	0	12	0	31308	0	00.00.00.000000	31937
2014/06/25-15:00:00	IYCYZC20	500	15732	12	500	50	30191	96	00.02.18.654032	30329

Figure 3. TRANMNGR report output

More information about each Report Set sample is available in the Reference section of the CICS PA *User's Guide*.

Importing sample forms

CICS PA report forms help you access all the information relating to CICS TS that is contained in CMF Performance records and CICS TS and CICS TG information that is contained in CICS Statistics 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 of 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.

To import sample forms:

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. Select **Samples > Populate Report Forms data set with sample forms** in the action bar of the Report Forms panel.
The Sample Form Search panel is displayed.
You could press Enter to see the complete list of sample report forms, but for now we will reduce the list to show only performance list report forms.
3. Type / against **List**, and press Enter.

FileOptionsHelp

Sample Form Search

Command ==> _____

Specify searching criteria then press Enter.

Search String:

Performance:
/ List
- List Extended
- Summary

Categories:
- Transaction Overview
- Transaction Tracking
- Channels and Containers Usage
- Transaction Storage Usage
- Top Lists and Distributions
- Transaction Resource Usage
- Miscellaneous
- CPU Usage and Analysis
- Platforms, Applications and Policy
- Transaction Communications Activity
- Transaction Data Access
- Web and Web Services
- Java

4. Enter line action S against report form ABNDLST, and press F3 to exit.

View				
Command ==>		Sample Report Forms	Row 1 to 14 of 78 Scroll ==> PAGE	
Select one or more Sample Report Forms then press EXIT.				
	Name	Type	Description	Saved
S	ABNDLST	LIST	Transaction Abend List	
-	ASSCLST	LIST	Association Data Analysis (V4)	
-	BTSACLST	LIST	CICS BTS Activity - Overview	
-	BTSRQLST	LIST	CICS BTS Request Activity	
-	CCLST	LIST	Channel Container Activity	
-	CEC5LST	LIST	Transaction CEC Analysis (V5)	
-	COMMWLST	LIST	Transaction Comms Wait Analysis	
-	CPULEXTR	LIST	CPU Analysis and Extract	
-	CPULST	LIST	Transaction CPU Analysis	
-	CPULST1	LIST	Transaction CPU Analysis (1)	
-	CPUSPLST	LIST	Transaction CPU Analysis (V5)	
-	CPU4LEXT	LIST	CPU Analysis and Extract (V4)	
-	CPU5LEXT	LIST	CPU Analysis and Extract (V5)	
-	CPU5LST	LIST	Transaction CPU Analysis (V5)	

The ABNDLST report form is now available for you to use, or edit further.

For more information about samples report forms refer to the Report Forms section of the CICS PA *User's Guide*.

Defining report forms

When none of the existing report forms show the fields you want, you can create a new report form.

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.
2. The Report Forms list contains only the report form you previously imported. Enter the **NEW** command to create a new report form.

File Confirm Samples Options Help						
Command ==> NEW		Report Forms		Row 1 to 1 of 1 Scroll ==> PAGE		
Report Forms Data Set . . : xxxx.CICSPA.FORM						
/	Name	Type	Description	Changed	ID	
-	ABNDLST	LIST	Transaction Abend List	2015/12/15 00:00	CICSPA	
***** Bottom of data *****						

3. You are prompted to select the report form type.

- **Performance** to specify a Performance List (LIST), Performance List Extended (LISTX), or Performance Summary (SUMMARY) report form.
- **Statistics** to specify a Statistics List (STATLST) or Statistics Summary (STATSUM) report form.

For this tutorial, select **Performance**.

4. 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 Performance Report Form options.

Name . . . HOURLMON_  Version (VRM) . . . 700  +

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 . . _____  +
Repository . . . . . _____  +

```

Specify the following details:

- Form name **HOURLMON** to indicate hourly monitoring
- VRM **700** to populate the default report form with fields relevant to CICS Transaction Server V5.3
- Form type **3** to create a SUMMARY report form relevant to Performance Summary reports

Then press Enter to display the report form.

5. If the report form does not meet your reporting requirements, you can change it. Because 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 SC31UHWI 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.

```

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): 700

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
_ ACAPLNM_  K  * _____ Application context application name
_ ACMAJVER_ K  * _____ Application context application major version
_ ACMINVER_ K  * _____ Application context application minor version
_ ACMICVER_ K  * _____ Application context application micro version
_ ACOPERNM_ K  * _____ Application context operation name
_ ACPLATNM_ K  * _____ Application context platform name
_ ALERT_    _____ SEV Total Alert count or percentage
_ APPLID_   K  * _____ CICS Generic APPLID

```

Notes:

- 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.
6. 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): 700

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 Redispach wait time
-- FCWAIT__  TIME_____ AVE File I/O wait time
-- FCAMCT__  _____ AVE File access-method requests
-- IRWAIT__  TIME_____ AVE MRO link wait time
-- SC24UHWM  _____ AVE UDSA HWM below 16MB
-- SC31UHWM  _____ AVE EUDSA HWM above 16MB
-- EOR_____ _____ End of Report -----
-- EOX_____ _____ End of Extract -----

```

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.

- 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 *****

```

- Exit the Report Forms dialog 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 because 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 . . . HOURLMON +	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:	
_ Performance	Execution Option:
	/ Use External Sort
Repository . . . :	

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

For an explanation of each report option, tab to the field 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.

	Active
— ** Reports **	
+ — 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
- — Extracts	Yes
— Cross-System Work	No
— Performance	No
S — Record Selection	Yes
— HDB Load	No
— System Logger	No
— Statistics	No
** End of Reports **	

- 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 . . . _____	+
DB2 SSID . . . _____	+	Image . . . _____	+
MQ SSID _____	+	Image . . . _____	+
Logger _____	+	Image . . . _____	+
Required Record Types:		Extract Recap:	
/ Performance	/ Exception	DDname . . . <u>RSEL0001</u>	
/ Resource	/ Statistics		
/ OMEGAMON	/ DB2		
/ WebSphere MQ	/ System Logger		
/ Identity			
Output Data Set:			
Data Set Name . . . 'GSG.RECSEL.EXTRACT' _____			
Disposition . . . <u>1</u> 1. OLD		Record Compression . . <u>1</u> 1. No	
		2. MOD 2. Yes	
Selection Criteria:			
- Performance			
- Exception			
Logger Selection Criteria:			
- Logger			
Log Stream 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
  CICS PA IN(SMFIN001),
    APPLID(*),
    LINECNT(60),
    FORMAT(':', '/'),
    PRECISION(4),
  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)),
      SC24UHW(M(AVE)),
      SC31UHW(M(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 Systems 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.

/ System Type Image Description SMF Files
S * CICS Generic APPLID for getting started * System
***** 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 * is displayed 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 . . _____ VRM . . :
Description . . . . . Generic APPLID for getting started _____

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 set up 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 forms to add to your Report Forms data set, enter the **SAMPLES** command or select **Samples > Populate Report Forms data set with sample forms** in the action bar of the Report Forms panel.
4. The Sample Form Search panel opens. There are over 200 sample forms. This panel allows you to specify selection criteria to reduce the list to a manageable subset of matching forms.
5. For now, press Enter. The full set of available samples is listed in a window which you can resize to a full screen by pressing **RESIZE** (F6).
6. 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 (%)

```

Sample Report Forms      Row 8 to 44 of 249
Command ==> _____ Scroll ==> CSR

Select one or more Sample Report Forms then press EXIT.

  Name      Type      Description
- - - - -
S BADCHMDS  LISTX      Top 20 Worst Change TCB Modes
- - - - -
- BADCPU   LISTX      Top 20 Worst CPU Times
- - - - -
- BADDB2R  LISTX      Top 20 Worst DB2 Requests (V5)
- - - - -
- BADDB2RQ LISTX      Top 20 Worst DB2 Requests
- - - - -
- BADFCRQ  LISTX      Top 20 Worst File Requests
- - - - -
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
- - - - -
- BADTSAWT LISTX      Top 20 Worst Auxiliary TS Waits
- - - - -
- BADTSRQ  LISTX      Top 20 Worst Tsqueue Requests
- - - - -
- BADTSRQ5 LISTX      Top 20 Worst Tsqueue Requests
- - - - -
- BADTSSWT LISTX      Top 20 Worst Shared TS Waits
- - - - -
- BADWBRQ  LISTX      Top 20 Worst CICS Web Requests
- - - - -
- BADWMQRQ LISTX      Top 20 Worst WebSphere MQ Reqs
- - - - -
- 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
- - - - -
- CEC5LST  LIST       Transaction CEC Analysis (V5)
- - - - -
- CHMDSRNG SUMMARY    Change TCB Mode Distribution
- - - - -
- COMMWLST LIST       Transaction Comms Wait Analysis
- - - - -
- COMMWSUM SUMMARY    Transaction Comms Wait Analysis
- - - - -
- CPULXTR  LIST       CPU Analysis and Extract
- - - - -
S CPULST   LIST       Transaction CPU Analysis
- - - - -
- CPULST1  LIST       Transaction CPU Analysis (1)
- - - - -
- CPUSUM   SUMMARY    Transaction CPU Analysis (V5)
- - - - -
- CPUSXTR  SUMMARY    CPU Analysis and Extract
- - - - -
- CPUSPLST LIST       Transaction CPU Analysis (V5)
- - - - -
- CPUSPSM1 SUMMARY    Transaction CPU Analysis (V5)
- - - - -
- CPUSPSUM SUMMARY    Transaction CPU Analysis (V5)
- - - - -
S CPUSUM   SUMMARY    Transaction CPU Analysis
- - - - -
- CPUSUM1  SUMMARY    Transaction CPU Analysis (1)
- - - - -
F1=Help    F3=Exit    F5=Rfind    F6=Resize  F12=Cancel

```

7. 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).
8. 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.
9. To use the report forms in your report requests, select option 2 **Report Sets** from the Primary Option Menu.
10. There are many ways to proceed from here. We will work through one of them.
11. From the list of report sets, select REPORTS1, the report set that we worked with earlier.
12. From the Report Set edit tree, select the Performance List report.
13. Because a List report has already been defined in this report set, the list of reports is displayed.
14. Enter line action **R** to repeat a row.
15. Enter line action **D** to delete unwanted reports. Alternatively, enter line action **X** to retain it in the list but exclude it from reporting.
16. 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.

```

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

      ---- System Selection ----
/  Exc  APPLID + Image + Group +  Output  Form +  Alert +  Selection
-  *    _____  _____  LIST0001  _____  _____  NO
-  _____  _____  LIST0002  CPULST  _____  NO
***** Bottom of data *****

```

Exit to return to the Report Set edit panel.

17. Now select the Performance List Extended report.
18. 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 . . . . . LISTX0001
Image . . _____ +                        Print Lines per Page . . ____ (1-255)
Group . . _____ +

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

Selection Criteria:
_ Performance

```

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

19. Exit to save your new report specification. The list of reports shows one report.
20. 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 ----
/  Exc  APPLID + Image + Group +  Output  Form +  Selection
-  _____  _____  LISTX0001  BADCPU__  NO
-  _____  _____  LISTX0002  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 required changes.

21. Exit to save the specification of both reports and return to the Report Set edit panel.
22. 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.
23. 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:	
_ Performance	Execution Option:
	/ Use External Sort
Repository . . . :	

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 **Repository**.

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.

24. The list of Summary reports is displayed.
25. 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 ----
/  Exc  APPLID + Image + Group + Output  Form + Alert + Selection
-      _____          _____ SUMM0001  CPUSUM  _____ NO
-      _____          _____ SUMM0002  RESPRNGP _____ NO
***** Bottom of data *****

```

Exit to return to the Report Set edit panel.

26. 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.
27. Change the description to something appropriate for daily monitoring.
28. 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.
29. When the message **Member DAILYCHK saved** is displayed, you can Cancel (F12) to discard changes to the first report set.
30. 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 *****

```

31. 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.
32. When the Run Report Set panel is displayed, ensure that you select the option **Edit JCL before submit**. Press Enter to proceed.
33. 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.
34. To submit the job from ISPF edit, enter **SUB** on the command line.
35. Exit to return.
36. 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.
37. On the SDSF status display, enter the **?** action character in the **NP** column.

SDSF STATUS DISPLAY ALL CLASSES

COMMAND INPUT ==>

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

38. 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 ==>

NP	DDNAME	StepName	ProcStep	DsID	Owner	C	Dest	Rec-Cnt	Page-Cnt	Byte-Cnt	CC	Rmt	Node	0-Grp-N	SecLabel	PrMod
	JESMSG LG	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

39. 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 8/15/2015 Data from 15:30:33 7/29/2015 to 23:59:52 7/29/2015
Transaction Response Time Distribution Summary (Percentage) by Time-of-Day

Page 52

Stop	Tran	#Tasks	<0.1 Response Time	0.1-0.25 Response Time	0.25-0.5 Response Time	0.5-0.75 Response Time	0.75-1.0 Response Time	1.0-1.5 Response Time	1.5-2.0 Response Time	2.0-10.0 Response Time	>=10.0 Response Time	Max Response Time	Avg Response 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 8 **Resource Definitions** from the CICS PA Primary Option Menu.
2. On the Resource Definitions Menu, specify the name of a VSAM KSDS repository 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 **Statistics Alerts** and press Enter.
If the repository data set does not exist, you will be prompted to create it.
4. A list of Statistics Alert Definitions is displayed. Initially, the list is empty. Enter the **NEW** command to create a new definition.
5. Follow the prompts to specify a name and select **Initialize with sample scenarios**.
6. From the list of sample definitions, select CTSKEY.
7. The Alert Definition edit panel is displayed. To become familiar with specifying Alert conditions, use the context-sensitive help. Tab to fields of interest and press **Help** (F1).

File Edit Lists Options Help			
EDIT Statistics Alert Definition - GSGALERT Row 1 of 87 More: >			
Command ==>			Scroll ==> PAGE
Description . . . Key System Alerts_____			
Specify the Conditions for this Alert Definition.			
- Alert	Transaction dumpcode taken_____		
- Formula	TDRITKN_____ +		
Critical	>5_____	Warning >0_____	Info _____ +
- Res			List _____ +
- APPLID	_____		

- Alert	Transaction dumpcode requested_____		
- Formula	TRANS_DUMP_TAKEN_____ +		
Critical	>25_____	Warning >0_____	Info _____ +
- Res			List _____ +
- APPLID	_____		

- Alert	System dumpcode taken_____		
- Formula	SDRSTKN_____ +		
Critical	>1_____	Warning >0_____	Info _____ +
- Res			List _____ +
- APPLID	_____		

- Alert	System dumps requested_____		
- Formula	SYS_DUMPS_TAKEN_____ +		
Critical	>5_____	Warning >0_____	Info _____ +
- Res			List _____ +
- APPLID	_____		

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


```

File Edit Lists Options Help
-----
EDIT Statistics Alert Definition - GSGALERT Row 1 of 87 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
- Storage: Number of IARV64 FROMGUARD Failures
- 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

```

9. 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 basis rather than an 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
      _   List                               No
      _   Summary                           No
      S_   Alert                             No
      _   CICS Transaction Gateway            No
+   _   Subsystem Reports                     No
+   _   System Reports                       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:
APPLID . . _____ +
Image . . _____ +
Group . . _____ +

Alert . . . GSGALERT +

Report Sorted By:
 1 1. APPLID
 2 2. Alert
 3 3. Collection Time
 4 4. Statistics Interval
 5 5. Resource

Report Output:
DDname . . . . . STAL0001
Print Lines per Page . . ____ (1-255)

Report Type (APPLID and Alert only):
 / List / Summary

Report Format:
Title . . Key Daily Statistics Alerts by APPLID _____

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

Repository . . : 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: CCVQ53C Image: FTS1 VRM: 700 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: CCVQ53D1 Image: FTS1 VRM: 700 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: CCVQ53C 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: CCVQ53D1 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 6 **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' _____ +

Filter Criteria:                      YYYY/MM/DD  HH:MM:SS
APPLID . . . . _____ Start . . _____
Image . . . . _____ Stop . . _____

Type . . . . . _ EOD _ INT _ USS _ REQ _ RRT

Options 2 and 3:
Repository . . . . MY.GETSTART.SANDBOX _____ +

F1=Help   F3=Exit   F4=Prompt   F6=Resize   F10=Actions   F12=Cancel
```

Figure 4. CICS Statistics Reporting Menu

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.

```

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
- CCVT53M FTS1 700 TS USS 2015/08/26 16:44:58 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:45:00 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:45:03 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:45:09 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:48:02 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:48:04 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:48:08 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:48:16 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:48:31 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:48:50 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:48:53 Wed 15:00:00
- CCVT53M FTS1 700 TS USS 2015/08/26 16:51:51 Wed 15:00:00
- CCVT53M FTS1 700 TS INT 2015/08/26 18:00:00 Wed 15:00:00 03:00:00
- CCVT53M FTS1 700 TS INT 2015/08/26 18:00:00 Wed 15:00:00 03:00:00
S CCVT53M FTS1 700 TS INT 2010/09/29 21:00:00 Wed 18:00:00 03:00:00
- CCVT53M FTS1 700 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: CCVT53M/FTS1      Type: INT  Interval: 2015/08/26 21:00:00 Wednesday

--      ** Reports **                               Size
-  -  -  Regions                               518
    -  -  Transaction Manager                     1
    -  -  Monitoring                             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
    :

```

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: CCVT53M/FTS1 Type: INT Interval: 2015/08/26 21:00:00 Wednesday

Subpool Name	DSA Name	Element Type	Fixed Length	Element Chaining	Element 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. From the Systems menu, 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 Systems menu.
6. Again select option 1 Personal System Definitions. If the take-up job completed successfully, a prompt window is displayed.

```

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: **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 Systems menu, select option 1 **Personal Systems**.
2. Then from the sub-menu, select option 1 **Define Systems, SMF Files and Groups**.
The list of system definitions is displayed.
3. The systems just added by take-up have the description **System added by take-up**. For this exercise, we will update the system description.
4. Select **Mass_Update** in the action bar. Press Enter.
5. 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.

/ System Type Image Description SMF Files
- * 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 *****

```

- ```

File Options Help

Mass Update Personal CICS Systems

Command ==> _____

Execution option . . 2 1. Report only
 2. Perform update and report
 3. Populate From and To with first system details

Definition changes:
MVS Image From . . _____ To . . _____

Description From . . * _____
 To . . . Getting started with CICS upgrades__

MCT Suffix From . . __ To . . __

MCT Load From . . _____
Library To . . . _____

SDFHLOAD From . . _____
Library To . . . _____

Dictionary From . . _____
DSN To . . . _____

Log Stream From . . _____ RETPD From _____
 To . . . _____ To _____

Update options:
_ Populate dictionary data set with new dictionary record
_ Auto save after successful update

11 CICS systems were selected for update. Specify the definitions to be
changed, then select the required execution option.

```

- That concludes the initial tour of the CICS PA dialog.



---

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---

# Index

## A

active report indicator 12  
Alert 34  
APPLID report operand 15

## C

CICS Explorer 1  
CICS Monitoring Facility data  
    *See* CMF data  
CICS Server data 1  
CICS Transaction Gateway data 1  
CICS Transaction Server data 1  
CMF data 1  
comma separated value files 1  
components 1  
control data sets 4  
cookie policy 53  
CPAHDBRG DD 14  
CPAMAIN 14  
CSV files  
    *See* comma separated value files  
CUAATTR 4  
customizing  
    ISPF profile settings 4

## D

daily monitoring 31  
dashboard, daily monitoring 31  
data input 4  
DB2 accounting data 1

## E

EOR 22  
EOX 22

## F

files, comma separated value (CSV) 1  
FIND command 31  
form-based reporting 9  
FORMAT report operand 15

## H

HDB  
    *See also* historical database  
    described 2, 36  
    trend analysis 36  
help (F1) 6, 23, 25, 33, 39, 47  
help, form fields (line action H) 23  
historical database  
    *See* HDB

## I

INPUT report operand 15  
installation 3  
interval  
    Performance Summary report 25, 34  
ISPF profile settings 4

## J

JCL 12, 14, 27

## L

legal notices  
    cookie policy 53  
    notices 53  
    programming interface  
        information 53  
    trademarks 53  
LINECNT report operand 15  
links  
    non-IBM Web sites 55  
List Extended report 33  
List report 9, 32  
LIST report operand 15  
Logger, CICS journaling data 1

## M

mass update 50  
messages  
    SYSPRINT message data set 14

## N

NEW  
    Report Form 20  
    Report Set 9  
    Statistics Alert Definition 39  
    System Definition 5  
notices 53

## O

OMEGAMON XE for CICS data 1  
OUTPUT report operand 15

## P

performance reporting  
    form-based 9  
    List Extended report 33  
    List report 9, 32  
    Record Selection extract 25, 28  
    Summary report 23, 34  
Performance Summary report  
    interval 25, 34  
PFSHOW 4

point-and-shoot fields 4  
primary option menu 3  
profile settings 4  
programming interface information 53  
prompt (F4) 6

## R

Record Selection extract  
    creating 25  
    system definitions 28  
Report Forms  
    defining 20  
    formatting reports 20  
    NEW command 20  
    samples 31  
report output 16, 36  
Report Sets  
    daily monitoring 31  
    formatting using Report Forms 20  
    installing samples 17  
    JCL generation 12  
    List Extended report 33  
    List report 9, 32  
    performance reporting 9  
    Record Selection extract 25  
    requesting report 9, 23  
    run-time options 12  
    Summary report 23, 34  
    viewing report output 16  
repository 14  
RUN 12, 27

## S

samples  
    Report Forms 31  
    Statistics Alert Definitions 39  
SDSF 36  
selection criteria 35  
service levels 39  
SETTINGS 4  
setup 3  
SMF files 1, 3, 4, 15  
SMFINnnn DD 15  
Statistics Alerts  
    defining 39  
    reporting 41  
statistics reporting 45  
STEPLIB DD 14  
SUB 12, 14, 27  
Summary report 23, 34  
SYSIN DD 15  
SYSPRINT DD 14  
System Definitions  
    new system 5  
    Record Selection extract 28  
    SMF files 6  
    types of systems 4  
system upgrade 49

## T

- take-up system definitions 49
- totals level 35
- trademarks 53, 55
- trend analysis, using HDBs 31, 36

## U

- upgrading CICS systems
  - mass update 50
  - take-up system definitions 49

## V

- Version (VRM)
  - mass update 51
  - Report Form 21
  - System Definition 6

## W

- WebSphere MQ accounting data 1

## Z

- z/OS System Logger, CICS journaling data 1

---

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