

CICS® Performance Analyzer for OS/390®



Report Reference

Version 1 Release 2

CICS® Performance Analyzer for OS/390®



Report Reference

Version 1 Release 2

Note!

Before using this information and the product it supports, be sure to read the general information under Appendix C, "Notices" on page 221.

| **Second Edition (August 2002)**

- | This edition applies to Version 1 Release 2 of IBM® CICS® Performance Analyzer for OS/390®, Program Number 5655-F38, and to all subsequent releases and modifications until otherwise indicated in new editions.
- | This edition replaces SC34-6125-01. The technical changes for this edition are summarized under "Summary of Changes" on page xxi and are indicated by a vertical bar to the left of a change.

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About this book

This book contains information for CICS® Performance Analyzer for OS/390®, Version 1 Release 2.

CICS Performance Analyzer for OS/390 and z/OS™ is a reporting tool for analyzing and tuning the performance of CICS systems. This book describes the reports and extracts that can be requested, what they contain and how to use them. It also describes the System Management Facility (SMF) data that provides the input.

The following releases of CICS are supported:

- 410** CICS/ESA Version 4.1
- 510** CICS Transaction Server for OS/390 Version 1 Release 1
- 520** CICS Transaction Server for OS/390 Version 1 Release 2
- 530** CICS Transaction Server for OS/390 Version 1 Release 3
- 610** CICS Transaction Server for z/OS Version 2 Release 1
- 620** CICS Transaction Server for z/OS Version 2 Release 2

In this book, CICS Performance Analyzer for OS/390 is referred to by its short name of CICS Performance Analyzer or CICS PA.

CICS refers to both CICS/ESA® and CICS Transaction Server, however if the information applies to only one, the term *CICS/ESA* or *CICS Transaction Server* is explicitly used.

Who should read this book

This book is intended for managers, database administrators, system programmers, and application programmers responsible for monitoring and improving the performance of CICS systems. It assumes that you understand basic CICS concepts and your installation's CICS systems. If you are new to MVS, OS/390, z/OS, DFSORT™, or CICS, you may want to review the information in “Related publications” on page xvii before using this book and the CICS Performance Analyzer for OS/390.

What you need to know to understand this book

Before you read this book, you need to have a good understanding of how CICS works. This assumes familiarity with many of the books in the CICS Transaction Server for OS/390 library, together with adequate practical experience of installing and maintaining a CICS system. You will also need to have a good understanding of the CICS Monitoring Facility (CMF), which is described in the *CICS Performance Guide*.

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 and run CICS® Performance Analyzer using a 3270 emulator logged on to TSO.

IBM® Personal Communications (Version 5.0.1 for Windows® 95, Windows 98, Windows NT® and Windows 2000; Version 4.3 for OS/2®) provides 3270 emulation with accessibility features for people with disabilities. You can use this product to provide the accessibility features you need.

People with limited vision who use screen reader software might find the following require particular attention:

- The Performance Graph Reports
 - These reports are composed of character output. Screen readers can report all of these to you but they are unlikely to convey the overall impression of the graph.
 - All the data used to produce Performance Graph Reports is available from CMF performance class data. You might find it more helpful to work with, for example, the Performance Summary reports or the Performance Export Extract.
- Pop-up windows
 - CICS Performance Analyzer uses the ISPF function that produces pop-up windows for some tasks. The pop-up and its frame are just text that overlays the underlying information on the displayed panel. The frame of such a pop-up is not usually recognized as such by Screen reader software, so you may need to gain some familiarity with reading such panels before the information becomes meaningful. ISPF pop-up windows can be displayed on a full screen by using the **RESIZE** command.

A version of this publication which is more suitable for use with screen reader software can be made available on request. Use one of the contact methods described in “How to send your comments” on page xv to submit such requests.

Conventions and terminology used in this book

Chapter 1, “Introduction” on page 1 introduces the concepts and terminology relevant to CICS Performance Analyzer for OS/390. The “Glossary of CICSPA Command Operands and Fields” on page 225 provides an alphabetical list of the operands and fields used to produce reports and extracts with CICS Performance Analyzer for OS/390. Much of the terminology in this book is based on CICS terminology.

The Web Site at <http://www.ibm.com/ibm/terminology/> consolidates several of the main glossaries created for IBM products in one convenient location, including the *Glossary of Computing Terms*.

How to send your comments

IBM welcomes your comments. You can send your comments by any one of the following methods:

1. Electronically to the network ID listed below. Be sure to include your entire network address if you wish a reply.

Internet: <mailto:idrcf@hursley.ibm.com>

2. By FAX, use the following numbers:

UK: 01962-816151

Other countries: +44-1962-816151

3. By mail to the following address:

User Technologies
Mail Point 095
IBM United Kingdom Laboratories
Hursley Park
Winchester
Hampshire
SO21 2JN
United Kingdom

How this book is organized

This book contains the following chapters:

Chapter 1, “Introduction” on page 1 introduces CICS PA. It provides a summary of the reports and extract data sets that you can request and the data that is used to produce them.

Chapter 2, “Analyzing the Reports and Extracts” on page 7 describes each of the CICS PA reports, their content, how to use them, and sample reports. It also describes the record formats of the CICS PA extract data sets.

Chapter 3, “Interpreting CMF Data” on page 137 provides a detailed description of the CMF data to help you understand and interpret the CICS PA reports and extracts.

Appendices A and B contain cross-reference information designed to help you more easily use CICS PA and understand the data it is reporting.

Appendix A, “Cross-Reference by CMF Field ID” on page 207 contains a cross-reference chart relating the CICS Monitoring Facility (CMF) fields with the corresponding CICS PA field names and CICS version.

Appendix B, “Cross-Reference by CICS PA Field Name” on page 215 contains a cross-reference chart relating the CICS PA field names with the corresponding CICS Monitoring Facility (CMF) fields and CICS version.

Appendix C, “Notices” on page 221 contains special notices and the list of trademarks that appear in this book.

About this book

“Glossary of CICSPA Command Operands and Fields” on page 225 lists all the operands and fields used with the CICSPA batch command and gives a brief description of each.

Related publications

Additional information can be found in the following publications:

CICS Performance Analyzer for OS/390

CICS Performance Analyzer User's Guide, SC34-1624
CICS Performance Analyzer Report Reference, SC34-1625
CICS Performance Analyzer Program Directory, GI10-2540

CICS Transaction Server for OS/390

CICS Problem Determination Guide, GC33-1693
CICS System Definition Guide, SC33-1682
CICS Customization Guide, SC33-1683
CICS Resource Definition Guide, SC33-1684
CICS Operations and Utilities Guide, SC33-1685
CICS Supplied Transactions, SC33-1686
CICS Application Programming Reference, SC33-1688
CICS System Programming Reference, SC33-1689
CICS Front End Programming Interface User's Guide, SC33-1692
CICS Performance Guide, SC33-1699
CICS DB2® Guide, SC33-1939
CICS External Interfaces Guide, SC33-1944
CICS Business Transaction Services, SC34-5268
CICS Internet Guide, SC34-5445

CICS Transaction Server for z/OS

CICS Problem Determination Guide, SC34-6002
CICS System Definition Guide, SC34-5988
CICS Customization Guide, SC34-5989
CICS Resource Definition Guide, SC34-5990
CICS Operations and Utilities Guide, SC34-5991
CICS Supplied Transactions, SC34-5992
CICS Application Programming Reference, SC34-5994
CICS System Programming Reference, SC34-5995
CICS Front End Programming Interface User's Guide, SC34-5996
CICS Performance Guide, SC34-6009
CICS DB2 Guide, SC34-6014
CICS External Interfaces Guide, SC34-6006
CICS Business Transaction Services, SC34-5999
CICS Internet Guide, SC34-6007
CICS Family: Interproduct Communication, SC34-6030
CICS Family: Communicating from CICS on System/390, SC34-6031

DFSORT

Getting Started with DFSORT, SC26-4109
DFSORT Panels Guide, GC26-7037
DFSORT Tuning Guide, SC26-3111
DFSORT Messages, Codes and Diagnosis Guide, SC26-7050
DFSORT Application Programming Guide, SC33-4035

Related publications

IMS PA

IMS Performance Analyzer User's Guide, SC27-0912
IMS Performance Analyzer Report Analysis, SC27-0913

z/OS and OS/390

OS/390 SecureWay Communications Server IP Configuration, SC31-8513
OS/390 SecureWay Communications Server User's Guide, GC31-8514
OS/390 SecureWay Communications Server IP CICS Sockets Guide, SC31-8518
OS/390 MVS™ Setting Up a Sysplex, GC28-1779
OS/390 MVS System Management Facilities (SMF), GC28-1783
OS/390 MVS Parallel Sysplex Capacity Planning, SG24-4680
OS/390 Security Server Audit Tool and Report Application, SG24-4820
OS/390 Workload Manager Implementation and Exploitation, SG24-5326

RMF™

OS/390 Resource Measurement Facility User's Guide, SC28-1949
OS/390 Resource Measurement Facility Report Analysis, SC28-1950
OS/390 Resource Measurement Facility Performance Management Guide, SC28-1951
OS/390 Resource Measurement Facility Programmer's Guide, SC28-1952

MQSeries

MQSeries for OS/390 Setup Guide, SC34-5651

Tivoli Decision Support for OS/390

Performance Reporter System Performance Reference Volume 2, SH19-4494
Performance Reporter for OS/390 Viewer Guide, SH19-4517
Performance Reporter for OS/390 Administration Guide, SH19-6816
Performance Reporter System Performance Feature Guide, SH19-6818
Performance Reporter System Performance Reference Volume 1, SH19-6818
Performance Reporter CICS Guide and Reference, SH19-6820
SLR to Tivoli Performance Reporter for OS/390 Migration Cookbook, SG24-5128
Tivoli Decision Support for OS/390 Viewer Guide, SG24-6011

DB2

DB2 UDB for OS/390 and z/OS Administration Guide, SC26-9931
DB2 for OS/390 and z/OS Tools for Performance Management, SG24-6508

DB2 PM

DB2 Performance Monitor for OS/390 Report Reference Volume 1, SC27-0853
DB2 Performance Monitor for OS/390 Report Reference Volume 2, SC27-0854

IMS/ESA

IMS/ESA Database Tools Volume II: System Extension and other Tools, SG24-5242

Others

Enhanced Auditing Using the RACF® SMF Data Unload Utility, GG24-4453

CICS/ESA DB2 Interface Guide, SG24-4536

Capacity Planning for CICS Web-Enabled Applications on OS/390, SG24-5168

An Approach to ODBC, SG24-4685

Java Application Development for CICS: Base Services and CORBA Client Support, SG24-5275-01

Business Process Model Implementation with CICS Business Transaction Services, SG24-5464

CICS Transaction Server for OS/390 Version 1 Release 3: Web Support and 3270 Bridge, SG24-5480

Hierarchical File System Usage Guide, SG24-5482-01

OS/390 Version 2 Release 4 Performance Figures for CICS Web-Enabled Applications, SG24-5612

The Trader Story, A Performance Study of Web Access to CICS, SG24-5748

Related publications

Summary of Changes

Technical changes are marked with a vertical line to the left of the change and are summarized below.

Changes in CICS PA 1.2 (second edition)

CICS Performance Analyzer for OS/390 1.2 (second edition), includes the following new features and changes.

New Transaction Resource Usage Report

The new Transaction Resource Usage Report provides comprehensive reporting of Transaction resource class data for CICS Transaction Server Versions 1.3 and 2.2. This is a new class of CMF monitoring data that provides additional transaction-level information about individual resources accessed by a transaction (in this release, File resources only). Three reports can be requested:

1. Transaction Resource Usage List. This report provides a list of all Transaction resource class records in the sequence that they appear in the SMF file. It gives Transaction information, detailing their individual File usage.
2. Transaction File Usage Summary. This report summarizes File usage by Transaction ID. For each Transaction ID, it gives Transaction and File Control statistics followed by a breakdown of File usage for each File used.
3. File Usage Summary. This report summarizes File activity. For each File, it gives a breakdown of File usage by Transaction ID.

Report Enhancements: Application Naming Support

CICS PA supports the new CICS monitoring capability of Application naming in CICS Transaction Server Versions 1.3 and 2.2. This capability allows you to specify special CICS event monitoring points (EMPs) in your application programs to include an alternative Transaction ID and Program name in your CMF performance records.

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

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

Dialog Enhancements

Report Sets have been enhanced:

- The new Transaction Resource Usage report is introduced.
- Performance Selection Criteria has been extended to allow selection of the new Transaction resource class field FILENAME, and the new Application naming Performance class fields APPLTRAN and APPLPROG.

Summary of Changes

- There is a new run-time option to allow override of System Selection specifications in the Report Set.

Report Forms have been enhanced:

- The new Application naming Performance class fields APPLTRAN and APPLPROG are introduced.
- There is a new Report Form field category (DFHAPPL) that allows the new fields APPLTRAN and APPLPROG to be included in all Report Forms.

Extended Guided Tour

The CICS PA User's Guide and Report Reference have been enhanced to describe the new features.

In addition, the Guided Tour in the User's Guide has been enhanced to walk you through more of the CICS PA dialog and help you get started with using CICS PA.

What's New in CICS PA 1.2 (first edition)

CICS Performance Analyzer for OS/390 1.2 (first edition), includes the following new features.

CICS® Transaction Server for z/OS™ Version 2 Support

All CICS PA reports and the ISPF Dialog support CICS Transaction Server for z/OS Version 2. This includes support for:

- 27 new CMF fields introduced in CICS Transaction Server 2.1
- 9 new CMF fields introduced in CICS Transaction Server 2.2

New DB2 Report

The new DB2 Report processes CICS CMF records and DB2 Accounting (SMF 101) records to produce a consolidated and detailed view of DB2 usage by your CICS systems. The DB2 report enables you to view CICS and DB2 resource usage statistics together in a single report.

The DB2 List report shows detailed information of DB2 activity for each transaction. The DB2 Summary reports summarize DB2 activity by transaction.

The reports include the following DB2 information:

- DB2 Thread Identification, for easy cross-reference to DB2 PM
- Class 1 Thread elapsed and CPU times
- Class 2 In-DB2 elapsed and CPU times
- Class 3 Suspend times
- Buffer Manager statistics
- Locking statistics
- SQL DML statistics

The DB2 Report matches CMF Performance records with DB2 Accounting records by Network unit-of-work id. Your CICS-DB2 resources must be defined with ACCOUNTREC(TASK) or ACCOUNTREC(UOW) for matching to occur.

New System Logger Report

The new System Logger Report processes System Logger (SMF 88) records to provide information on the System Logger logstreams and coupling facility structures that are used by CICS Transaction Server for logging, recovery and backout operations. The report can assist with measuring the effects of tuning changes and identifying Logstream or Structure performance problems.

The System Logger List report shows information on Logstream writes, deletes, and events, as well as Structure Alter events for each SMF recording interval.

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

These reports, when used in conjunction with the CICS Logger reports produced from the standard CICS statistics reporting utilities, provide a comprehensive analysis of the logstream activity for all your CICS systems.

New Workload Activity Report

The new Workload Activity Report provides a transaction response time analysis by MVS Workload Manager (WLM) service and report class. This can be used in conjunction with the z/OS Resource Measurement Facility (RMF™) workload activity reports to understand from a CICS perspective how well your CICS transactions are meeting their response time goals.

The Workload Activity List report is a cross-system report that correlates CMF performance class data from single or multiple CICS systems for each network unit-of-work. Importantly, this report ties MRO and function shipping tasks to their originating task so that their impact on response time can be assessed.

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

New Record Selection Extract

The new Record Selection Extract is a facility that allows you to create a small extract file containing only the CMF performance (and optionally DB2 Accounting) records of interest to you. The extract file can then be used as input to CICS PA, allowing for more efficient reporting.

Report Enhancements

The following CICS PA Reports have been enhanced to provide the following new features:

- Cross-System Work report has been enhanced to allow the specification of a Report Form to customize the fields in the report.
- Time zone settings in the CMF records are used to convert CMF time stamp fields to local time, enabling easier and more consistent interpretation of the reports and extracts.
- The reliance on Dictionary records being available to interpret CMF performance records has been removed.
- Totals report has been enhanced to include statistics for the new CICS TS 2.1 and 2.2 CMF fields, including new RO TCB statistics.

Summary of Changes

- Summary report Time Interval limit increased from 60 minutes to 24 hours.
- Improved Cross-System and Transaction Group report format consistency.

Extract Enhancements

The following CICS PA Extracts have been enhanced to provide the following new features:

- The Export Extract includes the new CICS TS 2.1 and 2.2 CMF fields.
- The Export Extract allows the (optional) specification of a Report Form (List or Summary) to customize the fields in the Extract. The inclusion of Report Forms and a summary capability allows you to either:
 1. List all CICS transactions and their performance data with the same flexibility as the List Report, or
 2. Summarize CICS transaction performance with the same flexibility as the Summary Report.
- All Extracts (Cross-System, Export, and Record Selection) now produce a Recap report that totals the records written to the extract data set.

Dialog Enhancements

The CICS PA ISPF Dialog has been significantly enhanced to provide the following new features:

Primary Option Menu option 1 “APPLIDs/SMF Input” has been replaced with “System Definitions”. The enhancements include:

- CICS PA can now process data from the following new sources:
 1. DB2 accounting SMF 101 records
 2. System Logger SMF 88 records

To support this, new system types of DB2 subsystem and System Logger are introduced.

- CICS, DB2 and System Logger system names can contain masking characters.
- MVS ID has been replaced by an 8 character Image name.
- A new maintenance facility for SMF File and Group definitions is provided.
- A new Take-up facility allows you to populate your System Definitions from an SMF File. CICS PA analyzes the SMF File to locate CICS, DB2 and Logger systems and automatically populates your dialog System Definitions.
- The limit of Systems belonging to a maximum of 3 Groups has been removed.
- For users migrating from V1R1 to V1R2, CICS PA automatically upgrades your System Definitions to allow you to take immediate advantage of the improved functionality.

Report Sets have been enhanced:

- Three new reports (Workload Activity, DB2 and System Logger) and one new Extract (Record Selection) are introduced.
- Cross-System Work report can now (optionally) specify a List Report Form to allow you to tailor the format of the report.

- Export Extract now allows the (optional) specification of a List or Summary Report Form so you can customize the format and style of your extract data sets.
- Extract data sets have a new option for the specification of DISP=OLD or MOD.
- Report Set JCL generation has been enhanced to allow System specification at run time, rather than in the Report Set itself.
- Report Set JCL generation has been enhanced to include two new “missing SMF Files” options that allows you to proceed with JCL generation without the required SMF files being specified.
- Summary report Time Interval limit increased from 60 minutes to 24 hours.
- Performance Selection Criteria has been extended to allow selection based on the new CICS TS 2.1 and 2.2 CMF fields.
- Performance Selection Criteria has been extended to allow selection of a new special field, UOWID. UOWID is the 6 byte hexadecimal Network unit-of-work id (NETUOWSX) and allows you to request reporting for a particular UOW. The input field for the 1st value has been increased in length from 9 to 12 bytes to allow the specification of 12 hexadecimal digits.
- Selection Criteria for Exception reporting has been extended to include the following new fields: FSTRINGW, LUNAME, RESOURCE, TCLASS, PRTY, TSBUFFER, TSSTRING.
- Selection Criteria now supports null values with the specification of ' '.
- Selection Criteria has a new prompt capability to allow selection of Object Lists.
- The prompt capability for selection of Systems, Images, Groups, and Report Forms has been extended to the report and extract lists.

Report Forms have been enhanced:

- Most new CICS TS 2.1 and 2.2 CMF fields are now supported.
- New special fields JVMMTIME, RMIOOTHER, UOWID and UOWSEQ are introduced.
- Report Form samples are provided. This facility allows you to select from over 60 pre-defined Report Forms to meet the most common reporting requirements.
- All Report Forms can now be used to format Export extracts, allowing you to tailor the contents and style of your extract data sets.
- The Summary Report Form allows the following new sort fields: RPTCLASS, RSYSID, SRVCLASS and TCPSRVCE.
- There is a new Report Form field category (CROSSSYS) that allows the Cross-System Extract special user fields (TOTRECS, APPLRECS, TRANROUT, FUNCSHIP and DPLRECS) to be included in all Report Forms (List, List Extended, and Summary).

Easier to Use Documentation

The CICS PA User's Guide and Reference has been split into two manuals, the User's Guide and the Report Reference:

- The User's Guide contains information for the experienced and novice user alike. It explains how to best use and exploit the many features of CICS PA.

Summary of Changes

- The Report Reference is for the systems performance analyst. It helps explain the many CICS PA reports and how they can be used to help measure and tune your CICS systems.

Chapter 1. Introduction

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

What is CICS PA

CICS Performance Analyzer for OS/390 and z/OS (CICS PA) is a reporting tool that provides information on the performance of your CICS systems and applications, and helps you tune, manage, and plan your CICS systems effectively.

CICS PA is not an online monitoring tool. It produces reports and extracts using data normally collected by your system in MVS™ System Management Facility (SMF) data sets: CICS Monitoring Facility (CMF) performance class, exception class, and transaction resource class (SMF 110) records, DB2 Accounting (SMF 101) records, and System Logger (SMF 88) records. It is designed to complement the CICS-supplied utilities and sample programs such as DFH\$MOLS, DFHSTUP, and DFH0STAT.

CICS PA can help:

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

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

- Transaction response time
- CICS system resource usage
- Cross-system performance, including multi-region operation (MRO) and advanced program-to-program communication (APPC)
- CICS Business Transaction Services (BTS)
- CICS Web support
- External subsystems, including DB2 and IMS
- System Logger performance
- Exception events that cause performance degradation
- Transaction file usage

Data Input

CICS PA uses data collected by the CICS Monitoring Facility (CMF) and written to the MVS System Management Facility (SMF) data set as type 110 records.

CICS PA analyzes three types, or “classes”, of CMF data:

- **Performance class data.** Detailed transaction-level information, such as the processor and elapsed time for a transaction, or the time spent waiting for I/O.
- **Exception class data.** Information about exceptional conditions suffered by a transaction, such as queuing for file strings, or waiting for temporary storage. This data highlights possible problems in system operation.
- **Transaction resource class data.** Additional transaction-level information about individual resources accessed by a transaction. Currently, the transaction resource class covers file resources only.

CICS PA can also use data collected by:

- DB2 (SMF 101 DB2 Accounting records) written on behalf of CICS attached tasks.
- MVS System Logger (SMF 88 records) written on behalf of CICS Transaction Server journaling.

CICS PA Reports and Extracts

CICS PA provides an ISPF menu-driven dialog to help you request and submit your reports and extracts.

Performance Reports:	Exception Reports:
– List	– List
– List Extended	– Summary
– Summary	
– Totals	Performance Graph Reports:
– Cross-System Work	– Transaction Rate
– Transaction Group	– Transaction Response Time
– BTS	
– Workload Activity	Performance Extracts:
– DB2	– Cross-System Work
– System Logger	– Export
– Transaction Resource Usage	– Record Selection

Figure 1. Menu of CICS PA Reports and Extracts

The CICS PA dialog automatically generates the commands and JCL for batch report processing.

The commands have the general format:

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

This section introduces the CICS PA reports and extracts. They are described in detail in the next chapter.

Performance Reports

The Performance Reports are tabular-style reports produced from CMF performance class data.

Performance List

Lists in detail the CMF performance class data. For more information, see “Performance List Report” on page 7.

Performance List Extended

Sorts and lists in detail the CMF performance class data. For more information, see “Performance List Extended Report” on page 14.

Performance Summary

Summarizes the CMF performance class data. For more information, see “Performance Summary Report” on page 20.

Performance Totals

Provides totals and averages of the CMF performance class data. For more information, see “Performance Totals Report” on page 30.

Cross-System Work

A detailed listing of segments of work performed by the same or different CICS systems via transaction routing, function shipping, or distributed transaction processing on behalf of a single network unit-of-work id. For more information, see “Cross-System Work Report” on page 38. The format can be tailored to produce the Cross-System Work Extended report (see Figure 21 on page 45).

Transaction Group

A detailed listing of segments of work performed by the same or different CICS systems on behalf of a single transaction group id. For more information, see “Transaction Group Report” on page 46.

BTS

A detailed listing of the segments of work performed by the same or different CICS systems on behalf of a single CICS Business Transaction Services (BTS) process. For more information, see “BTS Report” on page 55.

Workload Activity

Provides a transaction response time analysis by MVS Workload Manager (WLM) service and report class. This can be used in conjunction with the z/OS Resource Measurement Facility (RMF) workload activity reports to understand from a CICS perspective how well your CICS transactions are meeting their response time goals. The Workload Activity List report is a cross-system report that correlates CMF performance class data from single or multiple CICS systems for each network unit-of-work. Importantly, this report ties MRO and function shipping tasks to their originating task so that their impact on response time can be assessed. The Workload Activity Summary report summarizes response time by WLM service and report classes. For more information, see “Workload Activity Report” on page 60.

DB2

Correlates CICS CMF records and DB2 Accounting (SMF 101) records by network unit-of-work to produce a consolidated and detailed view of DB2 usage by your CICS systems. The DB2 report enables you to view CICS and DB2 resource usage statistics together in a single report. The DB2 List report shows detailed information of DB2 activity for each transaction. The DB2 Summary reports summarize DB2 activity by transaction. For more information, see “DB2 Report” on page 68.

System Logger

Processes System Logger (SMF 88) records to provide information on the System Logger logstreams and coupling facility structures that are used by CICS Transaction Server for logging, recovery and backout operations. The report can assist with measuring the effects of tuning changes and identifying Logstream or Structure performance problems. The System Logger List report shows information on Logstream writes, deletes, and events, as well as Structure Alter events for each SMF recording interval. The System Logger Summary report summarizes Logstream and Structure statistics so you can measure Logger performance over a longer period of time. These reports, when used in conjunction with the CICS Logger reports produced from the standard CICS statistics reporting utilities, provide a comprehensive analysis of the logstream activity for all your CICS systems. For more information, see “System Logger Report” on page 86. Note that the System Logger report does not in fact process CMF performance class data but is included in this category for convenience.

Transaction Resource Usage

Provides comprehensive reporting of CMF transaction resource class data, additional transaction-level information about individual resources used by a transaction (currently, file resources only). The Transaction Resource Usage List report lists all transaction resource class data records in the order they appear in the SMF file. The Transaction File Usage Summary report summarizes file usage for each transaction ID. The File Usage Summary report summarizes file usage for each file, optionally showing a break down by transaction ID. For more information, see “Transaction Resource Usage Report” on page 93.

Exception Reports

The Exception Reports are tabular-style reports produced from CMF exception class data.

Exception List

Lists in detail the CMF exception class data. For more information, see “Exception List Report” on page 102.

Exception Summary

Summarizes the CMF exception class data. For more information, see “Exception Summary Report” on page 106.

Performance Graph Reports

The Performance Graph Reports are graphical-style reports produced from CMF performance class data. You can use the graph reports as daily indicators of system activity, or when analyzing performance problem areas in your CICS system.

Transaction Rate

A set of two graphs illustrating the average response time and the number of transactions that completed in a specified time interval. For more information, see “Transaction Rate Graph Report” on page 110.

Transaction Response Time

A set of two graphs illustrating the average and maximum response time, respectively, for all transactions that completed in a specified time interval. For more information, see “Transaction Response Time Graph Report” on page 111.

Performance Extracts

The Performance Extracts produce extract data sets from CMF performance class records.

Cross-System Work

This data set is useful for cross-system analysis. CICS PA allows you to merge CMF performance class data from segments of work performed by the same or different CICS systems via transaction routing, function shipping, or distributed transaction processing on behalf of a single network unit-of-work id. This Cross-System Work data set can be used as input to CICS PA Performance Reports such as the List, Summary, and Totals reports to monitor the total amount of resources used by a transaction within a single or across multiple CICS systems. For more information, see “Cross-System Work Extract” on page 112.

Export

This data set is a subset of the CMF performance class data, extracted and formatted as a delimited text file. This data file can then be imported into PC spreadsheet or database tools such as Lotus® 1-2-3® or Lotus Approach® for further reporting and analysis. The extract records have a default format which includes all the clock fields, or the format can be tailored like the Performance List or Performance Summary reports. For more information, see “Exported Performance Data Extract” on page 126.

Record Selection

This data set contains a small extract file with only the CMF performance (and optionally DB2 Accounting) records of interest to you. The extract file can then be used as input to CICS PA, allowing for more efficient reporting. For more information, see “Record Selection Extract” on page 131.

Chapter 2. Analyzing the Reports and Extracts

This chapter explains the reports and extracts created from data captured by the CICS Monitoring Facility (CMF) and shows sample output. It also shows the commands used to produce the default reports and extracts. For more information on the commands and options to tailor the reports and extracts, and using the CICS PA dialog, see the *CICS Performance Analyzer for OS/390 User's Guide*.

Performance Reports

The Performance Reports process CMF performance class (SMF 110) data to produce tabular-style reports. They are:

- Performance List Report
- Performance List Extended Report
- Performance Summary Report
- Performance Totals Report
- Cross-System Work Report
- Transaction Group Report
- BTS Report
- Workload Activity Report
- DB2 Report, also processes DB2 Accounting (SMF 101) data
- System Logger Report, processes System Logger (SMF 88) data, not CMF
- Transaction Resource Usage Report, also processes CMF transaction resource class data

Performance List Report

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

You can request a list of all available records, or provide criteria for data selection to list only the information that meets specific requirements.

Report Command (Performance List Report)

The command to produce the default report is:

```
CICSPA LIST
```

To tailor the report, you can specify report options as follows:

```
CICSPA LIST(
    [OUTPUT(ddname),]
    [FIELDS(field1[(options)],...),]
    [LINECOUNT(nnn),]
    [TITLE1('...sub-heading left ...'),]
    [TITLE2('...sub-heading right...'),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
    ...)))]
```

Performance List Report

The FIELDS operand controls the format of the report by specifying the desired fields and the order of the columns. If not specified, the default is:

CICSPA LIST(FIELDS(TRAN,	Transaction ID
STYPE,	Start type of transaction
TERM,	Terminal ID
USERID,	User ID
RSYSID,	Remote System ID
PROGRAM,	Initial program name
TASKNO,	Transaction number
STOP(TIMET),	Stop time (hh:mm:ss.thm)
RESPONSE,	Response time
DISPATCH,	Dispatch time
CPU,	CPU time
SUSPEND,	Suspend time
DISPWAIT,	Dispatch wait time
FCWAIT,	File Control I/O wait time
FCAMCT,	File Control access method calls
IRWAIT))	Inter-Region (MRO) I/O wait time

In the CICS PA dialog, specifying a LIST Report Form for a report or extract generates the FIELDS operand.

Report Command (List Export)

The LIST command can be used to tailor the format of the Export file.

The command format for the List Export is:

```
CICSPA LIST(  
  [OUTPUT(ddname),]  
  [DDNAME(ddname),]  
  [DELIMIT('field-delimiter'),]  
  [LABELS|NOLABELS,]  
  [FIELDS(field1[(options)],...),]  
  [TITLE1('...1st 64 characters of title...'),]  
  [TITLE2('...2nd 64 characters of title...'),]  
  [SELECT(PERFORMANCE(action1(field1(value1),...),...))])
```

See Figure 44 on page 128 for an example of the List Export file.

Report Content

A report line is printed for each performance class record in the input file. The data is listed in the same order (time sequence) as it was written to SMF.

Figure 2 on page 9 shows an example of the default report.

VIR2M0		CICS Performance Analyzer										Performance List						
LIST0001 Printed at 9:06:18 3/28/2002		Data from 11:10:51 3/24/2002				APPLID IYK2Z1V1				Page 1								
Tran	SC	Term	Userid	RSID	Program	TaskNo	Stop	Response	Dispatch	User	CPU	Suspend	DispWait	FC	Wait	FCAMRq	IR	Wait
							Time	Time	Time	Time	Time	Time	Time	Time	Time		Time	Time
CSSY	U		CBAKER		DFHAPATT	16	11:10:51.123	.0139	.0007	.0006	.0133	.0000	.0000	.0000	0	.0000		.0000
CSSY	U		CBAKER		DFHAPATT	17	11:10:51.213	.0185	.0010	.0014	.0175	.0001	.0000	.0000	0	.0000		.0000
CSSY	U		CBAKER		DFHAPATT	18	11:10:51.312	.0674	.0196	.0027	.0479	.0269	.0000	.0000	0	.0000		.0000
CGRP	U		CBAKER		DFHZCGRP	12	11:10:52.122	.4123	.0420	.0074	.3702	.3223	.0000	.0000	0	.0000		.0000
CSSY	U		CBAKER		DFHAPATT	15	11:10:52.243	.4204	.0568	.0100	.3636	.1744	.0000	.0000	0	.0000		.0000
CSSY	U		CBAKER		DFHAPATT	13	11:10:52.256	.6743	.0728	.0134	.6015	.4000	.0000	.0000	0	.0000		.0000
CSSY	U		CBAKER		DFHAPATT	10	11:10:52.289	.7498	.1910	.0228	.5588	.1997	.0000	.0000	0	.0000		.0000
CSSY	U		CBAKER		DFHAPATT	14	11:10:53.132	1.3344	.3202	.0378	1.0142	.2626	.0000	.0000	1	.0000		.0000
CSSY	U		CBAKER		DFHAPATT	11	11:10:53.341	1.4292	.1497	.0313	1.2794	.3461	.0000	.0000	0	.0000		.0000
CPLT	U		CBAKER		DFHSIPLT	7	11:11:07.123	15.9915	.3383	.0369	15.6532	.0155	.0000	.0000	0	.0000		.0000
CSSY	U		CBAKER		DFHAPATT	111	11:11:07.345	16.0761	9.3488	2.3435	6.7273	1.1645	.9522	.0000	2059	.0000		.0000
CWBG	S		CBAKER		DFHWBGB	24	11:11:08.123	.0262	.0248	.0041	.0013	.0012	.0000	.0000	0	.0000		.0000
CRSQ	S		CBAKER		DFHCRQ	25	11:11:08.234	.0818	.0449	.0040	.0369	.0367	.0000	.0000	0	.0000		.0000
CXRE	S		CBAKER		DFHZXRE	27	11:11:09.345	.2255	.0243	.0049	.2011	.2009	.0000	.0000	0	.0000		.0000
CLR2	TO	R11	CBAKER		DFHLUP	29	11:11:10.456	.0263	.0030	.0020	.0232	.0000	.0000	.0000	0	.0232		.0000
CSFU	S		CBAKER		DFHFCU	26	11:11:10.567	1.6968	1.5899	.1136	.1069	.0294	.0000	.0000	0	.0000		.0000
CSAC	TO	SAMA	CBAKER		DFHACP	31	11:11:13.678	.5217	.0028	.0011	.5189	.0002	.0000	.0000	0	.0000		.0000
CLQ2	U		CBAKER		DFHLUP	28	11:11:13.789	3.8259	.0818	.0068	3.7441	.0035	.0000	.0000	0	3.7344		.0000
CEMT	TO	SAMA	CBAKER		DFHEMTP	32	11:11:13.890	.1877	.1842	.0264	.0035	.0030	.0000	.0000	0	.0000		.0000
CEMT	TO	SAMA	CBAKER		DFHEMTP	33	11:11:14.801	.0091	.0068	.0026	.0023	.0001	.0000	.0000	0	.0000		.0000
CEMT	TO	SAMA	CBAKER		DFHEMTP	34	11:11:15.912	.0092	.0068	.0025	.0024	.0000	.0000	.0000	0	.0000		.0000
CSAC	TO	SAMA	CBAKER		DFHACP	35	11:11:16.023	.5109	.0042	.0012	.5067	.0001	.0000	.0000	0	.0000		.0000
CSAC	TO	SAMA	CBAKER		DFHACP	36	11:11:17.120	.5150	.0011	.0011	.5139	.0001	.0000	.0000	0	.0000		.0000
CSTE	U		CBAKER		DFHTACP	37	11:11:17.231	.1420	.1381	.0126	.0039	.0037	.0000	.0000	0	.0000		.0000
CATA	U		CBAKER		DFHZATA	38	11:11:27.342	.0537	.0394	.0121	.0143	.0003	.0000	.0000	0	.0000		.0000
CQRY	S	S208	CBAKER		DFHQRY	39	11:11:28.453	.3476	.0451	.0048	.3025	.0038	.0000	.0000	0	.0000		.0000
CQRY	S	S208	CBAKER		DFHQRY	39	11:11:28.564	.4147	.0012	.0008	.4136	.0000	.0000	.0000	0	.0000		.0000
CESN	S	S208	CBAKER		DFHSNP	40	11:11:28.675	.0806	.0770	.0102	.0036	.0036	.0000	.0000	0	.0000		.0000
CATA	U		CBAKER		DFHZATA	41	11:11:28.786	.0309	.0048	.0045	.0261	.0003	.0000	.0000	0	.0000		.0000
CQRY	S	S23D	CBAKER		DFHQRY	42	11:11:29.897	.2951	.0013	.0008	.2938	.0000	.0000	.0000	0	.0000		.0000
CQRY	S	S23D	CBAKER		DFHQRY	42	11:11:29.908	.4037	.0012	.0008	.4024	.0000	.0000	.0000	0	.0000		.0000
CESN	S	S23D	CBAKER		DFHSNP	43	11:11:29.099	.0030	.0029	.0020	.0001	.0000	.0000	.0000	0	.0000		.0000
CESN	TP	S208	CBAKER		DFHSNP	44	11:11:35.110	.0284	.0280	.0147	.0004	.0003	.0000	.0000	0	.0000		.0000
CESN	TP	S23D	CBAKER		DFHSNP	45	11:11:41.221	.0203	.0197	.0114	.0006	.0006	.0000	.0000	0	.0000		.0000

Figure 2. Example of a Performance List Report (default format)

For the complete list of performance class data fields that can be selected for the Performance List Report, see the *CICS Performance Analyzer for OS/390 User's Guide*.

A brief description of the fields in the default report follows. For more details, see "CMF Performance Class Data Fields" on page 154.

Tran

The Transaction id (field: TRAN, owner: DFHTASK, field id: 001) identifies the name of the transaction that this performance class record represents. Applications that are using Distributed Program Link (DPL) requests should use the TRANSID('xxxx') parameter on the EXEC CICS LINK PROGRAM('xxxxxxxx') command to enable better transaction/application analysis from the monitoring performance class data. If the TRANSID('xxxx') parameter is not specified, all the performance class records on the target system for a Distributed Program Link (DPL) mirror transaction will have the same transaction id. For example, 'CSMI' for a Distributed Program Link (DPL) request from another connected CICS system.

Performance List Report

SC

The transaction start type (field: STYPE, owner: DFHTASK, field id: 004).
The high-order bytes (0 and 1) are set to:

T0	Attached from terminal input
S	Attached by automatic transaction initiation (ATI) without data
SD	Attached by automatic transaction initiation (ATI) with data
QD	Attached by transient data trigger level
U	Attached by user request
TP	Attached from terminal TCTTE transaction ID
SZ	Attached by Front End Programming Interface (FEPI).

Term

The Terminal id (field: TERM, owner: DFHTERM, field id: 002) is either the terminal id or the session id. This field is blank if the transaction was not associated with a terminal or session facility.

Userid

The User identifier of the transaction (field: USERID, owner: DFHCICS, field id: 089).

RSID

The Transaction Routing Sysid (field: RSYID, owner: DFHCICS, field id: 130) can be used to identify the connection name (sysid) of the remote system to which the transaction was routed. If the transaction was not routed, this field is blank and the initial program name **Program** field will identify the initial application program name invoked for the transaction.

Program

The Program Name (field: PGMNAME, owner: DFHPROG, field id: 071) identifies the initial application program invoked for the transaction. Depending on the type of transaction, this field contains either the application program name as defined in the transaction definition, the program name returned by a user written dynamic routing program, the application program name passed on a function shipped Dynamic Program Link (DPL) request, the initial application program name of an ONC RPC Alias Transaction, or the initial application program name of a WEB Alias Transaction. A program name of ##### indicates that the transaction was invoked using the definition of the transaction id specified by the DTRTRAN system initialization parameter.

TaskNo

The transaction identification number (owner: DFHTASK, field id: 031).
Normally numeric, but some CICS system tasks are identified by special characters in this field:

III	system initialization task
TCP	terminal control task

Stop Time

The transaction stop time (owner: DFHCICS, field id: 005).

Response Time

The transaction response time. This field is calculated by subtracting the transaction start time (owner: DFHCICS, field id: 005) from the transaction stop time (owner: DFHCICS, field id: 006).

Dispatch Time

The transaction dispatch time (owner: DFHTASK, field id: 007).

User CPU Time

The transaction CPU time (owner: DFHTASK, field id: 008).

Suspend Time

The transaction suspend time (owner: DFHTASK, field id: 014).

DispWait Time

The transaction dispatch wait time (owner: DFHTASK, field id: 102).

FC WAIT Time

The transaction file control I/O wait time (owner: DFHFILE, field id: 063).

FCAMRq

The number of file control access method calls (field: FCAMCT, owner: DFHFILE, field id: 070).

IR Wait Time

The transaction inter-region (MRO) I/O wait time (field: IRIOWTT, owner: DFHTERM, field id: 100).

Note: Some of the fields that contain large values may be represented in exponential format. For example, 2 834 000 may be shown as 2834E3.

Report Example (DBCTL)

An example of a Performance List Report showing DBCTL transaction activity is shown in Figure 4 on page 12.

The commands to request this report are like the following:

```

CICSPA IN(SMFIN004),
  SELECT(PERFORMANCE(EXCLUDE(
    CHARACTER(OWNER(DBCTL),           Exclude transaction if no PSB name
    SUBSTR(1,1),VALUE(' '))))),
  LIST(FIELDS(
    TRAN,                               Transaction identifier
    DBCTL(PSBNAME),                     PSB name
    START,                               Task start time
    RESPONSE,                           Transaction response time
    CPU,                                 CPU time
    DISPATCH,                           Dispatch time
    SUSPEND,                             Suspend time
    DBCTL(
      POOLWAIT,                         Elapsed wait time for Pool Space
      INTCWAIT,                         Elapsed wait time for Intent Conflict
      SCHELAP,                          Elapsed time for Schedule Process
      DBIOELAP,                         Elapsed time for Database I/O
      PILOCKEL,                         Elapsed time for PI Locking
      DBIOCALL,                         Number of Database I/Os
      DLICALLS)))

```

To use the CICS PA dialog to request this report, specify a Report Form like the following:

Performance List Report

EDIT LIST Report Form - DBCTLIST						
Field Name	Type	Length	Dictionary	Definition	- User Field - Offset	Length
TRAN		4	TRAN	DFHTASK C001		
PSBNAME		8	PSBNAME	DBCTL C001		
START	TIMET	12	START	DFHCICS T005		
RESPONSE		8	RESP	CICSPA A901		
CPU	TIME	8	USRCPUT	DFHTASK S008		
DISPATCH	TIME	8	USRDISPT	DFHTASK S007		
SUSPEND	TIME	8	SUSPTIME	DFHTASK S014		
POOLWAIT		8	POOLWAIT	DBCTL A002		
INTCWAIT		8	INTCWAIT	DBCTL A003		
SCHTELAP		8	SCHTELAP	DBCTL A004		
DBIOELAP		8	DBIOELAP	DBCTL A005		
PILOCKEL		8	PILOCKEL	DBCTL A006		
DBIOCALL		8	DBIOCALL	DBCTL A007		
DLICALLS		8	DLICALLS	DBCTL A017		
EOR						
EOX						

***** End of list *****

Figure 3. LIST Report Form (DBCTL Fields)

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Performance List

LIST0001 Printed at 11:49:51 3/24/2002 Data from 15:58:48 2/19/2002 APPLID CICPAOR1 Page 1

DBCTL transactions

Tran PSB	Start Time	Response Time	User Time	CPU Time	Dispatch Time	Suspend Time	PoolWait Time	ICwait Time	SchedElp Time	DBIOElap Time	PILockEl Time	DBIOcall	DLICalls
DLI0 DDLPSB51	15:58:47.251	1.0479	.0483	.9427	.1052	.0000	.0000	.0000	.0079	.0000	.0000	0	0
DLI0 DDLPSB51	15:58:49.634	.0615	.0118	.0168	.0447	.0000	.0000	.0034	.0000	.0000	.0000	0	0
DLI0 DDLPSB51	16:51:16.979	1.4467	.0474	1.2820	.1648	.0000	.0000	.0080	.0000	.0000	.0000	0	0
DLI0 DDLPSB51	16:58:03.662	.0934	.0114	.0176	.0758	.0000	.0000	.0034	.0000	.0000	.0000	0	0
DLI0 DDLPSB51	16:58:04.244	.0933	.0114	.0161	.0772	.0000	.0000	.0035	.0000	.0000	.0000	0	0
DLI2 DDLPSB51	17:00:16.874	3.0710	.0110	.1065	2.9644	.0000	.0000	.0034	.0000	.0000	.0000	0	0
DLI7 DDLPSB51	17:00:17.180	3.0274	.0116	.1441	2.8833	.0000	.0000	.0245	.0000	.0000	.0000	0	0
DLI3 DDLPSB51	17:00:17.212	3.2297	.0129	.0108	3.2189	.0000	.0000	.0056	.0000	.0000	.0000	0	0
DLI4 DDLPSB51	17:00:17.213	3.7488	.0109	.0112	3.7375	.0000	.0000	.0036	.0000	.0000	.0000	0	0
DLI9 DDLPSB51	17:00:17.217	18.7260	.0108	2.8553	15.8707	.0000	.0000	.0034	.0000	.0000	.0000	0	0
DLI1 DDLPSB51	17:00:17.218	18.8168	.0131	.0227	18.7941	.0000	.0000	.0041	.0000	.0000	.0000	0	0
DLI0 DDLPSB51	17:00:17.217	18.9042	.0130	2.7601	16.1441	.0000	.0000	.0034	.0000	.0000	.0000	0	0
DLI0 DDLPSB51	13:14:14.187	.5046	.0439	.1369	.3676	.0000	.0000	.0035	.0000	.0000	.0000	0	0
DLI0 PSB99	13:01:22.918	5.9288	2.1340	3.8341	2.0947	.0000	.0000	1.0004	.0000	.0000	.0000	0	2
DLI0 PSB99	13:17:35.232	3.5302	2.1659	2.7387	.7914	.0000	.0000	.0010	.0000	.0000	.0000	0	2
DLI0 PSB99	13:45:38.833	3.4382	2.1744	2.4742	.9640	.0000	.0000	.0010	.0000	.0000	.0000	0	2
DLI0 PSB99	13:48:16.354	1.0711	.0428	.2282	.8429	.0000	.0000	.0024	.0000	.0000	.0000	0	1
DLI0 PSB99	13:48:24.131	.2516	.0118	.0184	.2332	.0000	.0000	.0010	.0000	.0000	.0000	0	1
DLI0 PSB99	13:48:25.012	.3658	.0117	.0168	.3490	.0000	.0000	.0011	.0000	.0000	.0000	0	1
DLI0 PSB99	13:48:25.963	.3745	.0118	.0174	.3571	.0000	.0000	.0010	.0000	.0000	.0000	0	1
DLI0 PSB99	13:48:26.919	.2871	.0116	.0180	.2691	.0000	.0000	.0010	.0000	.0000	.0000	0	1
DLI0 PSB99	13:48:27.907	.2511	.0117	.0170	.2341	.0000	.0000	.0010	.0000	.0000	.0000	0	1
DLI0 PSB99	15:36:20.458	.7925	.0451	.2664	.5261	.0000	.0000	.0010	.0000	.0000	.0000	0	1
DLI0 PSB99	15:38:29.047	.6985	.0466	.1953	.5032	.0000	.0000	.0011	.0000	.0000	.0000	0	2
DLI0 PSB99	15:38:50.508	.5742	.0457	.1260	.4482	.0000	.0000	.0010	.0000	.0000	.0000	0	2
DLI0 PSB99	15:49:07.072	.9596	.0486	.1879	.7717	.0000	.0000	.0010	.0000	.0000	.0000	0	2
DLI2 PSB99	15:53:29.716	91.8213	1.8717	2.0128	89.8085	.0000	.0000	.0010	.0000	.0000	.0000	0	1
DLI3 PSB99	15:53:30.402	156.501	1.9866	24.4980	132.003	.0000	.0000	.0055	.0000	.0000	.0000	0	1
DLI5 PSB99	15:53:30.497	233.355	1.9771	18.1590	215.196	.0000	.0000	.0049	.0000	.0000	.0000	0	1
DLI1 PSB99	15:56:53.478	95.2870	1.9511	16.4508	78.8363	.0000	.0000	.0050	.0000	.0000	.0000	0	1

Figure 4. Example of a Performance List Report (DBCTL transactions)

Note: The IMS Performance Analyzer (IMS PA) can provide a more comprehensive analysis of IMS DBCTL performance.

Report Example (Application Naming)

An example of a Performance List Report produced from CMF performance class data with application naming enabled is shown in Figure 5.

The commands to request this report are like the following:

```

CICSPA IN(SMFIN002),
LIST(FIELDS(
  APPLTRAN,           Application naming Transaction ID
  USERID,            User identifier
  APPLPROG,          Application naming Program name
  TASKNO,            Transaction identification number
  STOP(TIMET),       Task stop time (hh:mm:ss.thm)
  DISPATCH(TIME),    Dispatch time
  CPU(TIME),         CPU time
  SUSPEND(TIME),     Suspend time
  DISPWAIT(TIME),    Redispatch wait time
  APPLID,            CICS Generic APPLID
  JOBNAME,           Job name
  MVSID,             MVS SMF ID
  RELEASE))          CICS release
  
```

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Performance List

LIST0001 Printed at 15:23:53 7/19/2002 Data from 07:30:47 5/29/2002 Page 1

Tran	Userid	Program	TaskNo	Stop Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time	APPLID	Jobname	MVS	Rlse
TOP1	CBAKER	PROGOPT1	16	7:30:47.653	.0002	.0002	.0029	.0000	IYK2Z1V1	CI07CJB1	MV2C	0620
TOP2	CBAKER	PROGOPT2	17	7:30:47.660	.0019	.0007	.0067	.0000	IYK2Z1V1	CI07CJB1	MV2C	0620
TOP3	CBAKER	PROGOPT3	18	7:30:47.699	.0112	.0011	.0362	.0298	IYK2Z1V1	CI07CJB1	MV2C	0620
TOP4	CBAKER	PROGOPT4	13	7:30:47.785	.0189	.0031	.1189	.1157	IYK2Z1V1	CI07CJB1	MV2C	0620
TOP5	CBAKER	PROGOPT5	15	7:30:47.829	.0261	.0044	.1539	.1053	IYK2Z1V1	CI07CJB1	MV2C	0620
TOP6	CBAKER	PROGOPT6	12	7:30:47.842	.0363	.0034	.1587	.0012	IYK2Z1V1	CI07CJB1	MV2C	0620
TOP7	CBAKER	PROGOPT7	10	7:30:47.945	.1053	.0142	.1930	.1393	IYK2Z1V1	CI07CJB1	MV2C	0620

Figure 5. Example of a Performance List Report (Application Naming)

Performance List Extended Report

The Performance List Extended Report provides a detailed list of the CMF performance class records. It differs from the Performance List Report in that you can specify the sorting criteria for the performance class records.

You can request a list of all available records, or provide criteria for data selection to list only the information that meets specific requirements.

Report Command (Performance List Extended)

The command to produce the default report is:

```
CICSPA LISTX
```

To tailor the report, you can specify report options as follows:

```
CICSPA LISTX(  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [BY(by1(ASCEND|DESCEND),  
        by2(ASCEND|DESCEND),  
        by3(ASCEND|DESCEND)),]  
    [LIMIT(byfield(proclim)),]  
    [FIELDS(field1[(options)],...),]  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])
```

The Performance List Extended Report is produced using an external SORT facility. An External Work Data Set is required to store the records before they are sorted. This data set is either specified explicitly using **EXTERNAL(ddname)**, or CICS PA assigns one from the External Work File pool.

The FIELDS operand controls the format of the report by specifying the desired fields and the order of the columns.

The BY operand specifies up to 3 sort fields, ascending or descending. For one of the sort fields, LIMIT specifies the maximum number of records to process. The default sort sequence is ascending **BY(TRAN,TERM)**, with no LIMIT.

If BY and FIELDS are not specified, the default is:

```

CICSPA LISTX(BY(TRAN,TERM),
             FIELDS(TRAN,      Transaction ID
                   TERM,      Terminal ID
                   STYPE,     Start type of transaction
                   USERID,    User ID
                   RSYDID,    Remote System ID
                   PROGRAM,   Initial program name
                   TASKNO,    Transaction number
                   STOP(TIMET), Stop time (hh:mm:ss.thm)
                   RESPONSE,  Response time
                   DISPATCH,  Dispatch time
                   CPU,        CPU time
                   SUSPEND,   Suspend time
                   DISPWAIT,  Dispatch wait time
                   FCWAIT,    File Control I/O wait time
                   FCAMCT,    File Control access method calls
                   IRWAIT))   Inter-Region (MRO) I/O wait time

```

The CICS PA dialog uses the LISTX Report Form to generate the FIELDS and BY operands.

Report Command (Cross-System Work Extended)

The LISTX command can be used to produce the Cross-System Work Extended Report as follows:

```

CICSPA LISTX(
             [OUTPUT(ddname),]
             [EXTERNAL(ddname),]
             [BY(UOWID),]
             [PRINTMULTIPLE|NOPRINTMULTIPLE,]
             [PRINTSINGLE|NOPRINTSINGLE,]
             [FIELDS(field1[(options)],...),]
             [LINECOUNT(nnn),]
             [TITLE1('...sub-heading left ...'),]
             [TITLE2('...sub-heading right...'),]
             [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
                               ...))])

```

This produces a report similar to the Performance List Extended Report, but note the following differences:

1. No other BY sort field can be specified.
2. LIMIT is ignored.
3. CMF records for the same Network UOWID are reported together. A blank line separates each network unit-of-work, except when you specify NOPRINTMULTIPLE,PRINTSINGLE. In this case, no blank lines are necessary as each record is a distinct unit-of-work.
4. The report heading shows "Cross-System Work Extended".

Performance List Extended Report

5. The sorting sequence is the same as the Cross-System Work Report (see “Cross-System Work Report” on page 38):

NETUOWPX NETNAME (ascending)
 NETUOWSX Network unit-of-work ID (ascending)
 NETUOWSX Period or syncpoint count (descending)
 STOP Time Task Stop time (descending)
 APPLID CICS generic APPLID (ascending)

For an example of the report, see Figure 21 on page 45.

Report Content (Performance List Extended)

A report line is printed for each BY sort field combination, up to the specified LIMIT.

Figure 6 is an example of the default report.

V1R2M0		CICS Performance Analyzer										Page 1			
		Performance List Extended													
LSTX0001 Printed at 9:06:18 3/28/2002 Data from 11:10:51 3/24/2002 TO 11:34:13 3/24/2002													Page 1		
Tran	Term	SC	Userid	RSID	Program	TaskNo	Stop Time	Response Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time	FC Wait Time	FCAMRq	IR Wait Time
AADD	S23C	TO	BRENNER		DFHSAALL	52	11:12:54.123	.0945	.0831	.0084	.0114	.0113	.0000	0	.0000
AADD	S23C	TO	BRENNER		DFHSAALL	54	11:13:06.217	.0636	.0619	.0047	.0017	.0016	.0000	0	.0000
AADD	S23C	TP	BRENNER		DFHSAALL	65	11:14:27.328	.0029	.0026	.0017	.0003	.0002	.0000	3	.0000
AADD	S23C	TO	BRENNER		DFHSAALL	551	11:26:41.439	.0016	.0016	.0013	.0001	.0000	.0000	0	.0000
AADD	S23C	TP	BRENNER		DFHSAALL	561	11:27:02.540	.0026	.0022	.0017	.0003	.0002	.0000	3	.0000
AADD	TC26	TO	GBURGES		DFHSAALL	136	11:20:04.651	.0011	.0010	.0010	.0001	.0000	.0000	0	.0000
AADD	TC26	TO	GBURGES		DFHSAALL	137	11:20:08.762	.0022	.0021	.0012	.0001	.0000	.0000	0	.0000
AADD	TC26	TP	GBURGES		DFHSAALL	138	11:20:15.123	.0023	.0022	.0013	.0001	.0000	.0000	0	.0000
AADD	TC26	TO	GBURGES		DFHSAALL	183	11:21:51.234	.0022	.0022	.0012	.0001	.0000	.0000	0	.0000
AADD	TC26	TP	GBURGES		DFHSAALL	184	11:21:58.310	.0023	.0022	.0013	.0001	.0000	.0000	0	.0000
ABRW	P015	TO	CBAKER		DFHSABRW	139	11:16:51.429	.6982	.6717	.0385	.0264	.0111	.0051	6	.0000
ABRW	P015	TP	CBAKER		DFHSABRW	140	11:16:52.538	.0018	.0018	.0015	.0001	.0000	.0000	7	.0000
ABRW	P015	TP	CBAKER		DFHSABRW	141	11:16:52.647	.0021	.0020	.0015	.0001	.0000	.0000	7	.0000
ABRW	P015	TP	CBAKER		DFHSABRW	142	11:16:52.756	.0018	.0017	.0014	.0001	.0000	.0000	7	.0000
ABRW	P015	TP	CBAKER		DFHSABRW	143	11:16:53.865	.0020	.0019	.0015	.0001	.0000	.0000	7	.0000
ABRW	P015	TP	CBAKER		DFHSABRW	144	11:16:53.974	.0038	.0037	.0013	.0001	.0000	.0000	0	.0000
ABRW	P015	TO	CBAKER		DFHSABRW	365	11:22:38.083	.0020	.0019	.0015	.0001	.0000	.0000	6	.0000
ABRW	P015	TP	CBAKER		DFHSABRW	366	11:22:40.192	.0019	.0016	.0013	.0002	.0000	.0000	7	.0000
ABRW	P015	TP	CBAKER		DFHSABRW	367	11:22:41.200	.0018	.0018	.0015	.0001	.0000	.0000	7	.0000
ABRW	P015	TP	CBAKER		DFHSABRW	368	11:22:41.319	.0018	.0017	.0012	.0001	.0000	.0000	0	.0000
ABRW	R11	TO	CBAKER		DFHSABRW	206	11:24:34.129	.0052	.0021	.0021	.0031	.0000	.0000	0	.0030
ABRW	S23D	TO	BRENNER		DFHSABRW	53	11:12:19.238	.5819	.0783	.0121	.5037	.0127	.0000	0	.4908
ABRW	S23D	TP	BRENNER		DFHSABRW	59	11:13:17.320	.0070	.0034	.0029	.0036	.0000	.0000	0	.0036
ABRW	S23D	TP	BRENNER		DFHSABRW	61	11:13:20.431	.0080	.0028	.0024	.0052	.0000	.0000	0	.0051
ABRW	S23D	TP	BRENNER		DFHSABRW	62	11:13:21.542	.0064	.0027	.0023	.0036	.0000	.0000	0	.0036
ABRW	S23D	TP	BRENNER		DFHSABRW	63	11:13:24.653	.0018	.0017	.0014	.0001	.0000	.0000	0	.0000
ABRW	TC26	TO	GBURGES		DFHSABRW	109	11:19:44.764	.0071	.0040	.0027	.0030	.0000	.0000	0	.0030
ABRW	TC26	TP	GBURGES		DFHSABRW	110	11:19:49.875	.0064	.0031	.0021	.0033	.0000	.0000	0	.0032
ABRW	TC26	TP	GBURGES		DFHSABRW	111	11:19:50.986	.0065	.0032	.0022	.0033	.0000	.0000	0	.0033
ABRW	TC26	TP	GBURGES		DFHSABRW	112	11:19:50.097	.0071	.0035	.0023	.0036	.0000	.0000	0	.0036
ABRW	TC26	TP	GBURGES		DFHSABRW	113	11:19:50.118	.0066	.0032	.0022	.0034	.0000	.0000	0	.0034
ABRW	TC26	TP	GBURGES		DFHSABRW	114	11:19:51.129	.0022	.0021	.0012	.0001	.0000	.0000	0	.0000
ABRW	TC26	TP	GBURGES		DFHSABRW	115	11:19:51.330	.0070	.0034	.0023	.0036	.0000	.0000	0	.0035
ABRW	TC26	TP	GBURGES		DFHSABRW	116	11:19:51.541	.0068	.0032	.0022	.0036	.0000	.0000	0	.0035

Figure 6. Example of a Performance List Extended Report (default format)

For the complete list of performance class data fields that can be selected for the Performance List Report, see the *CICS Performance Analyzer for OS/390 User's Guide*.

A brief description of the fields in the default report follows. For more details, see “CMF Performance Class Data Fields” on page 154.

Tran

The Transaction id (field: TRAN, owner: DFHTASK, field id: 001) identifies the name of the transaction that this performance class record represents. Applications that are using Distributed Program Link (DPL) requests should use the TRANSID('xxxx') parameter on the EXEC CICS LINK PROGRAM('xxxxxxx') command to enable better transaction/application analysis from the monitoring performance class data. If the TRANSID('xxxx') parameter is not specified all the performance class records on the target system for a Distributed Program Link (DPL) mirror transaction will have the same transaction id. For example, 'CSMI' for a Distributed Program Link (DPL) request from another connected CICS system.

Term

The Terminal id (field: TERM, owner: DFHTERM, field id: 002) is either the terminal id or the session id. This field is blank if the transaction was not associated with a terminal or session facility.

SC

The transaction start type (field: STYPE, owner: DFHTASK, field id: 004).

Userid

The User identifier of the transaction (owner: DFHCICS, field id: 089).

RSID

The Transaction Routing Sysid (field: RSYSID, owner: DFHCICS, field id: 130) can be used to identify the connection name (sysid) of the remote system to which the transaction was routed. If the transaction was not routed this field is blank and the initial program name **Program** field will identify the initial application program name invoked for the transaction.

Program

The Program Name (field: PGMNAME, owner: DFHPROG, field id: 071) identifies the initial application program invoked for the transaction. Depending on the type of transaction, this field contains either the application program name as defined in the transaction definition, the program name returned by a user written dynamic routing program, the application program name passed on a function shipped Dynamic Program Link (DPL) request, the initial application program name of an ONC RPC Alias Transaction, or the initial application program name of a WEB Alias Transaction. A program name of ##### indicates that the transaction was invoked using the definition of the transaction id specified by the DTRTRAN system initialization parameter.

TaskNo

The transaction identification number (owner: DFHTASK, field id: 031).

Stop Time

The transaction stop time (owner: DFHCICS, field id: 005).

Response Time

The transaction response time. This field is calculated by subtracting the transaction start time (owner: DFHCICS, field id: 005) from the transaction stop time (owner: DFHCICS, field id: 006).

Dispatch Time

The transaction dispatch time (owner: DFHTASK, field id: 007).

Performance List Extended Report

User CPU Time

The transaction CPU time (owner: DFHTASK, field id: 008).

Suspend Time

The transaction suspend time (owner: DFHTASK, field id: 014).

DispWait Time

The transaction dispatch wait time (owner: DFHTASK, field id: 102).

FC Wait Time

The transaction file control I/O wait time (owner: DFHFILE, field id: 063).

FCAMRq

The number of file control access method calls (field: FCAMCT, owner: DFHFILE, field id: 070).

IR Wait Time

The transaction inter-region (MRO) I/O wait time (field: IRIOWTT, owner: DFHTERM, field id: 100).

Note: Some of the fields may contain large values and be represented in exponential format. For example, 2 834 000 may be shown as 2834E3.

Report Example (Peak Load Analysis)

The example in Figure 8 on page 19 shows a Performance List Extended Report sorted by transaction id and lists the longest 10 response times for each. To generate this report, specify that the records are sorted in descending order by response time within ascending order by transaction id, and limit the performance class records processed to the first 10 records for each transaction id.

The **BY**, **LIMIT** and **FIELDS** operands of the **LISTX** command are used to generate this report as shown in the following example:

```
CICS PA LISTX(
  BY(TRAN(ASCEND),RESPONSE(DESCEND)),
  LIMIT(RESPONSE(10)),
  FIELDS(TRAN,
    RESPONSE,
    TERM,
    STYPE,
    USERID,
    RSYID,
    PROGRAM,
    TASKNO,
    STOP(TIMES),
    DISPATCH,
    CPU,
    SUSPEND,
    DISPWAIT,
    FCWAIT,
    IRWAIT))
Transaction ID
Response time
Terminal ID
Start type of transaction
User ID
Remote System ID
Initial program name
Transaction number
Stop time (hh:mm:ss)
Dispatch time
CPU time
Suspend time
Dispatch wait time
File Control I/O wait time
Inter-Region (MRO) I/O wait time
```

To use the CICS PA dialog to request this report, use the sample Report Form BADRESP or specify a Report Form like the following:

EDIT LISTX Report Form - BADTRANS

Field Name	S	Type	Limit	Description
TRAN	A			Transaction identifier
RESPONSE	D		10	Transaction response time
TERM	*			Terminal ID
STYPE				Transaction start type
USERID	*			User ID
RSYSID				Remote System ID
PROGRAM				Program name
TASKNO				Transaction identification number
STOP	*	TIMES		Task stop time
RESPONSE	*			Transaction response time
DISPATCH	*	TIME		Dispatch time
CPU	*	TIME		CPU time
SUSPEND	*	TIME		Suspend time
DISPWAIT	*	TIME		Redispatch wait time
FCWAIT		TIME		File I/O wait time
IRWAIT		TIME		MRO link wait time
EOR				----- End of Report -----
EOX				----- End of Extract -----
FCAMCT	*			File access-method requests

Figure 7. LISTX Report Form (Using Sort Sequence and Limit)

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Performance List Extended

LSTX0001 Printed at 11:44:10 2/19/2002 Data from 11:10:51 2/14/2002 to 11:34:13 2/14/2002 Page 1
Response Times by Transaction ID *** 10 worst times ***

Tran	Response Time	Term	SC	Userid	RSID	Program	TaskNo	Stop Time	Dispatch Time	User CPU Time	Suspend Time	DispWait Time	FC Wait Time	IR Wait Time
AADD	.0945	S23C	TO	BRENNER	DFHSAALL	52	11:12:54	.0831	.0084	.0114	.0113	.0000	.0000	.0000
AADD	.0636	S23C	TO	BRENNER	DFHSAALL	54	11:13:06	.0619	.0047	.0017	.0016	.0000	.0000	.0000
AADD	.0029	S23C	TP	BRENNER	DFHSAALL	65	11:14:27	.0026	.0017	.0003	.0002	.0000	.0000	.0000
AADD	.0026	S23C	TP	BRENNER	DFHSAALL	561	11:27:02	.0022	.0017	.0003	.0002	.0000	.0000	.0000
AADD	.0023	TC26	TP	GBURGES	DFHSAALL	138	11:20:15	.0022	.0013	.0001	.0000	.0000	.0000	.0000
AADD	.0023	TC26	TP	GBURGES	DFHSAALL	184	11:21:58	.0022	.0013	.0001	.0000	.0000	.0000	.0000
AADD	.0022	TC26	TO	GBURGES	DFHSAALL	183	11:21:51	.0022	.0012	.0001	.0000	.0000	.0000	.0000
AADD	.0022	TC26	TO	GBURGES	DFHSAALL	137	11:20:08	.0021	.0012	.0001	.0000	.0000	.0000	.0000
AADD	.0016	S23C	TO	BRENNER	DFHSAALL	551	11:26:41	.0016	.0013	.0001	.0000	.0000	.0000	.0000
AADD	.0011	TC26	TO	GBURGES	DFHSAALL	136	11:20:04	.0010	.0010	.0001	.0000	.0000	.0000	.0000
ABRW	.6982	P015	TO	CBAKER	DFHSABRW	139	11:16:51	.6717	.0385	.0264	.0111	.0051	.0000	.0000
ABRW	.5819	S23D	TO	BRENNER	DFHSABRW	53	11:12:19	.0783	.0121	.5037	.0127	.0000	.4908	.0000
ABRW	.0156	TC26	TP	GBURGES	DFHSABRW	128	11:19:57	.0028	.0024	.0128	.0000	.0000	.0000	.0127
ABRW	.0146	TC26	TO	GBURGES	DFHSABRW	164	11:21:05	.0030	.0023	.0115	.0000	.0000	.0000	.0114
ABRW	.0124	TC26	TP	GBURGES	DFHSABRW	169	11:21:17	.0043	.0028	.0080	.0000	.0000	.0000	.0080
ABRW	.0120	TC32	TP	GBURGES	DFHSABRW	391	11:24:38	.0120	.0017	.0001	.0000	.0000	.0000	.0000
ABRW	.0097	TC26	TP	GBURGES	DFHSABRW	175	11:21:27	.0059	.0025	.0038	.0000	.0000	.0000	.0037
ABRW	.0094	TC26	TP	GBURGES	DFHSABRW	117	11:19:52	.0036	.0024	.0058	.0000	.0000	.0000	.0057
ABRW	.0085	TC26	TP	GBURGES	DFHSABRW	170	11:21:19	.0037	.0024	.0048	.0000	.0000	.0000	.0048
ABRW	.0085	TC26	TP	GBURGES	DFHSABRW	176	11:21:29	.0043	.0024	.0042	.0001	.0000	.0000	.0042
AINQ	.0040	TC26	TO	GBURGES	DFHSAALL	187	11:22:14	.0027	.0017	.0013	.0000	.0000	.0000	.0013
AINQ	.0024	S23C	TO	BRENNER	DFHSAALL	574	11:27:26	.0016	.0015	.0008	.0000	.0000	.0000	.0000
AINQ	.0023	S23C	TO	BRENNER	DFHSAALL	564	11:27:11	.0022	.0015	.0001	.0000	.0000	.0000	.0000
AINQ	.0020	S23C	TO	BRENNER	DFHSAALL	341	11:21:19	.0019	.0014	.0001	.0000	.0000	.0000	.0000
AINQ	.0020	S23C	TO	BRENNER	DFHSAALL	328	11:21:09	.0019	.0012	.0001	.0000	.0000	.0000	.0000
AINQ	.0018	S23C	TO	BRENNER	DFHSAALL	580	11:27:34	.0017	.0014	.0001	.0000	.0000	.0000	.0000
AINQ	.0018	S23C	TO	BRENNER	DFHSAALL	112	11:14:46	.0017	.0016	.0001	.0000	.0000	.0000	.0000
AINQ	.0014	R11	TO	CBAKER	DFHSAALL	232	11:26:30	.0013	.0012	.0000	.0000	.0000	.0000	.0000
AINQ	.0013	S23C	TO	BRENNER	DFHSAALL	569	11:27:19	.0013	.0013	.0001	.0000	.0000	.0000	.0000
AINQ	.0012	TC26	TO	GBURGES	DFHSAALL	186	11:22:08	.0011	.0010	.0001	.0000	.0000	.0000	.0000
AMNU	.1724	S23D	TO	BRENNER	DFHSAMNU	50	11:11:53	.1720	.0091	.0004	.0004	.0000	.0000	.0000
AMNU	.0713	CAAD	TO	CBAKER	DFHSAMNU	249	11:19:41	.0519	.0085	.0194	.0042	.0000	.0000	.0000

Figure 8. Example of a Performance List Extended Report (Top 10 Response Times by Transaction)

Performance Summary Report

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

You can request a report that summarizes all available records, or you can provide criteria for data selection to summarize only the information that meets specific requirements.

Report Command (Performance Summary Report)

The command to produce the default report is:

```
CICSPA SUMMARY
```

To tailor the report, you can specify report options as follows:

```
CICSPA SUMMARY(  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [INTERVAL(mm:ss),]  
    [BY(by1[(fld-options)],  
        by2[(fld-options)],  
        by3[(fld-options))],]  
    [FIELDS(field1[(fld-options)],...),]  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...)))]
```

The FIELDS operand controls the format of the report by specifying the desired fields, the order of the columns, and for numeric fields, the statistical functions (AVE|DEV|MIN|MAX|TOT) used to summarize the data. If the function is omitted, AVE is the default.

The BY operand specifies up to 3 sort fields in ascending order. The default sort sequence is ascending BY (TRAN, TERM) .

If BY and FIELDS are omitted, the default is:

```
CICSPA SUMMARY(BY(TRAN,TERM),  
    FIELDS(TRAN,      Transaction ID  
    TERM,           Terminal ID  
    TASKCNT,        Number of CMF Records  
    RESPONSE(AVE,MAX), Avg/Max Response Time  
    DISPATCH,     Avg Dispatch Time  
    CPU,           Avg CPU Time  
    SUSPEND,       Avg Suspend Time  
    DISPWAIT,     Avg Dispatch Wait Time  
    FCWAIT,       Avg File Control I/O Wait Time  
    FCAMCT,      Avg FC Access Method Calls  
    IRWAIT,       Avg Inter-Region I/O Wait Time  
    SCU24HWM,    Avg User Storage HWM below 16MB  
    SCU31HWM))    Avg User Storage HWM above 16MB
```

The CICS PA dialog uses the SUMMARY Report Form to generate FIELDS and BY operands.

If the Report Becomes Too Large: The Performance Summary Report sorts the input records prior to reporting. When the EXTERNAL operand is not specified, CICS PA performs an internal sort using virtual storage. The amount of virtual storage required depends on the number of BY operands and the resulting combinations. If the report becomes too large for virtual storage, you can use an External Work Data Set to store the records before they are sorted. Use **EXTERNAL(ddname)** to specify the External Work Data Set and invoke the external SORT facility.

Report Command (Summary Export)

The SUMMARY command can be used to tailor the format of the Export file.

The command format for the Summary Export is:

```

CICSPA SUMMARY(
    [OUTPUT(ddname),]
    [DDNAME(ddname),]
    [DELIMIT('field-delimiter'),]
    [LABELS|NOLABELS,]
    [EXTERNAL(ddname),]
    [INTERVAL(hh:mm:ss),]
    [BY(by1[(ufld-options)],...),]
    [FIELDS(field1[(options)],...),]
    [TITLE1('...1st 64 characters of title...'),]
    [TITLE2('...2nd 64 characters of title...'),]
    [SELECT(PERFORMANCE(action1(field1(value1),...),...))])

```

See Figure 46 on page 129 for an example of the Summary Export file.

Performance Summary Report

Report Content

A summary line is printed for each BY sort field combination.

Figure 9 shows an example of the default report.

V1R2M0		CICS Performance Analyzer											Page 1	
		Performance Summary												
SUMM0001 Printed at 7:17:20 3/28/2002 Data from 11:10:51 3/24/2002 to 11:34:13 3/24/2002														
Tran	Term	#Tasks	Avg Response Time	Max Response Time	Avg Dispatch Time	Avg User Time	Avg CPU Time	Avg Suspend Time	Avg DispWait Time	Avg FC Wait Time	Avg FCAMRq	Avg IR Wait Time	Avg SC24UHM	Avg SC31UHM
AADD	S23C	5	.0330	.0945	.0303	.0035	.0028	.0027	.0000		1	.0000	979	0
AADD	TC26	5	.0020	.0023	.0019	.0012	.0001	.0000	.0000		0	.0000	941	0
-----		AADD	10	.0175	.0945	.0161	.0024	.0014	.0013	.0000	1	.0000	960	0
ABRW	P015	10	.0717	.6982	.0690	.0051	.0027	.0011	.0005		5	.0000	1011	0
ABRW	R11	1	.0052	.0052	.0021	.0021	.0031	.0000	.0000		0	.0030	976	0
ABRW	S23D	5	.1210	.5819	.0178	.0042	.1032	.0026	.0000		0	.1006	1021	0
ABRW	TC26	57	.0070	.0156	.0033	.0022	.0037	.0000	.0000		0	.0036	1005	0
ABRW	TC32	61	.0030	.0120	.0029	.0016	.0001	.0000	.0000		7	.0000	1008	0
-----		ABRW	134	.0142	.6982	.0085	.0022	.0057	.0002	.0000	3	.0053	1007	0
AINQ	R11	1	.0014	.0014	.0013	.0012	.0000	.0000	.0000		0	.0000	928	0
AINQ	S23C	7	.0019	.0024	.0018	.0014	.0002	.0000	.0000		1	.0000	928	0
AINQ	TC26	2	.0026	.0040	.0019	.0014	.0007	.0000	.0000		0	.0006	928	0
-----		AINQ	10	.0020	.0040	.0017	.0014	.0003	.0000	.0000	1	.0001	928	0
AMNU	CAAD	1	.0713	.0713	.0519	.0085	.0194	.0042	.0000		0	.0000	416	2656
AMNU	P015	1	.0327	.0327	.0270	.0048	.0057	.0056	.0000		0	.0000	416	0
AMNU	R11	2	.0158	.0228	.0157	.0012	.0000	.0000	.0000		0	.0000	416	0
AMNU	S23C	5	.0021	.0028	.0017	.0012	.0004	.0000	.0000		0	.0000	416	0
AMNU	S23D	1	.1724	.1724	.1720	.0091	.0004	.0004	.0000		0	.0000	512	0
AMNU	TC26	2	.0025	.0027	.0024	.0011	.0001	.0000	.0000		0	.0000	416	0
-----		AMNU	12	.0270	.1724	.0246	.0028	.0023	.0008	.0000	0	.0000	424	221
AUPD	P015	1	.0015	.0015	.0014	.0011	.0001	.0000	.0000		0	.0000	928	0
AUPD	R11	2	.0022	.0030	.0015	.0015	.0007	.0000	.0000		0	.0006	928	0
AUPD	S208	3	.0491	.0665	.0265	.0079	.0226	.0056	.0000		0	.0024	992	0
AUPD	S23C	2	.0033	.0046	.0032	.0014	.0001	.0000	.0000		0	.0000	928	0
AUPD	TC26	3	.0037	.0045	.0024	.0015	.0012	.0000	.0000		0	.0012	960	0
AUPD	TC32	1	.0022	.0022	.0022	.0012	.0001	.0000	.0000		0	.0000	1024	0
-----		AUPD	12	.0144	.0665	.0083	.0030	.0061	.0014	.0000	0	.0010	960	0
B	TC26	2	.0028	.0031	.0027	.0015	.0001	.0000	.0000		0	.0000	0	0
-----		B	2	.0028	.0031	.0027	.0015	.0001	.0000	.0000	0	.0000	0	0
BING	TC26	1	.0024	.0024	.0023	.0016	.0001	.0000	.0000		0	.0000	0	0
-----		BING	1	.0024	.0024	.0023	.0016	.0001	.0000	.0000	0	.0000	0	0

Figure 9. Example of a Performance Summary Report (default format)

The default report contains the following information. For more details, see “CMF Performance Class Data Fields” on page 154.

For the complete list of performance class data fields that can be selected for the Performance Summary Report, see the *CICS Performance Analyzer for OS/390 User's Guide*.

Tran

The transaction id.

When the value in the Tran field changes, a break occurs and a line of dashes ---- is printed, followed by another line that contains total values for the Tran field (Term is blank).

Term

The terminal or session id.

Note: On the default report, all the performance class records are summarized by Tran and Term.

#Tasks

The number of tasks (performance records) summarized.

Avg Response Time

The average response time.

Max Response Time

The maximum response time.

Avg Dispatch Time

The average dispatch time.

Avg User CPU Time

The average CPU time.

Avg Suspend Time

The average suspend time.

Avg DispWait Time

The average dispatch wait time.

Avg FC Wait Time

The average file control I/O wait time.

Avg FCAMRq Count

The average number of access method calls.

Avg IR Wait Time

The average inter-region (MRO) I/O wait time.

Avg SC24UHWM

The average storage high-water mark below 16MB.

Avg SC31UHWM

The average storage high-water mark above 16MB.

Note: Some of the fields may contain very large values and be represented in exponential format. For example, 2 834 000 may be shown as 2834E3.

Report Example (Summary by Start Time)

The Performance Summary Report in Figure 11 on page 25 shows transaction activity broken down into 30 second time intervals. This allows you to measure transaction performance variations over time.

The commands to request this report are shown in the following example:

```

CICSPA SUMMARY(
    INTERVAL(00:00:30),           Time Interval is 30 seconds
    BY(TRAN,START),              Sort by Tran ID and Start Interval
    FIELDS(TRAN,                 Transaction ID
           START,                Transaction Start Time
           TASKCNT,              Total Task count
           RESPONSE(AVE,MAX),    Transaction response time
           DISPATCH(TIME(AVE)),  Dispatch time
           CPU(TIME(AVE)),       CPU time
           SUSPEND(TIME(AVE)),   Suspend time
           DISPWAIT(TIME(AVE)),  Redispatch wait time
           FCWAIT(TIME(AVE)),    File I/O wait time
           FCAMCT(AVE),          File access-method requests
           IRWAIT(TIME(AVE)),    MRO link wait time
           SC24UHW(MAVE),        UDSA HWM below 16MB
           SC31UHW(MAVE)))       EUDSA HWM above 16MB
    
```

To use the CICS PA dialog to request this report, specify a Report Form like the following:

EDIT SUMMARY Report Form - STARTIME				
Field Name	S	Type	Fn	Description
TRAN	A			Transaction identifier
START	A	TIMES		Task start time
TASKCNT				Total Task count
RESPONSE			AVE	Transaction response time
RESPONSE			MAX	Transaction response time
DISPATCH		TIME	AVE	Dispatch time
CPU		TIME	AVE	CPU time
SUSPEND		TIME	AVE	Suspend time
DISPWAIT		TIME	AVE	Redispatch wait time
FCWAIT		TIME	AVE	File I/O wait time
FCAMCT			AVE	File access-method requests
IRWAIT		TIME	AVE	MRO link wait time
SC24UHW			AVE	UDSA HWM below 16MB
SC31UHW			AVE	EUDSA HWM above 16MB
EOR				----- End of Report -----
EOX				----- End of Extract -----

Figure 10. SUMMARY Report Form (Summary by Start Time)

V1R2M0

CICS Performance Analyzer
Performance Summary

SUMM0001 Printed at 15:47:48 3/19/2002 Data from 15:04:02 2/27/2002 to 15:07:28 2/27/2002
Summary by Start Interval within Transaction ID

Page 1

Tran	Start Interval	#Tasks	Avg Response Time	Max Response Time	Avg Dispatch Time	Avg User Time	Avg CPU	Avg Suspend Time	Avg DispWait Time	Avg FC Wait Time	Avg FCAMRq	Avg IR Wait Time	Avg SC24UHHM	Avg SC31UHHM
TR01	15:04:00	89	.0584	.1233	.0012	.0011	.0572	.0015	.0025	3	.0000	0	88363	
TR01	15:04:30	109	.0562	.1220	.0011	.0011	.0550	.0016	.0026	3	.0000	0	88360	
TR01	15:05:00	104	.0551	.1328	.0013	.0012	.0538	.0017	.0027	3	.0000	0	88356	
TR01	15:05:30	106	.0550	.1041	.0011	.0011	.0539	.0018	.0028	3	.0000	0	88355	
TR01	15:06:00	86	.0588	.1354	.0012	.0011	.0576	.0016	.0026	3	.0000	0	88362	
TR01	15:06:30	99	.0557	.0823	.0012	.0011	.0545	.0018	.0029	3	.0000	0	88352	
TR01	15:07:00	117	.0549	.0912	.0012	.0011	.0537	.0016	.0024	3	.0000	0	88353	

TR01		710	.0562	.1354	.0012	.0011	.0550	.0016	.0026	3	.0000	0	88357	

TR02	15:04:00	101	.1719	.3674	.0030	.0029	.1689	.0055	.0134	18	.0000	0	88358	
TR02	15:04:30	98	.1612	.3661	.0029	.0028	.1583	.0056	.0134	18	.0000	0	88353	
TR02	15:05:00	105	.1548	.3683	.0029	.0029	.1519	.0045	.0116	18	.0000	0	88356	
TR02	15:05:30	104	.1693	.4151	.0030	.0029	.1663	.0048	.0122	19	.0000	0	88363	
TR02	15:06:00	105	.1631	.4046	.0030	.0029	.1601	.0043	.0122	18	.0000	0	88359	
TR02	15:06:30	89	.1572	.3499	.0030	.0028	.1541	.0049	.0125	18	.0000	0	88357	
TR02	15:07:00	88	.1541	.3164	.0031	.0028	.1511	.0050	.0123	18	.0000	0	88354	

TR02		690	.1619	.4151	.0030	.0029	.1589	.0049	.0125	18	.0000	0	88357	

Figure 11. Example of a Performance Summary Report (by Start Time within Transaction)

Performance Summary Report

Report Example (Summary by Stop Time)

The Performance Summary Report in Figure 12 shows transaction activity broken down into 1 minute intervals. Every transaction that completed processing during the interval is reported. This allows you to look at periods of time during which performance may be degraded and examine each Transaction ID's usage.

The commands to request this report are shown in the following example:

```

CICSPA SUMMARY(
    INTERVAL(00:30),           Time Interval is 30 seconds
    BY(TRAN,START),           Sort by Tran ID and Start Interval
    FIELDS(TRAN,              Transaction ID
            START,            Transaction Start Time
            TASKCNT,          Total Task count
            RESPONSE(AVE,MAX), Transaction response time
            DISPATCH(TIME(AVE)), Dispatch time
            CPU(TIME(AVE)),   CPU time
            SUSPEND(TIME(AVE)), Suspend time
            DISPWAIT(TIME(AVE)), Redispatch wait time
            FCWAIT(TIME(AVE)), File I/O wait time
            FCAMCT(AVE),      File access-method requests
            IRWAIT(TIME(AVE)), MRO link wait time
            SC24UHW(MAVE),    UDSA HWM below 16MB
            SC31UHW(MAVE)))   EUDSA HWM above 16MB
    
```

To use the CICS PA dialog to request this report, specify a **Time Interval** of **00:01:00** (the default) on the Performance Summary Report panel, and use the sample Report Form TRTODSUM or specify one similar.

V1R2M0 CICS Performance Analyzer
Performance Summary

SUMM0001 Printed at 15:47:48 2/19/2002 Data from 15:04:02 2/13/2002 to 15:07:28 2/13/2002 Page 1
 Summary by Transaction ID within Stop Interval

Stop Interval	Tran	#Tasks	Avg Response Time	Max Response Time	Avg Dispatch Time	Avg User Time	Avg CPU	Avg Suspend Time	Avg DispWait Time	FC Wait Time	Avg FCAMRq	Avg IR Wait Time	Avg SC24UHW	Avg SC31UHW
15:04:00	TR01	198	.0572	.1233	.0012	.0011	.0560	.0016	.0026	3	.0000	0	88361	
15:04:00	TR02	199	.0569	.2220	.0012	.0011	.0557	.0016	.0024	3	.0000	0	88359	
15:04:00	TR03	201	.1743	.3789	.0030	.0029	.1713	.0053	.0125	18	.0000	0	88360	
15:04:00	TR04	199	.1666	.3674	.0029	.0028	.1637	.0056	.0134	18	.0000	0	88356	
.....														
15:04:00	TR12	216	.0901	.1345	.0014	.0013	.0887	.0021	.0049	5	.0000	0	88359	
15:04:00	TR13	225	.0888	.1234	.0014	.0013	.0874	.0024	.0050	5	.0000	0	88357	

15:04:00		8903	.0473	.6318	.0013	.0013	.0460	.0015	.0035	7	.0000	0	69261	
.....														
15:05:00	TR01	210	.0551	.1328	.0012	.0011	.0538	.0017	.0027	3	.0000	0	88355	
15:05:00	TR02	207	.1609	.4151	.0030	.0029	.1579	.0046	.0119	18	.0000	0	88359	
15:05:00	TR03	211	.0062	.0125	.0026	.0025	.0036	.0005	.0031	18	.0000	0	88352	
15:05:00	TR04	246	.0069	.0148	.0038	.0037	.0031	.0003	.0026	34	.0000	0	88352	
.....														
15:05:00	TR12	244	.0874	.1227	.0014	.0013	.0860	.0026	.0052	5	.0000	0	88354	
15:05:00	TR13	283	.0887	.1924	.0014	.0013	.0873	.0024	.0051	5	.0000	0	88360	

15:05:00		9275	.0476	.7551	.0014	.0013	.0462	.0014	.0035	7	.0000	0	70591	

Figure 12. Example of a Performance Summary Report (by Transaction within Stop Time)

Report Example (DBCTL)

An example of a Performance Summary Report showing a summary of DBCTL activity by transaction is shown in Figure 14 on page 28.

The commands to request this report are shown in the following example:

```

CICSPA IN(SMFIN004),
      SELECT(PERFORMANCE(EXCLUDE(
          CHARACTER(OWNER(DBCTL),           Exclude transactions
          SUBSTR(1,1),VALUE(' '))))),      without a PSB name
SUMMARY(
  BY(TRAN,DBCTL(PBSNAME)),                Sort by Transaction ID and PSB name
  FIELDS(TRAN,                             Transaction identifier
          DBCTL(PBSNAME),                  PSB name
          TASKCNT,                         Total Task count
          RESPONSE,                        Transaction response time
          CPU,                              CPU time
          DISPATCH,                        Dispatch time
          SUSPEND,                         Suspend time
          DBCTL(
            POOLWAIT,                      Elapsed wait time for Pool Space
            INTCWAIT,                      Elapsed wait time for Intent Conflict
            SCHTELAP,                      Elapsed time for Schedule Process
            DBIOELAP,                      Elapsed time for Database I/O
            PILOCKEL,                      Elapsed time for PI Locking
            DBIOCALL,                      Number of Database I/Os
            DLICALLS)))                    Total DL/I Database calls

```

To use the CICS PA dialog to request this report, specify a Report Form like the following:

EDIT SUMMARY Report Form - DBCTLSUM									
Field Name	S	Type	Fn	Length	Dictionary	Definition	- User Field -	Offset	Length
TRAN	A			8	TRAN	DFHTASK C001			
PSBNAME	A			8	PSBNAME	DBCTL C001			
TASKCNT				8	TASKCNT	CICSPA X902			
RESPONSE			AVE	8	RESP	CICSPA A901			
CPU		TIME	AVE	8	USRCPUT	DFHTASK S008			
DISPATCH		TIME	AVE	8	USRDISPT	DFHTASK S007			
SUSPEND		TIME	AVE	8	SUSPTIME	DFHTASK S014			
POOLWAIT			AVE	8	POOLWAIT	DBCTL A002			
INTCWAIT			AVE	8	INTCWAIT	DBCTL A003			
SCHTELAP			AVE	8	SCHTELAP	DBCTL A004			
DBIOELAP			AVE	8	DBIOELAP	DBCTL A005			
PILOCKEL			AVE	8	PILOCKEL	DBCTL A006			
DBIOCALL			AVE	8	DBIOCALL	DBCTL A007			
DLICALLS			AVE	8	DLICALLS	DBCTL A017			
EOR									
EOX									
APPLID	A			8	APPLID	CICSPA C903			
START	A	TIMES		8	START	DFHCICS T005			

Figure 13. SUMMARY Report Form (DBCTL Fields)

Performance Summary Report

V1R2M0		CICS Performance Analyzer Performance Summary											
SUMM0001 Printed at 11:49:51 3/24/2002 Data from 15:58:47 2/19/2002 to 15:58:28 2/21/2002													
*** All DBCTL transactions ***													
Tran	PSB	#Tasks	Avg Response Time	Avg User CPU Time	Avg Dispatch Time	Avg Suspend Time	Avg PoolWait Time	Avg ICwait Time	Avg SchedElp Time	Avg DBIOElap Time	Avg PILockEl Time	Avg DBIOcall Count	Avg DLICalls Count
DLI0	DDLPSB51	16	9.3221	.0255	.5016	8.8205	.0000	.0000	.0104	.0000	.0000	0	0
DLI0	PSB99	13	1.4249	.5201	.7799	.6450	.0000	.0000	.0780	.0000	.0000	0	1
-----		29	5.7820	.2472	.6264	5.1556	.0000	.0000	.0407	.0000	.0000	0	1
DLI1	DDLPSB51	4	26.4267	.0125	.8290	25.5977	.0000	.0000	.0041	.0000	.0000	0	0
DLI1	PSB99	1	95.2870	1.9511	16.4508	78.8363	.0000	.0000	.0050	.0000	.0000	0	1
-----		5	40.1988	.4003	3.9534	36.2454	.0000	.0000	.0043	.0000	.0000	0	0
DLI2	DDLPSB51	4	19.3463	.0125	.2029	19.1433	.0000	.0000	.0040	.0000	.0000	0	0
DLI2	PSB99	1	91.8213	1.8717	2.0128	89.8085	.0000	.0000	.0010	.0000	.0000	0	1
-----		5	33.8413	.3843	.5649	33.2764	.0000	.0000	.0034	.0000	.0000	0	0
DLI3	DDLPSB51	4	21.6261	.0124	.9275	20.6986	.0000	.0000	.0047	.0000	.0000	0	0
DLI3	PSB99	1	156.501	1.9866	24.4980	132.003	.0000	.0000	.0055	.0000	.0000	0	1
-----		5	48.6011	.4073	5.6416	42.9595	.0000	.0000	.0049	.0000	.0000	0	0
DLI4	DDLPSB51	5	35.3016	.0122	3.4245	31.8771	.0000	.0000	.0039	.0000	.0000	0	0
-----		5	35.3016	.0122	3.4245	31.8771	.0000	.0000	.0039	.0000	.0000	0	0
DLI5	DDLPSB51	5	40.7442	.0116	5.1797	35.5645	.0000	.0000	.0054	.0000	.0000	0	0
DLI5	PSB99	1	233.355	1.9771	18.1590	215.196	.0000	.0000	.0049	.0000	.0000	0	1
-----		6	72.8461	.3391	7.3430	65.5031	.0000	.0000	.0053	.0000	.0000	0	0
DLI6	DDLPSB51	4	25.2495	.0113	1.5884	23.6610	.0000	.0000	.0038	.0000	.0000	0	0
-----		4	25.2495	.0113	1.5884	23.6610	.0000	.0000	.0038	.0000	.0000	0	0

Figure 14. Example of a Performance Summary Report (DBCTL activity)

Note: The IMS Performance Analyzer (IMS PA) can provide a more comprehensive analysis of IMS DBCTL performance.

Report Example (Application Naming)

An example of a Performance Summary Report produced from CMF performance class data with application naming enabled is shown in Figure 15.

The commands to request this report are shown in the following example:

```

CICSPA IN(SMFIN001),
SUMMARY(
EXTERNAL(CPAXW001),
BY(TRAN,                               Sort by Transaction ID,
   APPLTRAN,APPLPROG),                Application naming Tran ID and Program
FIELDS(TRAN,                           Transaction identifier
   APPLTRAN,                           Application naming Transaction ID
   APPLPROG,                           Application naming Program name
   TASKCNT,                             Total Task count
   RESPONSE,                            Transaction response time
   DISPATCH,                            Dispatch time
   CPU,                                  CPU time
   SUSPEND,                              Suspend time
   DISPWAIT))                           Redispatch wait time
    
```

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Performance Summary

SUMM0001 Printed at 15:25:43 7/19/2002 Data from 07:30:47 5/29/2002 to 08:35:48 5/29/2002 Page 4

Tran	Tran	Program	#Tasks	Avg Dispatch Time	Avg User CPU	Avg Suspend Time	Avg DispWait Time
MENU	TOP1	PROGOPT1	5	.0934	.0196	684.379	.0064
	TOP2	PROGOPT2	48	.7688	.2039	1.1260	.1046
	TOP3	PROGOPT3	1	.0002	.0002	.0029	.0000
	TOP4	PROGOPT4	49	.7531	.1997	1.1030	.1025
	TOP5	PROGOPT5	4	.0695	.0088	.0191	.0191

Figure 15. Example of a Performance Summary Report (Application Naming)

Performance Totals Report

The Performance Totals Report provides detailed statistics of all fields in the CMF performance class records. The statistics are accumulated during input file processing, and printed at the End of File.

You can request statistics from all available records, or you can provide criteria for data selection to request statistics from only the records that meet specific requirements.

The Performance Totals Report has four parts:

1. **CICS System Statistics.** Statistics about the CICS system as a whole, including:
 - CPU and Dispatch times
 - Performance Record and Task counts
2. **CPU and Dispatch Statistics.** Breakdown of CPU, Dispatch, and Suspend counts and elapsed time.
3. **Resource Utilization Statistics.** Each field in the performance record is summarized:
 - For Clock fields, the count and time components are broken down.
 - For Count fields, the count values are reported.
4. **User Field Statistics.** Statistics for the User Fields defined in the CMF performance class records.

Report Command

The command to produce the default report is:

```
CICSPA TOTAL
```

To tailor the report, you can specify report options as follows:

```
CICSPA TOTAL(  
    [OUTPUT(ddname),]  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])
```

Report Content (Part 1, CICS System Statistics)

The first part of the Performance Totals Report provides statistics about the CICS system as a whole.

V1R2M0	CICS Performance Analyzer			
	Performance Totals			
TOTL0001 Printed at 7:48:49 3/28/2002	Data from 11:10:52 3/24/2002	to 11:34:12 3/24/2002	Page	1

	Dispatched Time		CPU Time	
	DD HH:MM:SS	Secs	DD HH:MM:SS	Secs
Total Elapsed Run Time	00:23:20	1400		
From Selected Performance Records				
QR Dispatch/CPU Time	00:00:14	14	00:00:08	8
MS Dispatch/CPU Time	00:00:16	16	00:00:01	1
	-----	----	-----	----
Total (QR + MS)	00:00:30	30	00:00:09	9
L8 CPU Time			00:00:00	0
J8 CPU Time			00:00:00	0
S8 CPU Time			00:00:00	0
	-----	----	-----	----
Total (L8 + J8 + S8)	00:00:00	00	00:00:00	0
	-----	----	-----	----
Total CICS TCB Time	00:00:30	30	00:00:09	9
Total Performance Records (Type C)		0		
Total Performance Records (Type D)		14		
Total Performance Records (Type F)		0		
Total Performance Records (Type S)		0		
Total Performance Records (Type T)		676		
		-----		-----
Total Performance Records (Selected)		690	Total Performance Records	690

Figure 16. Example of a Performance Totals Report (Part 1)

The columns are:

Dispatched Time

The total elapsed time presented in days, hours, minutes, seconds, and then as total seconds.

CPU Time

The total CPU time presented in days, hours, minutes, seconds, and then as total seconds.

The rows are:

Total Elapsed Run Time

Performance Totals Report interval or elapsed time (first performance record start time to last performance record stop time).

From Selected Performance Records

The CICS TCB mode data which applies only to performance class records from CICS Transaction Server Version 1.3 or later.

QR Dispatch/CPU Time

The total CICS TCB, mode QR dispatch and CPU time accumulated from the selected performance class records.

Performance Totals Report

MS Dispatch/CPU Time

The total CICS TCB, mode RO, CO, FO, RP, SZ, SL, and SO dispatch and CPU time from the selected performance class records.

Total (QR + MS)

The total CICS TCB, mode QR, RO, CO, FO, RP, SZ, SL, and SO dispatch and CPU time accumulated from the selected performance class records.

L8 CPU Time

The total CICS TCB, mode L8 CPU Time accumulated from the selected performance class records.

J8 CPU Time

The total CICS TCB, mode J8 CPU time accumulated from the selected performance class records.

S8 CPU Time

The total CICS TCB, mode S8 CPU time accumulated from the selected performance class records.

Total (L8 + J8 + S8)

The total CICS TCB, mode L8, J8 and S8 dispatch and CPU time accumulated from the selected performance class records.

Total CICS TCB Time

The total CICS TCB time, all TCB modes dispatch and CPU time accumulated from the selected performance class records.

Total Performance Records (Type C)

The total number of **Converse** performance class records selected.

Total Performance Records (Type D)

The total number of **Deliver** performance class records selected.

Total Performance Records (Type F)

The total number of **Frequency** performance class records selected.

Total Performance Records (Type S)

The total number of **Syncpoint** performance class records selected.

Total Performance Records (Type T)

The total number of **Terminate** performance class records selected.

Total Performance Records (Selected)

The total number of performance class records selected.

Total Performance Records

The total number of performance class records.

For more detailed descriptions of the performance class data fields, see “CMF Performance Class Data Fields” on page 154.

Report Content (Part 2, CPU and Dispatch Statistics)

The second part of the Performance Totals Report displays the total, average per task, and maximum per task for the CPU, Dispatch, and Suspend counts and elapsed time. Time values are represented in seconds, with millisecond precision.

V1R2M0		CICS Performance Analyzer					Page 2	
		Performance Totals						
TOTL0001 Printed at 7:48:49 3/28/2002		Data from 11:10:52 3/24/2002 to 11:34:12 3/24/2002						
From Selected Performance Records	..... C O U N T S .....			..... T I M E			
	Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task		
Dispatch Time	20664	29.9	7681	31	.044	12.677		
CPU Time				9	.013	3.168		
RLS CPU (SRB) Time				0	.000	.000		
Suspend Time	20650	29.9	7681	3685	5.341	1102.221		
Dispatch Wait Time	19974	28.9	7680	4	.006	.920		
Dispatch Wait Time (QR Mode)	18919	27.4	7680	2	.002	.660		
Response (-TCWait for Type C)				0	.000	.000		
Response (All Selected Tasks)				3716	5.385	1102.234		
QR Dispatch Time	19595	28.4	7681	14	.021	6.796		
MS Dispatch Time	1000	1.4	93	16	.024	5.881		
RO Dispatch Time								
QR CPU Time				8	.011	2.692		
MS CPU Time				1	.002	.476		
RO CPU Time								
L8 CPU Time				0	.000	.001		
J8 CPU Time				0	.000	.000		
S8 CPU Time				0	.000	.000		

Figure 17. Example of a Performance Totals Report (Part 2)

The individual count fields may not always add up to the total count field. There are two reasons for this:

1. Some individual fields may not have been collected for the duration of the report. The counts are, however, still reflected in the total count (FCTOTAL).
2. There may be a differential due to another count, which is not collected in the CMF performance class record and not printed on the report. This other count is, however, reflected in the total count.

The information in this part of the report includes:

Total

Total count or time value (in seconds) for all the records selected, based on the selection criteria provided.

Avg/Task

Average count or time per task computed by dividing the count or time by the total number of selected tasks.

Max/Task

The largest count or time value that was recorded for any one task.

Response (minus TC Wait for Type C)

The internal response time for conversational tasks.

Response (All Selected Tasks)

The total time. This is the accumulation of the response times (Stop Time minus Start Time) for all selected conversational (Type C) minus the Terminal Control I/O Wait Time for those tasks.

Performance Totals Report

Report Content (Part 3, Resource Utilization Statistics)

The third part of the Performance Totals Report displays the count and time values (total, average per task, and maximum per task) from the CMF performance class records for the resource utilization fields. Time values are represented in seconds, with millisecond precision.

Note: Some of the fields may contain large values and be represented in exponential format. For example, 2 834 000 may be shown as 2834E3.

V1R2M0 CICS Performance Analyzer

Performance Totals

TOTL0001 Printed at 7:48:49 3/28/2002 Data from 11:10:52 3/24/2002 to 11:34:12 3/24/2002 Page 3

From Selected Performance Records	..... C O U N T S .....			..... T I M E		
	Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task
FCWAIT File I/O wait time	671	1.0	283	4	.006	1.809
RLSWAIT RLS File I/O wait time	1	.0	1	0	.000	.069
TSWAIT VSAM TS I/O wait time	33	.0	2	0	.000	.017
TSSHWAIT Asynchronous Shared TS wait time	0	.0	0	0	.000	.000
JCWAIT Journal I/O wait time	473	.7	12	15	.022	1.755
TDWAIT VSAM transient data I/O wait time	0	.0	0	0	.000	.000
IRWAIT MRO link wait time	369	.5	28	98	.142	65.789
CFDTPWAIT CF Data Table access requests wait time	0	.0	0	0	.000	.000
CFDTSYNC CF Data Table syncpoint wait time	0	.0	0	0	.000	.000
RUNTRWAI BTS run Process/Activity wait time	16	.0	2	1	.002	.448
SYNCDLY SYNCPOINT parent request wait time	32	.0	3	4	.006	.686
RMITIME Resource Manager Interface (RMI) elapsed time	30	.0	1	41	.060	2.178
RMISUSP Resource Manager Interface (RMI) suspend time	117	.2	6	41	.060	2.177
JVMTIME JVM elapsed time	0	.0	0	0	.000	.000
JVMSUSP JVM suspend time	0	.0	0	0	.000	.000
DB2CONWT DB2 Connection wait time	0	.0	0	0	.000	.000
DB2RDYQW DB2 Thread wait time	0	.0	0	0	.000	.000
DB2WAIT DB2 SQL/IFI wait time	0	.0	0	0	.000	.000
IMSWAIT IMS (DBCTL) wait time	0	.0	0	0	.000	.000
TCWAIT Terminal wait for input time	162	.2	36	1158	1.678	592.355
LU61WAIT LU6.1 wait time	0	.0	0	0	.000	.000
LU62WAIT LU6.2 wait time	0	.0	0	0	.000	.000
SZWAIT FEPI services wait time	9	.0	9	0	.000	.056
SOWAIT Inbound Socket I/O wait time	49	.1	5	2173	3.149	1102.202
DSPDELAY First dispatch wait time	676	1.0	1	0	.000	.088
TCLDELAY First dispatch TCLSNAME wait time	0	.0	0	0	.000	.000
MXTDELAY First dispatch MXT wait time	0	.0	0	0	.000	.000
ENQDELAY Local Enqueue wait time	4	.0	1	1	.001	.810
GNQDELAY Global Enqueue wait time	0	.0	0	0	.000	.000
ICDELAY Interval Control (IC) wait time	23	.0	1	41	.060	2.176
GIVEUPWT Give up control wait time	141	.2	76	0	.000	.000
WAITCICS CICS ECB wait time	0	.0	0	0	.000	.000
WAITEXT External ECB wait time	0	.0	0	0	.000	.000
RRMSWAIT Resource Recovery Services indoubt wait time	0	.0	0	0	.000	.000
LOCKDLAY Lock Manager (LM) wait time	143	.2	22	1	.002	.284
MAXOTDLY MAXOPENTCBS wait time	0	.0	0	0	.000	.000
PCLOADTM Program Library wait time	115	.2	32	3	.005	2.003
SYNCTIME SYNCPOINT processing time	796	1.2	10	15	.022	1.766
EXWAIT Exception Conditions wait time	0	.0	0	0	.000	.000

Figure 18 (Part 1 of 3). Example of a Performance Totals Report (Part 3)

Performance Totals Report

From Selected Performance Records	..... C O U N T S .....			..... T I M E		
	Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task
TCMSGIN1 Messages received count	424	.6	37			
TCCHRIN1 Terminal characters received count	2968	4.3	274			
TCMSGOU1 Messages sent count	426	.6	37			
TCCHROU1 Terminal characters sent count	250456	363.0	29616			
TCMSGIN2 Messages received from LU6.1	0	.0	0			
TCCHRIN2 LU6.1 characters received count	8537	12.4	4329			
TCMSGOU2 Messages sent to LU6.1	0	.0	0			
TCCHROU2 LU6.1 characters sent count	0	.0	0			
TALLOC TCTTE ALLOCATE requests	7	.0	1			
TCM62IN2 LU6.2 messages received count	0	.0	0			
TCC62IN2 LU6.2 characters received count	0	.0	0			
TCM62OU2 LU6.2 messages sent count	0	.0	0			
TCC62OU2 LU6.2 characters sent count	0	.0	0			
FCADD File ADD requests	92	.1	6			
FCBROWSE File Browse requests	3416	5.0	2387			
FCDELETE File DELETE requests	90	.1	5			
FCGET File GET requests	645	.9	177			
FCPUT File PUT requests	146	.2	4			
FCTOTAL File Control requests	5056	7.3	2744			
FCAMCT File access-method requests	5437	7.9	2777			
TDGET Transient data GET requests	253	.4	11			
TDPUT Transient data PUT requests	2246	3.3	2130			
TDPURGE Transient data PURGE requests	0	.0	0			
TDTOTAL Transient data Total requests	2499	3.6	2130			
TSGET Temporary Storage GET requests	58	.1	38			
TSPUTAXX Auxiliary TS PUT requests	1170	1.7	50			
TSPUTMAI Main TS PUT requests	67	.1	5			
TSTOTAL TS Total requests	1373	2.0	53			
BMSMAP BMS MAP requests	152	.2	1			
BMSIN BMS IN requests	28	.0	14			
BMSOUT BMS OUT requests	252	.4	15			
BMSTOTAL BMS Total requests	434	.6	29			
JNLWRITE Journal write requests	0	.0	0			
LOGWRITE Log Stream write requests	432	.6	12			
ICSTART Interval Control START or INITIATE requests	8	.0	5			
ICTOTAL Interval Control requests	39	.1	5			
SC24CGET CDSA GETMAINS below 16MB	164	.2	96			
SC31CGET ECDSA GETMAINS above 16MB	8778	12.7	5974			
SC24CHWM CDSA HWM below 16MB	10448	15.1	576			
SC31CHWM ECDSA HWM above 16MB	8566736	12415.6	92432			
SC24COCC CDSA Storage Occupancy below 16MB	2	.0	1			
SC31COCC ECDSA Storage Occupancy above 16MB	35885	52.0	12964			
SC24UGET UDSA GETMAINS below 16MB	277	.4	3			
SC31UGET EUDSA GETMAINS above 16MB	618	.9	8			
SC24UHWM UDSA HWM below 16MB	138384	200.6	1072			
SC31UHWM EUDSA HWM above 16MB	5634576	8166.1	43712			
SC24UOCC UDSA Storage Occupancy below 16MB	0	.0	0			
SC31UOCC EUDSA Storage Occupancy above 16MB	6471	9.4	2221			
SC24SGET CDSA/SDSA GETMAINS below 16MB	6	.0	6			
SC24GSHR CDSA/SDSA storage GETMAINED below 16MB	85456	123.8	85456			
SC24FSHR CDSA/SDSA storage FREEMAINED below 16MB	1456	2.1	1392			
SC31SGET ECDSA/ESDSA GETMAINS above 16MB	4	.0	1			
SC31GSHR ECDSA/ESDSA storage GETMAINED above 16MB	3216	4.7	1440			
SC31FSHR ECDSA/ESDSA storage FREEMAINED above 16MB	352	.5	352			

Figure 18 (Part 2 of 3). Example of a Performance Totals Report (Part 3)

Performance Totals Report

From Selected Performance Records	..... C O U N T S .....			..... T I M E		
	Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task
PCLINK Program LINK requests	7436	10.8	4770			
PCLOAD Program LOAD requests	754	1.1	39			
PCXCTL Program XCTL requests	0	.0	0			
PCLURM Program LINK URM requests	76	.1	9			
PCDPL Distributed Program Link (DPL) requests	0	.0	0			
PCSTGHWM Program Storage HWM above and below 16MB	12498E4	181127.7	5460632			
PC24BHWM Program Storage HWM below 16MB	478880	694.0	57912			
PC31AHWM Program Storage HWM above 16MB	12450E4	180434.4	5412736			
PC24CHWM Program Storage (CDSA) HWM below 16MB	145032	210.2	5672			
PC31CHWM Program Storage (ECDSA) HWM above 16MB	651816	944.7	14216			
PC24SHWM Program Storage (SDSA) HWM below 16MB	227464	329.7	2936			
PC31SHWM Program Storage (ESDSA) HWM above 16MB	116640	169.0	1296			
PC24RHWM Program Storage (RDSA) HWM below 16MB	106384	154.2	57912			
PC31RHWM Program Storage (ERDSA) HWM above 16MB	12373E4	179321.3	5398520			
DB2REQCT DB2 requests	0	.0	0			
IMSREQCT IMS (DBCTL) requests	0	.0	0			
CHMODECT Change-TCB modes requests	1610	2.3	172			
TCBATTCT TCBS attached count	2	.0	1			
CFCAPI OO Foundation Class requests	0	.0	0			
SYNCPT SYNCPOINT requests	796	1.2	10			
WBRCV Web RECEIVE requests	0	.0	0			
WSEND Web SEND requests	0	.0	0			
WBTOTAL Web Total requests	0	.0	0			
WBCHRIN Web characters received count	0	.0	0			
WBCHROUT Web characters sent count	0	.0	0			
WBREPRCT Shared TS Repository read requests	0	.0	0			
WBREPWCT Shared TS Repository write requests	96	.1	8			
DHCREATE Document Handler CREATE requests	3	.0	1			
DHINSERT Document Handler INSERT requests	7	.0	4			
DHSET Document Handler SET requests	10	.0	5			
DHRETRVE Document Handler RETRIEVE requests	10	.0	5			
DHTOTAL Document Handler Total requests	40	.1	20			
DHTOTDCL Total length of all documents created	17574	25.5	10004			
SOBYENCT Secure Socket bytes encrypted count	0	.0	0			
SOBYDECT Secure Socket bytes decrypted count	0	.0	0			
BARSYNCT BTS synchronous Process/Activity count	16	.0	2			
BARASYCT BTS asynchronous Process/Activity count	18	.0	2			
BALKPACT BTS Link Process/Activity count	0	.0	0			
BADPROCT BTS Define Process requests	4	.0	1			
BADACTCT BTS Define Activity requests	20	.0	4			
BATOTPCT BTS Total Process/Activity requests	94	.1	10			
BAPRDCCT BTS Process Data Containers requests	46	.1	2			
BAACDCCT BTS Activity Data Containers requests	66	.1	3			
BATOTCCT BTS Process/Activity Data Container requests	112	.2	5			
BARATECT BTS Retrieve-Reattach Event requests	64	.1	1			
BADFIECT BTS Define-Input Event requests	4	.0	1			
BATIAECT BTS TIMER Event requests	28	.0	2			
BATOTECT BTS Event-related requests	124	.2	5			
SZALLOC Conversations allocated count	0	.0	0			
SZRCV FEPI RECEIVE requests	0	.0	0			
SZSEND FEPI SEND requests	0	.0	0			
SZSTART FEPI START requests	0	.0	0			
SZTOTAL FEPI API and SPI requests	8	.0	8			
SZCHROUT FEPI characters sent count	0	.0	0			
SZCHRIN FEPI characters received count	0	.0	0			
SZALLCTO Allocate conversation time-out count	0	.0	0			
SZRCVTO Receive Data time-out count	0	.0	0			
RECCOUNT Task Performance record count	32105	1.0	1			

Figure 18 (Part 3 of 3). Example of a Performance Totals Report (Part 3)

Report Content (Part 4, User Field Statistics)

This final part of the Performance Totals Report displays the count and time values described above for the user fields contained in the CMF performance class records. The CICS 12-byte ID is printed to define each field.

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Performance Totals

TOTL0001 Printed at 7:48:49 3/28/2002 Data from 11:10:52 3/24/2002 to 11:34:12 3/24/2002 Page 8

From Selected User Records			..... C O U N T S .....			..... T I M E		
			Total	Avg/Task	Max/Task	Total	Avg/Task	Max/Task
TEST	TEST	S001	21	.0	1	8	.011	1.180
TEST	TEST	S002	21	.0	1	0	.000	.001
RMITOTAL	CPARM	A001	0	.0	0			
RMIOOTHER	CPARM	A002	0	.0	0			
RMIDB2	CPARM	A003	0	.0	0			
RMIDBCTL	CPARM	A004	0	.0	0			
RMIEXDLI	CPARM	A005	0	.0	0			
RMIMQM	CPARM	A006	0	.0	0			
RMITCPIP	CPARM	A007	0	.0	0			
ICTOTAL	IC	A001	0	.0	0			
ASKTIME	IC	A002	0	.0	0			
CANCEL	IC	A003	0	.0	0			
DELAY	IC	A004	0	.0	0			
INTERVAL	IC	A005	0	.0	0			
POST	IC	A006	0	.0	0			
RETRIEVE	IC	A007	0	.0	0			
START	IC	A008	0	.0	0			

Figure 19. Example of a Performance Totals Report (Part 4)

Cross-System Work Report

The Cross-System Work Report accepts performance class data from a single or multiple CICS systems and correlates the data by network unit-of-work.

The report default is to print only the CMF performance class records that are contained in a unique network unit-of-work that includes multiple performance records.

Note: The Cross-System Work Report will also include multiple performance class records from a single system.

You can request a report from all available records, or you can provide criteria for data selection to request a report from only the records that meet specific requirements.

Report Command (Cross-System Work)

The command to produce the default report is:

```
CICSPA CROSSSYSTEM
```

To tailor the report, you can specify report options as follows:

```
CICSPA CROSSSYSTEM(  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [PRINTMULTIPLE,]  
    [NOPRINTMULTIPLE,]  
    [PRINTSINGLE,]  
    [NOWRITE,]  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])
```

Report Command (Cross-System Work Extended)

To tailor the format of the report, see “Report Command (Cross-System Work Extended)” on page 15.

Report Content (Cross-System Work)

On the Cross-System Work Report, each line is printed from a single CMF performance class record. Records that are part of the same network unit-of-work are printed sequentially in groups separated by blank lines. (The printed information allows you to find the corresponding record(s) in the Performance List Report.)

The Cross-System Work Report is produced using an external SORT facility. An External Work Data Set is required to store the records before they are sorted. This data set is either specified explicitly using **EXTERNAL(ddname)**, or CICS PA assigns one from the External Work File pool.

The records are sorted in the following order:

1. Network Unit-of-Work NETNAME
2. Network Unit-of-Work id
3. Syncpoint count concatenated with the task stop time in reverse (or descending) order
4. APPLID

Note: In the third sort field, the syncpoint count is used to resolve unsynchronized STORE CLOCK (STCK) values between systems. The syncpoint count and stop time, sorted in reverse (descending) order, shows the sequence of tasks within the network unit-of-work. In some cases (for example, where user event monitor points (EMPs) are used), the syncpoint count does not reflect the sequence of events within a network unit-of-work. For these instances, all the task records are printed, but not necessarily in the order they happened. You can tell that this situation exists if the stop times are not in descending order.

For more information on correlating the performance class data by network unit-of-work id, see “Correlating Performance Class Data” on page 149.

Special Point: Required CMF Fields

If you are using the CICS Monitoring Control Table (MCT) Exclude/Include parameters to reduce the size of the performance class record, you must ensure that the data fields required for the Cross-System Work Report and Extract are not excluded.

The fields that must be collected in the performance class records to ensure correct correlation of the data records for the Cross-System Work Report and Extract are:

Owner	Field Id	CICS Informal Name
DFHCICS	112	RTYPE
DFHCICS	130	RSYSID
DFHDEST	091	TDTOTCT
DFHFILE	093	FCTOTCT
DFHPROG	071	PGMNAME
DFHPROG	113	ABCODEO
DFHTASK	031	TRANNUM
DFHTASK	066	ICTOTCT (<i>See note 2</i>)
DFHTASK	097	NETUOWPX
DFHTASK	098	NETUOWSX
DFHTASK	163	FCTYNAME (<i>See note 1</i>)
DFHTASK	164	TRANFLAG (<i>See note 1</i>)
DFHTEMP	092	TSTOTCT
DFHTERM	111	LUNAME
DFHTERM	169	TERMCNNM (<i>See note 1</i>)

Notes:

1. These fields are only available in the CMF performance class data from CICS Transaction Server Version 1.1 or later.
2. This field is only available in the CMF performance class data from CICS Transaction Server Version 1.2 or later.

The Cross-System Work Report shown in Figure 20 was created using the command:

CICSPA CROSS(PRINTS,PRINTM,NOWRITE,OUTPUT(CROS0001))

V1R2M0		CICS Performance Analyzer										Page 8			
CROS0001 Printed at 11:36:16 3/01/2002 Data from 11:10:29 2/04/2002 to 11:33:51 2/04/2002															
Cross-System Work															
Tran	Userid	SC	TranType	Term	LUName	Request Type	Fcty Program	Conn T/Name	NETName	APPLID	UOW Task	R Seq	Stop Time	Response Time	A B
STOC	BRENNER	U	U	R		AP:	DFH0STOC		GBIBMIYA.IGCS23C	IYK2Z1V3	242	1 T	11:19:41.001	.7984	
RED1	BRENNER	U	U	R		AP:	DFH0RED1		GBIBMIYA.IGCS23C	IYK2Z1V3	241	1 T	11:19:40.337	.1479	
SAL1	BRENNER	TP	U		S23C IGCS23C	AP:	DFH0SAL1	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	239	1 T	11:19:40.334	.1835	
SAL1	BRENNER	TP	U		S23C IGCS23C	AP:	DFH0SAL1	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	251	1 T	11:19:42.763	.0022	
SAL1	BRENNER	TP	U		S23C IGCS23C	AP:	DFH0SAL1	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	255	1 T	11:19:45.463	.0018	
CBAM	BRENNER	TO	U		S23C IGCS23C	AP:	DFHECBAM	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	259	1 T	11:19:55.368	7.0077	
PAYM	BRENNER	TO	U		S23C IGCS23C	AP:	DFH0PAY0	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	289	1 T	11:20:00.569	.0026	
PAY1	BRENNER	TP	U		S23C IGCS23C	AP:	DFH0PAY1	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	294	1 T	11:20:04.202	.1390	
SALE	BRENNER	U	U	R		AP:	DFH0SAL2		GBIBMIYA.IGCS23C	IYK2Z1V3	295	1 T	11:20:04.200	.1353	
3333	BRENNER	TO	U		S23C IGCS23C	AP:	#####	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	300	1 T	11:20:08.003	.0028	
PAYM	BRENNER	TO	U		S23C IGCS23C	AP:	DFH0PAY0	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	303	1 T	11:20:15.964	.0022	
PAY1	BRENNER	TP	U		S23C IGCS23C	AP:	DFH0PAY1	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	305	1 T	11:20:19.635	.0747	
SALE	BRENNER	U	U	R		AP:	DFH0SAL2		GBIBMIYA.IGCS23C	IYK2Z1V3	306	1 T	11:20:19.634	.0715	
CSAC	BRENNER	TO	U		S23C IGCS23C	AP:	DFHACP	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	313	1 T	11:20:44.089	.0017	
CBAM	BRENNER	TO	U		S23C IGCS23C	AP:	DFHECBAM	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	315	1 T	11:20:50.772	3.7993	
RMNU	BRENNER	TO	U		S23C IGCS23C	TR:CJB1		T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	323	1 T	11:20:54.392	.0317	
AMNU	CBAKER	TO	U		R11 IYK2Z1V3	AP:	DFHSAMNU	S/S23C CJB3	GBIBMIYA.IGCS23C	IYK2Z1V1	158	1 T	11:20:54.390	.0228	
AINQ	BRENNER	TO	U		S23C IGCS23C	AP:	DFHSAALL	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	328	1 T	11:21:09.562	.0020	
AINQ	BRENNER	TO	U		S23C IGCS23C	AP:	DFHSAALL	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	341	1 T	11:21:19.474	.0020	
AMNU	BRENNER	TP	U		S23C IGCS23C	AP:	DFHSAMNU	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	356	1 T	11:21:54.064	.0026	
AUPD	BRENNER	TO	U		S23C IGCS23C	AP:	DFHSAALL	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	358	1 T	11:22:10.664	.0020	
1111	BRENNER	TO	U		S23C IGCS23C	AP:	#####	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	360	1 T	11:22:15.068	.0021	
AUPD	BRENNER	TO	U		S23C IGCS23C	AP:	DFHSAALL	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	362	1 T	11:22:19.768	.0046	
RUPD	BRENNER	TO	U		S23C IGCS23C	TR:CJB1		T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	364	1 T	11:22:36.066	.0029	
AUPD	CBAKER	TO	U		R11 IYK2Z1V3	AP:	DFHSAALL	S/S23C CJB3	GBIBMIYA.IGCS23C	IYK2Z1V1	192	1 T	11:22:36.066	.0013	
CSAC	BRENNER	TO	U		S23C IGCS23C	AP:	DFHACP	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	379	1 T	11:24:25.574	.0023	
RING	BRENNER	TO	U		S23C IGCS23C	AP:	#####	T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	547	1 T	11:26:23.878	.0020	
RINQ	BRENNER	TO	U		S23C IGCS23C	TR:CJB1		T/S23C	GBIBMIYA.IGCS23C	IYK2Z1V3	548	1 T	11:26:30.167	.0036	
AINQ	CBAKER	TO	U		R11 IYK2Z1V3	AP:	DFHSAALL	S/S23C CJB3	GBIBMIYA.IGCS23C	IYK2Z1V1	232	1 T	11:26:30.166	.0014	

Figure 20. Example of a Cross-System Work Report

The following fields are shown on the Cross-System Work Report. For more information on these fields, see “CMF Performance Class Data Fields” on page 154.

Tran

The Transaction id (field: TRAN, owner: DFHTASK, field id: 001) identifies the name of the transaction that this performance class record represents. Applications that are using Distributed Program Link (DPL) requests should use the TRANSID('xxxx') parameter on the EXEC CICS LINK PROGRAM('xxxxxxx') command to enable better transaction/application analysis from the monitoring

Cross-System Work Report

performance class data. If the TRANSID('xxxx') parameter is not specified all the performance class records on the target system for a Distributed Program Link (DPL) mirror transaction will have the same transaction id. For example, 'CSMI' for a Distributed Program Link (DPL) request from another connected CICS system.

Userid

The User identifier of the transaction (owner: DFHCICS, field id: 089).

SC

Type of transaction start or start code (owner: DFHTASK, field id: 004).

TranType

This column describes the transaction type as shown in the following table:

TranType	Description
S	System transaction.
U	User transaction.
M	Mirror transaction.
D	DPL Mirror transaction.
O	ONC RPC Alias transaction.
W	WEB Alias transaction.
B	Bridge transaction.
-	Reserved.
R	CICS BTS Run (ACQPROCESS or activity) transaction synchronous.

The transaction type is represented as an byte 1 of the transaction flags field (owner: DFHTASK, field id: 164).

Term

The Terminal id (field: TERM, owner: DFHTERM, field id: 002) is either the terminal id or the session id. This field is blank if the transaction was not associated with a terminal or session facility.

LUName

The LUName (field: LUNAME, owner: DFHTERM, field id: 111) is either the VTAM® netname of the terminal id (if the Access Method for the terminal is VTAM) or the VTAM APPLID of the connection for the session id. For an EXCI connection, this field will be blank. The transaction's terminal or session type can be identified from the NATURE field (byte 0) within the terminal information field (field: TERMINFO, owner: DFHTERM, field id: 165). This field is blank if the transaction was not associated with a terminal or session facility.

Request Type

This field describes the type of request that the performance record represents:

Description

AP: Means an application program request. The **Program** field will identify the initial application program name invoked for the transaction.

Note: Function shipped Distributed Program Link (DPL) requests are interpreted as application requests. In this case the **AP:** is followed by the '----' (as for other function shipping requests) to indicate the type(s) of requests issued by the application program.

FS:---- Means a function shipping request. The '----' indicate the type(s) of function shipping request:

- F** File Control
- I** Interval Control
- D** Transient Data
- S** Temporary Storage

TR:xxxx Means a transaction routing request from a terminal-owning region. The 'xxxx' is the transaction routing sysid from the RSYSID field (owner: DFHCICS, field id: 130) and identifies the connection name (sysid) of the remote system to which the transaction was routed.

Program

The Initial Program Name (field: PGMNAME, owner: DFHPROG, field id: 071) identifies the initial application program invoked for the transaction. Depending on the type of transaction, this field contains either the application program name as defined in the transaction definition, the program name returned by a user written dynamic routing program, the application program name passed on a function shipped Dynamic Program Link (DPL) request, the initial application program name of an ONC RPC Alias Transaction, or the initial application program name of a WEB Alias Transaction. A program name of ##### indicates that the transaction was invoked using the definition of the transaction id specified by the DTRTRAN system initialization parameter.

FCTY T

This field is an interpretation of byte 0 of the transaction flags field (owner: DFHTASK, field id: 164) and describes the transaction's facility type:

<i>Type</i>	<i>Description</i>
<i>blank</i>	None
T	Terminal or Session
S	Surrogate
D	Transient Data queue
B	Bridge Terminal

FCTY Name

The transaction's facility name (owner: DFHTASK, field id: 163).

Conn Name

The terminal session connection name (owner: DFHTERM, field id: 169). If the terminal facility associated with this transaction is a session, then this field is the name of the owning connection (sysid).

NETName

This column is the Network Unit-of-Work id (field: NETUOWPX, owner: DFHTASK, field id: 097) from the system where the network unit-of-work id originated. This name is constant within each network unit-of-work id.

For more information on the NETUOWPX field, see page 176.

APPLID

The APPLID of the CICS system upon which the CMF performance record was created. This field indicates the CICS system that performed the work recorded in the record.

Task

The transaction identification number (owner: DFHTASK, field id: 031). This is printed for all records to help identify the corresponding record(s) on a Performance List Report.

UOW Seq

This column is the syncpoint sequence number from the Network Unit-of-Work id (field: NETUOWSX, owner: DFHTASK, field id: 098) that was assigned at transaction attach time.

For more information on the NETUOWSX field, see page 177.

R T

This field describes the performance class record type (owner: DFHCICS, field id: 112):

- C** Record output for a terminal converse.
- D** Record output by a user event monitoring point (EMP) DELIVER request.
- F** Record output for a long running transaction.
- S** Record output for a syncpoint request.
- T** Record was output for a transaction termination (detach).

Stop Time

Stop time (hh:mm:ss.thm) of the transaction (owner: DFHCICS, field id: 006). The transactions within the same network unit-of-work are generally displayed in ascending stop time sequence. This may not always be true, however, due to syncpointing within the transaction, and to the difficulties involved in synchronizing the STORE CLOCK (STCK) values between different CPUs.

A B

Y in this column indicates that the transaction abended.

Response Time

The transaction response time. This field is calculated by subtracting the transaction Start Time (owner: DFHCICS, field id: 005) from the transaction Stop Time (owner: DFHCICS, field id: 006).

Report Content (Cross-System Work Extended)

You can tailor the format of the Cross-System Work Report. To use the CICS PA dialog to do this, simply specify a LIST or LISTX Report Form for the Cross-System Work Report. This produces the Cross-System Work Extended Report like the example shown in Figure 21. The commands to request this report are:

```
CICSPA IN(SMFIN001),
LISTX(OUTPUT(CROS0001),
EXTERNAL(CPAXW001),
NOPRINTMULTIPLE,PRINTSINGLE,
BY(UOWID),
FIELDS(TRAN,
RESPONSE,
USERID,
TASKNO,
STOP(TIMET),
RESPONSE,
DISPATCH(TIME),
DISPATCH(COUNT),
CPU(TIME),
SUSPEND(TIME),
SUSPEND(COUNT),
DISPWAIT(TIME),
DISPWAIT(COUNT),
IRWAIT(TIME)))
```

V1R2M0 CICS Performance Analyzer
Cross-System Work Extended

CROS0001 Printed at 0:56:39 7/23/2002 Data from 15:41:19 7/12/2002 to 16:19:15 7/12/2002 Page 1

Tran	Response Time	Userid	TaskNo	Stop Time	Response Time	Dispatch Time	Dispatch Count	User CPU Time	Suspend Time	Suspend Count	DispWait Time	DispWait Count	IR Wait Time
CPLT	.3939	CICSUSER	6	15:41:19.419	.3939	.0782	3	.0325	.3158	3	.3149	2	.0000
CSSY	71.4053	CICSUSER	111	15:42:30.828	71.4053	46.9670	401	17.6543	24.4382	401	9.9254	400	.0000
CSSY	4.9137	CICSUSER	12	15:41:24.346	4.9137	.4928	66	.0476	4.4209	66	2.5618	65	.0000
CSSY	5.3932	CICSUSER	10	15:41:24.822	5.3932	.8932	59	.2172	4.4999	59	2.7531	58	.0000
CSSY	5.6419	CICSUSER	9	15:41:25.069	5.6419	1.6045	75	.1472	4.0374	75	2.9273	74	.0000
CSSY	5.9801	CICSUSER	13	15:41:25.434	5.9801	.7826	87	.1627	5.1975	87	3.3042	86	.0000
CSSY	2.9653	CICSUSER	14	15:41:22.420	2.9653	1.2597	14	.0555	1.7056	14	.0393	13	.0000
CSSY	.4372	CICSUSER	15	15:41:19.898	.4372	.0037	1	.0034	.4335	1	.0000	0	.0000
CSSY	.5093	CICSUSER	16	15:41:19.977	.5093	.0065	3	.0084	.5028	3	.0103	2	.0000
CGRP	5.4980	CICSUSER	11	15:41:24.928	5.4980	.7931	69	.0613	4.7049	69	3.7141	68	.0000
CSSY	3.3315	CICSUSER	17	15:41:22.805	3.3315	.0995	37	.0269	3.2321	37	1.3057	36	.0000
CPLT	.5196	CICSUSER	6	15:41:29.169	.5196	.1771	3	.0316	.3425	3	.3422	2	.0000

Figure 21. Example of a Cross-System Work Extended Report

Transaction Group Report

The Transaction Group Report accepts data from one or more CICS systems, correlating the data by transaction group id. The default is to print only the CMF performance class records that are contained in a transaction group that includes multiple performance records.

The Transaction Group Report can be used to understand the correlation of the performance class records for the transactions that CICS executes as part of the same incoming work request (for example, the CWXN and CWBA transactions for CICS Web support requests).

You can request a report from all available records, or you can provide criteria to select only the records that meet specific requirements.

Note: The Transaction Group Report is only supported for CMF performance class data from CICS Transaction Server Version 1.3 or later.

Report Command

The command to produce the default report is:

```
CICSPA TRANGROUP
```

To tailor the report, you can specify report options as follows:

```
CICSPA TRANGROUP(  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [PRINTMULTIPLE],  
    [NOPRINTMULTIPLE],  
    [PRINTSINGLE],  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])
```

Report Format

The Transaction Group Report consists of a detail report and a summary report. For the detail report, each line is printed from a single CMF performance class record. Records that are part of the same transaction group are printed sequentially in groups, separated by blank lines. (The printed information allows you to find the corresponding record(s) in the Performance List Report.) The summary report summarizes the information from the performance class records in the detail report.

If you request this report and other reports in the same job, specify an **OUTPUT(ddname)** for each report. Output for the reports must be directed to separate SYSOUT data sets to prevent interleaving of the report lines.

The Transaction Group Report is produced using an external SORT facility. An External Work Data Set is required to store the records before they are sorted. This data set is either specified explicitly using **EXTERNAL(ddname)**, or CICS PA assigns one from the External Work File pool.

The records are sorted in the following order:

1. Transaction Group ID
2. Task Stop Time in reverse (or descending) order.

Note: The Stop Time, sorted in reverse (descending) order, shows the sequence of tasks within the same Transaction Group ID.

For more information on correlating the performance class data by transaction group id, see “Correlating Performance Class Data” on page 149.

Special Point: Required CMF Fields

If you are using the CICS Monitoring Control Table (MCT) Exclude/Include parameters to reduce the size of the performance class record, you must ensure that the data fields required for the Transaction Group Report are not excluded.

The fields that must be collected in the performance class records to ensure correct correlation of the data records for the Transaction Group Report are:

Owner	Field Id	CICS Informal Name
DFHCICS	112	RTYPE
DFHCICS	130	RSYSID
DFHDEST	091	TDTOTCT
DFHFILE	063	FCIOWTT
DFHFILE	093	FCTOTCT
DFHPROG	071	PGMNAME
DFH SOCK	241	CLIPADDR
DFH SOCK	244	SOIOWTT
DFH SOCK	245	TCPSRVCE (<i>See note 1</i>)
DFH SOCK	246	PORTNUM (<i>See note 1</i>)
DFH SOCK	299	SOOIOWTT (<i>See note 1</i>)
DFHTASK	007	USRDISPT
DFHTASK	008	USRCPUT
DFHTASK	014	SUSPTIME
DFHTASK	031	TRANNUM
DFHTASK	066	ICTOTCT (<i>See note 2</i>)
DFHTASK	082	TRNGRPID
DFHTASK	097	NETUOWPX
DFHTASK	098	NETUOWSX
DFHTASK	102	DISPWTT
DFHTASK	124	BRDGTRAN
DFHTASK	163	FCTYNAME
DFHTASK	164	TRANFLAG
DFHTASK	171	RMISUSP
DFHTEMP	092	TSTOTCT
DFHTERM	069	TCALLOCT
DFHTERM	100	IRIOWTT
DFHTERM	111	LUNAME
DFHTERM	169	TERMCNNM

Notes:

1. These fields are only available in the CMF performance class data from CICS Transaction Server Version 2.1 or later.
2. This field is only available in the CMF performance class data from CICS Transaction Server Version 1.2 or later.

Report Content (Detail)

The Transaction Group Report shown in Figure 22 was created using the command:

CICSPA TRANGROUP(PRINTS,PRINTM,OUTPUT(TRGP0001))

V1R2M0		CICS Performance Analyzer Transaction Group														
TRGP0001 Printed at 11:51:08 3/01/2002 Data from 11:10:29 2/04/2002 to 11:33:51 2/04/2002											Page	41				
Tran	Userid	SC	Origin	Brdg	Client	Request	Program	Term	LUName	Fcty	Conn	R	Response			
				Tran	IP Address	Type				T/Name	Name	APPLID	Task	T	Stop Time	Time
SALE	BRENNER	U	SCHEDULE			AP:	DFH0SAL2					IYK2Z1V3	268	T	11:19:52.38	.0399
SALE	BRENNER	U	SCHEDULE			AP:	DFH0SAL2					IYK2Z1V3	279	T	11:19:57.58	.0683
REM1	BRENNER	U	SCHEDULE			AP:	DFH0REM1					IYK2Z1V3	281	T	11:19:57.60	.0231
SALE	BRENNER	U	SCHEDULE			AP:	DFH0SAL2					IYK2Z1V3	282	T	11:19:57.64	.0405
STAT	CBAKER	TO	BRIDGE	CWBA		AP:	DFH0STAT	CAAE	CAAE	B/CAAE		IYK2Z1V3	292	T	11:20:12.04	10.5089
CWBA	CBAKER	U	WEB		9.20.30.232	AP:	DFHWBTTA					IYK2Z1V3	291	T	11:20:01.65	.1188
CWXN	CBAKER	U	SOCKET		9.20.30.232	AP:	DFHWBXN					IYK2Z1V3	290	T	11:20:01.54	.0169
SALE	BRENNER	U	SCHEDULE			AP:	DFH0SAL2					IYK2Z1V3	293	T	11:20:02.81	.0568
SALE	BRENNER	U	SCHEDULE			AP:	DFH0SAL2					IYK2Z1V3	296	T	11:20:04.33	.1340
SALE	BRENNER	U	SCHEDULE			AP:	DFH0SAL2					IYK2Z1V3	297	T	11:20:04.33	.1326
CWBA	CBAKER	U	WEB		9.20.30.232	AP:	DFHWBTTA					IYK2Z1V3	299	T	11:20:07.37	1.0015
CWXN	CBAKER	U	SOCKET		9.20.30.232	AP:	DFHWBXN					IYK2Z1V3	298	T	11:20:06.38	.3103
CWBA	CBAKER	U	WEB		9.20.30.232	AP:	DFHWBTTA					IYK2Z1V3	302	T	11:20:12.04	.0423
CWXN	CBAKER	U	SOCKET		9.20.30.232	AP:	DFHWBXN					IYK2Z1V3	301	T	11:20:12.01	.2331
CZUX	CBAKER	QD	TDQUEUE			AP:	DFH0VZUX			D/CSZX		IYK2Z1V3	304	T	11:20:19.36	.0078
SALE	BRENNER	U	SCHEDULE			AP:	DFH0SAL2					IYK2Z1V3	307	T	11:20:20.34	.7041
SALE	BRENNER	U	SCHEDULE			AP:	DFH0SAL2					IYK2Z1V3	308	T	11:20:20.43	.7920
CWXN	CBAKER	U	SOCKET		9.20.30.232	AP:	DFHWBXN					IYK2Z1V3	331	T	11:34:12.76	782.697
CEMT	CBAKER	TO	BRIDGE	CWBA		AP:	DFHEMTP	CAAG	CAAG	B/CAAG		IYK2Z1V3	354	T	11:21:55.38	13.3797
CWBA	CBAKER	U	WEB		9.20.30.232	AP:	DFHWBTTA					IYK2Z1V3	353	T	11:21:42.10	.0986
CWBA	CBAKER	U	WEB		9.20.30.232	AP:	DFHWBTTA					IYK2Z1V3	332	T	11:21:10.12	.0529
CWXN	CBAKER	U	SOCKET		9.20.30.232	AP:	DFHWBXN					IYK2Z1V3	333	T	11:25:52.65	282.577
CWBA	CBAKER	U	WEB		9.20.30.232	AP:	DFHWBTTA					IYK2Z1V3	351	T	11:21:32.85	.0378
CWBA	CBAKER	U	WEB		9.20.30.232	AP:	DFHWBTTA					IYK2Z1V3	334	T	11:21:10.12	.0485
CZUX	CBAKER	QD	TDQUEUE			AP:	DFH0VZUX			D/CSZX		IYK2Z1V3	340	T	11:21:19.48	.0240
CITS	CBAKER	U	NONE			AP:	DFHZATS					IYK2Z1V3	350	T	11:21:31.67	.0063
CZUX	CBAKER	QD	TDQUEUE			AP:	DFH0VZUX			D/CSZX		IYK2Z1V3	361	T	11:22:19.53	.0079
CZUX	CBAKER	QD	TDQUEUE			AP:	DFH0VZUX			D/CSZX		IYK2Z1V3	370	T	11:23:19.63	.0105
CZUX	CBAKER	QD	TDQUEUE			AP:	DFH0VZUX			D/CSZX		IYK2Z1V3	375	T	11:24:19.88	.0047
CZUX	CBAKER	QD	TDQUEUE			AP:	DFH0VZUX			D/CSZX		IYK2Z1V3	455	T	11:25:19.94	.0083

Figure 22. Example of a Transaction Group Report (Detail)

Transaction Group Report

This section gives a brief description of the performance class data fields shown in the Transaction Group Report. For more information, see “CMF Performance Class Data Fields” on page 154.

Tran

The Transaction id (field: TRAN, owner: DFHTASK, field id: 001) identifies the name of the transaction that this performance class record represents. Applications that are using Distributed Program Link (DPL) requests should use the TRANSID('xxxx') parameter on the EXEC CICS LINK PROGRAM('xxxxxxx') command to enable better transaction/application analysis from the monitoring performance class data. If the TRANSID('xxxx') parameter is not specified, all the performance class records on the target system for a Distributed Program Link (DPL) mirror transaction will have the same transaction id. For example, 'CSMI' for a Distributed Program Link (DPL) request from another connected CICS system.

Userid

The User identifier of the transaction (owner: DFHCICS, field id: 089).

SC

Type of transaction start or start code (field: TTYPE, owner: DFHTASK, field id: 004).

Origin

This field is an interpretation of the transaction origin type from byte 4 of the transaction flags field (field: TRANFLAG, owner: DFHTASK, field id: 164) and can be used as an indicator of the source of the transaction. This field can have one of the following values:

<i>Origin Type</i>	<i>Description</i>
NONE	None
TERMINAL	Terminal
TDQUEUE	Transient data queue
START	Start
TERM START	Terminal start
SCHEDULE	CICS BTS scheduler (CSHQ)
XM RUN	XM run transaction
BRIDGE	Bridge
SOCKET	Socket
WEB	Web
IIOF	IIOF
RRS	RRS
LU6.1 SESS	LU 6.1 session
LU6.2 SESS	LU 6.2 (APPC) session
MRO SESS	MRO session
ECI SESS	ECI session
IIRQ RECVR	II Request Receiver
RZ ST TRPT	Request Stream in-storage transport

The ***Origin Type*** is an interpretation of the primary transaction client type with which the transaction was attached using the CICS Transaction Manager.

Brdg Tran

This field contains the name of the bridge listener transaction for those transactions that are attached by the CICS 3270 Bridge interface.

Client IP Address

The client IP address in the interpreted format of *nnn.nnn.nnn.nnn* (owner: DFH SOCK, field id: 244).

Term

The Terminal id (field: TERM, owner: DFH TERM, field id: 002) is either the terminal id or the session id. This field is blank if the transaction was not associated with a terminal or session facility.

LUName

This field (field: LUNAME, owner: DFH TERM, field id: 111) is either the VTAM netname of the terminal id (if the Access Method for the terminal is VTAM) or the VTAM APPLID of the connection for the session id. For an EXCI connection, this field will be blank. The transaction's terminal or session type can be identified from the NATURE field (byte 0) within the terminal information field (field: TERMINFO, owner: DFH TERM, field id: 165). This field is blank if the transaction was not associated with a terminal or session facility.

Request Type

This field describes the type of request that the performance record represents:

Description

AP: Means an application program request. The **Program** field will identify the initial application program name invoked for the transaction.

Note: Function shipped Distributed Program Link (DPL) requests are interpreted as application requests. In this case the **AP:** is followed by the '----' (as for other function shipping requests) to indicate the type(s) of requests issued by the application program.

FS:---- Means a function shipping request. The '----' indicate the type(s) of function shipping request:

F	File Control
I	Interval Control
D	Transient Data
S	Temporary Storage

TR:xxxx Means a transaction routing request from a terminal-owning region. The 'xxxx' is the transaction routing sysid (field: RSY SID, owner: DFH CICS, field id: 130) and identifies the connection name (sysid) of the remote system to which the transaction was routed.

Program

The Initial Program Name (field: PGMNAME, owner: DFH PROG, field id: 071) identifies the initial application program invoked for the transaction. Depending on the type of transaction, this field contains either the application program name as defined in the transaction definition, the program name returned by a user written dynamic routing program, the application program name passed on a function shipped Dynamic Program Link (DPL) request, the initial application program name of an ONC RPC Alias Transaction, or the initial application program name of a WEB Alias Transaction. A program name of ##### indicates that the transaction was invoked using the definition of the transaction id specified by the DTRTRAN system initialization parameter.

Transaction Group Report

Fcty T

This field is an interpretation of byte 0 of the transaction flags field (owner: DFHTASK, field id: 164) and describes the transaction's facility type:

Facility

Type	Description
<i>blank</i>	None
T	Terminal or Session
S	Surrogate
D	Transient Data queue
B	Bridge Terminal

Fcty Name

The transaction's facility name (owner: DFHTASK, field id: 163).

Conn Name

The terminal session connection name (owner: DFHTERM, field id: 169). If the terminal facility associated with this transaction is a session, then this field is the name of the owning connection (sysid).

APPLID

The APPLID of the CICS system upon which the CMF performance record was created. This field indicates the CICS system that performed the work recorded in the record.

Task

The transaction identification number (owner: DFHTASK, field id: 031). This is printed for all records to help identify the corresponding record on a Performance List Report.

R T

This field describes the performance class record type (owner: DFHCICS, field id: 112):

C	Record output for a terminal converse.
D	Record output by a user event monitoring point (EMP) DELIVER request.
F	Record output for a long running transaction.
S	Record output for a syncpoint request.
T	Record was output for a transaction termination (detach).

Stop Time

Stop time of the transaction (owner: DFHCICS, field id: 006). The transactions within the same network unit-of-work are generally displayed in ascending stop time sequence. This may not always be true, however, due to syncpointing within the transaction, and to the difficulties involved in synchronizing the STORE CLOCK (STCK) values between different CPUs.

Response Time

The transaction response time. This field is calculated by subtracting the transaction start time (owner: DFHCICS, field id: 005) from the transaction stop time (owner: DFHCICS, field id: 006).

Transaction Group Report

Note: If the transaction response time is followed by an asterisk (*) then the transaction has allocated a session to another CICS system for either transaction routing, function shipping, or distributed transaction processing. This information is determined from the terminal session allocation request count field (owner: DFHTERM, field id: 069). See the Transaction Group Report in Figure 23 for examples of transactions that illustrate this session allocation indicator.

V1R2M0		CICS Performance Analyzer										Page 5			
		Transaction Group													
TRGP0001 Printed at 7:43:07 2/19/2002 Data from 11:10:51 2/14/2002 to 11:34:13 2/14/2002															
Tran	Userid	SC	Origin	Brdg Tran	Client IP Address	Request Type	Program	Term	LUName	Fcty T/Name	Conn Name	APPLID	R Task T	Stop Time	Response Time
3333	BRENNER	TO	TERMINAL			AP: #####	S23C	IGCS23C	T/S23C	IYK2Z1V3			300 T	11:20:08.00	.0028
0AYM	BRENNER	TO	TERMINAL			AP: DFH0PAY0	S23C	IGCS23C	T/S23C	IYK2Z1V3			303 T	11:20:15.96	.0022
PAY1	BRENNER	TP	TERMINAL			AP: DFH0PAY1	S23C	IGCS23C	T/S23C	IYK2Z1V3			305 T	11:20:19.64	.0747
SALE	BRENNER	U	XM RUN			AP: DFH0SAL2				IYK2Z1V3			306 T	11:20:19.63	.0715
CSAC	BRENNER	TO	TERMINAL			AP: DFHACP	S23C	IGCS23C	T/S23C	IYK2Z1V3			313 T	11:20:44.09	.0017
CBAM	BRENNER	TO	TERMINAL			AP: DFHECBAM	S23C	IGCS23C	T/S23C	IYK2Z1V3			315 T	11:20:50.77	3.7993
RMNU	BRENNER	TO	TERMINAL			AP: S23C	IGCS23C	T/S23C	IYK2Z1V3				323 T	11:20:54.39	.0317*
AMNU	BRENNER	TO	MRO SESS			AP: DFHSAMNU	R11	IYK2Z1V3	S/S23C	CJB3	IYK2Z1V1		158 T	11:20:54.39	.0228
AINQ	BRENNER	TO	TERMINAL			AP: DFHSAALL	S23C	IGCS23C	T/S23C	IYK2Z1V3			328 T	11:21:09.56	.0020
AINQ	BRENNER	TO	TERMINAL			AP: DFHSAALL	S23C	IGCS23C	T/S23C	IYK2Z1V3			341 T	11:21:19.47	.0020
AMNU	BRENNER	TP	TERMINAL			AP: DFHSAMNU	S23C	IGCS23C	T/S23C	IYK2Z1V3			356 T	11:21:54.06	.0026
AUPD	BRENNER	TO	TERMINAL			AP: DFHSAALL	S23C	IGCS23C	T/S23C	IYK2Z1V3			358 T	11:22:10.66	.0020
1111	BRENNER	TO	TERMINAL			AP: #####	S23C	IGCS23C	T/S23C	IYK2Z1V3			360 T	11:22:15.07	.0021
AUPD	BRENNER	TO	TERMINAL			AP: DFHSAALL	S23C	IGCS23C	T/S23C	IYK2Z1V3			362 T	11:22:19.77	.0046
RUPD	BRENNER	TO	TERMINAL			AP: S23C	IGCS23C	T/S23C	IYK2Z1V3				364 T	11:22:36.07	.0029*
AUPD	CBAKER	TO	MRO SESS			AP: DFHSAALL	R11	IYK2Z1V3	S/S23C	CJB3	IYK2Z1V1		192 T	11:22:36.07	.0013
CSAC	BRENNER	TO	TERMINAL			AP: DFHACP	S23C	IGCS23C	T/S23C	IYK2Z1V3			379 T	11:24:25.57	.0023
RING	BRENNER	TO	TERMINAL			AP: #####	S23C	IGCS23C	T/S23C	IYK2Z1V3			547 T	11:26:23.88	.0020
RINQ	BRENNER	TO	TERMINAL			AP: S23C	IGCS23C	T/S23C	IYK2Z1V3				548 T	11:26:30.17	.0036*
AINQ	CBAKER	TO	MRO SESS			AP: DFHSAALL	R11	IYK2Z1V3	S/S23C	CJB3	IYK2Z1V1		232 T	11:26:30.17	.0014
AADD	BRENNER	TO	TERMINAL			AP: DFHSAALL	S23C	IGCS23C	T/S23C	IYK2Z1V3			551 T	11:26:41.64	.0016
AADD	BRENNER	TP	TERMINAL			AP: DFHSAALL	S23C	IGCS23C	T/S23C	IYK2Z1V3			561 T	11:27:02.87	.0026
AINQ	BRENNER	TO	TERMINAL			AP: DFHSAALL	S23C	IGCS23C	T/S23C	IYK2Z1V3			564 T	11:27:11.57	.0023

Figure 23. Example of a Transaction Group Report (Using PRINTS,NOPRINTM)

Report Content (Summary)

V1R2M0		CICS Performance Analyzer Transaction Group – Summary									
TRGP0001 Printed at 15:05:46 3/27/2002 Data from 11:10:51 3/24/2002 to 11:34:13 3/24/2002											
Page 45											
Origin Type	Transactions	Average Response	Average Dispatch	Average CPU Time	Average Suspend	Average DispWait	Average IR Wait	Average RMI Susp	Average FC Wait	Average SO Wait	
BRIDGE	17	10.140	.000	.000	.010	.000	.000	.000	.000	.000	
MRO SESS	163	.634	.000	.000	.001	.000	.001	.000	.000	.000	
NONE	51	82.697	.001	.000	.082	.000	.000	.000	.000	.000	
SCHEDULE	62	.280	.000	.000	.000	.000	.000	.000	.000	.000	
SOCKET	50	44.630	.000	.000	.045	.000	.000	.000	.000	.045	
START	22	.332	.000	.000	.000	.000	.000	.000	.000	.000	
TDQUEUE	23	.012	.000	.000	.000	.000	.000	.000	.000	.000	
TERM START	10	.018	.000	.000	.000	.000	.000	.000	.000	.000	
TERMINAL	860	4.150	.000	.000	.004	.000	.000	.000	.000	.000	
WEB	60	.154	.000	.000	.000	.000	.000	.000	.000	.000	
XM RUN	16	.424	.000	.000	.000	.000	.000	.000	.000	.000	
-----		-----		-----		-----		-----		-----	
TOTAL	1334	7.747	.000	.000	.008	.000	.000	.000	.000	.002	

Figure 24. Example of a Transaction Group Report (Summary)

The Transaction Group Summary Report summarizes the information from the performance class records in the detail report:

Origin Type

The transaction origin type; see page 50 for details.

Transactions

The total number of transactions completed.

Average Response

The average response time. This field is calculated by subtracting the transaction start time (owner: DFHCICS, field id: 005) from the transaction stop time (owner: DFHCICS, field id: 006).

Average Dispatch

The average dispatch time (owner: DFHTASK, field id: 007).

Average CPU Time

The average CPU time (owner: DFHTASK, field id: 008).

Average Suspend

The average suspend time (owner: DFHTASK, field id: 014).

Average DispWait

The average dispatch wait time (owner: DFHTASK, field id: 102).

Average IR Wait Time

The average inter-region (MRO) I/O wait time (owner: DFHTERM, field id: 100).

Average RMI Susp

The average RMI suspend time (owner: DFHTASK, field id: 171).

Average FC Wait

The average file I/O wait time (owner: DFHFILE, field id: 063).

Average SO Wait

The average inbound socket I/O wait time (owner: DFH SOCK, field id: 241).

BTS Report

The BTS Report accepts data from one or more CICS systems, correlating the data by CICS BTS process id (root activity id).

You can request a report from all available records, or you can provide criteria to select only the records that meet specific requirements.

Note: The BTS Report is only supported for CMF performance class data from CICS Transaction Server Version 1.3 or later.

Report Command

The command to produce the default report is:

```
CICSPA BTS
```

To tailor the report, you can specify report options as follows:

```
CICSPA BTS(
    [OUTPUT(ddname),]
    [EXTERNAL(ddname),]
    [LINECOUNT(nnn),]
    [TITLE1('...sub-heading left ...'),]
    [TITLE2('...sub-heading right...'),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
        ...))])
```

Report Content

On the BTS Report, each line is printed from a single CMF performance class record. Records that are part of the same CICS BTS Process ID (Root Activity ID) are printed sequentially in groups, separated by blank lines. (The printed information allows you to find the corresponding record(s) in the Performance List Report.)

The BTS Report is produced using an external SORT facility. An External Work Data Set is required to store the records before they are sorted. This data set is either specified explicitly using **EXTERNAL(ddname)**, or CICS PA assigns one from the External Work File pool.

The records are sorted in the following order:

1. by CICS BTS Process ID (Root Activity ID)
2. by Transaction Identification Number
3. by Task Stop Time in ascending order

Note: The Transaction Identification Number is only used for those transactions that have had some CICS BTS request activity, as determined from the Total Request count fields, but which do not have a CICS BTS Process ID (Root Activity ID).

For more information on correlating the performance class data by CICS BTS Process ID, see “Correlating Performance Class Data” on page 149.

Figure 25 on page 56 shows an example of the BTS Report.

BTS Report

V1R2M0		CICS Performance Analyzer					Business Transaction Services (BTS)				
CBTS0001 Printed at 9:54:40 3/28/2002 Data from 11:10:51 3/24/2002 to 11:34:13 3/24/2002						Page	1				
Tran	SC	TranType	Process Name	Process Type	Activity Name	Pro/Act Reqs	Cont'er Reqs	Event Reqs	R Task T	Stop Time	Response Time
SAL1	TP	U				2	2	0	146	T 11:17:04.85	.6881
PAY1	TP	U				2	0	0	160	T 11:17:12.21	.2010
SAL1	TP	U				2	2	0	174	T 11:17:53.63	.1657
PAY1	TP	U				2	0	0	197	T 11:18:14.42	.0861
SAL1	TP	U				2	2	0	211	T 11:18:47.27	.1222
SAL1	TP	U				2	2	0	239	T 11:19:40.33	.1835
PAY1	TP	U				2	0	0	294	T 11:20:04.20	.1390
PAY1	TP	U				2	0	0	305	T 11:20:19.64	.0747
RED1	U	U	R SALES111111	ORDER	CREDIT-CHECK	0	2	1	176	T 11:17:54.05	.5333
STOC	U	U	R SALES111111	ORDER	STOCK-CHECK	0	2	1	177	T 11:17:54.05	.5145
SALE	U	U	R SALES111111	ORDER	DFHROOT	10	5	4	175	T 11:17:54.05	.5675
INV1	U	U	SALES111111	ORDER	INVOICE-BUILD	0	1	1	178	T 11:17:54.09	.0359
DEL1	U	U	SALES111111	ORDER	DELIV-NOTE	0	1	1	179	T 11:17:55.29	1.2323
SALE	U	U	SALES111111	ORDER	DFHROOT	0	0	0	180	T 11:17:55.31	1.2198
SALE	U	U	SALES111111	ORDER	DFHROOT	1	3	2	183	T 11:17:55.37	.0800
SALE	U	U	SALES111111	ORDER	DFHROOT	1	3	5	184	T 11:17:55.42	.0519
SALE	U	U	SALES111111	ORDER	DFHROOT	2	2	1	186	T 11:18:00.65	.0566
REM1	U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	187	T 11:18:00.68	.0243
SALE	U	U	SALES111111	ORDER	DFHROOT	1	0	3	188	T 11:18:00.72	.0389
SALE	U	U	SALES111111	ORDER	DFHROOT	2	2	1	191	T 11:18:05.92	.0826
REM1	U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	192	T 11:18:05.96	.0367
SALE	U	U	SALES111111	ORDER	DFHROOT	1	0	3	193	T 11:18:06.04	.0824
SALE	U	U	SALES111111	ORDER	DFHROOT	2	2	1	194	T 11:18:11.13	.0463
REM1	U	U	SALES111111	ORDER	SEND-REMINDER	0	1	1	195	T 11:18:11.16	.0282
SALE	U	U	SALES111111	ORDER	DFHROOT	1	0	3	196	T 11:18:11.20	.0437
SALE	U	U	R SALES111111	ORDER	DFHROOT	0	1	3	198	T 11:18:14.42	.0821
SALE	U	U	SALES111111	ORDER	DFHROOT	0	0	0	199	T 11:18:15.03	.6101
RED1	U	U	R SALES222222	ORDER	CREDIT-CHECK	0	2	1	213	T 11:18:47.79	.6162
STOC	U	U	R SALES222222	ORDER	STOCK-CHECK	0	2	1	214	T 11:18:47.79	.6072
SALE	U	U	R SALES222222	ORDER	DFHROOT	10	5	4	212	T 11:18:47.79	.6282
INV1	U	U	SALES222222	ORDER	INVOICE-BUILD	0	1	1	215	T 11:18:47.82	.0312
DEL1	U	U	SALES222222	ORDER	DELIV-NOTE	0	1	1	216	T 11:18:49.58	1.7859
SALE	U	U	SALES222222	ORDER	DFHROOT	0	0	0	217	T 11:18:49.59	1.7700
SALE	U	U	SALES222222	ORDER	DFHROOT	1	3	2	219	T 11:18:49.63	.0488
SALE	U	U	SALES222222	ORDER	DFHROOT	1	3	5	220	T 11:18:49.67	.0399
SALE	U	U	SALES222222	ORDER	DFHROOT	2	2	1	222	T 11:18:54.91	.0479
REM1	U	U	SALES222222	ORDER	SEND-REMINDER	0	1	1	223	T 11:18:54.93	.0244
SALE	U	U	SALES222222	ORDER	DFHROOT	1	0	3	224	T 11:18:54.97	.0400
SALE	U	U	SALES222222	ORDER	DFHROOT	2	2	1	225	T 11:19:00.14	.0408
REM1	U	U	SALES222222	ORDER	SEND-REMINDER	0	1	1	226	T 11:19:00.17	.0248
SALE	U	U	SALES222222	ORDER	DFHROOT	1	0	3	227	T 11:19:00.21	.0386
SALE	U	U	SALES222222	ORDER	DFHROOT	2	2	1	228	T 11:19:05.39	.0419

Figure 25. Example of a BTS Report

Special Point: Required CMF Fields

If you are using the CICS Monitoring Control Table (MCT) Exclude/Include parameters to reduce the size of the performance class record, you must ensure that the data fields required for the BTS Report are not excluded.

The fields that must be collected in the performance class records to ensure correct correlation of the data records are:

Owner	Field Id	CICS Informal Name
DFHCBTS	200	PRCSNAME
DFHCBTS	201	PRCSTYPE
DFHCBTS	202	PRCSID
DFHCBTS	204	ACTVTYNM
DFHCBTS	215	BATOTPCT
DFHCBTS	218	BATOTCCT
DFHCBTS	222	BATOTECT
DFHCICS	112	RTYPE
DFHTASK	031	TRANNUM
DFHTASK	164	TRANFLAG

The following fields are shown on the CICS Business Transaction Services Report. For more information on the fields, see “CMF Performance Class Data Fields” on page 154.

Tran

The Transaction ID (field: TRAN, owner: DFHTASK, field id: 001) identifies the name of the transaction that this performance class record represents. Applications that are using Distributed Program Link (DPL) requests should use the TRANSID('xxxx') parameter on the EXEC CICS LINK PROGRAM('xxxxxxxx') command to enable better transaction/application analysis from the monitoring performance class data. If the TRANSID('xxxx') parameter is not specified, all the performance class records on the target system for a Distributed Program Link (DPL) mirror transaction will have the same Transaction ID. For example, 'CSMI' for a Distributed Program Link (DPL) request from another connected CICS system.

SC

The Transaction Start Type (field: STYPE, owner: DFHTASK, field id: 004).

TranType

This column describes the Transaction Type as shown in the following table:

TranType	Description
S	System transaction.
U	User transaction.
M	Mirror transaction.
D	DPL Mirror transaction.
O	ONC RPC Alias transaction.
W	WEB Alias transaction.
B	Bridge transaction.
-	Reserved.
R	CICS BTS Run (ACQPROCESS or activity) transaction synchronous.

The transaction type is represented as an interpretation of byte 1 of the transaction flags field (owner: DFHTASK, field id: 164).

Process Name

The name of the CICS Business Transaction Service (BTS) process (owner: DFHCBTS, field id: 200) of which the user task formed part.

Process Type

The process-type of the CICS BTS process (owner: DFHCBTS, field id: 201) of which the user task formed part.

Activity Name

The name of the CICS BTS activity (owner: DFHCBTS, field id: 204) that the user task implemented.

Pro/Act Reqs

The total number of CICS BTS process and activity requests (owner: DFHCBTS, field id: 215) issued by the user task.

Cont'er Reqs

The total number of CICS BTS process container and activity container requests (owner: DFHCBTS, field id: 218) issued by the user task.

Event Reqs

The total number of CICS BTS event-related requests (owner: DFHCBTS, field id: 222) issued by the user task.

Task

The transaction identification number (owner: DFHTASK, field id: 031). This is printed for all records to help identify the corresponding record(s) on a Performance List Report.

R T

This field describes the performance class record type (owner: DFHCICS, field id: 112):

- C Record output for a terminal converse.
- D Record output by a user event monitoring point (EMP) DELIVER request.
- F Record output for a long running transaction.
- S Record output for a syncpoint request.
- T Record output for a transaction termination (detach).

Stop Time

Stop time of the transaction (owner: DFHCICS, field id: 006). The transactions within the same network unit-of-work are generally displayed in ascending stop time sequence. This may not always be true, however, due to syncpointing within the transaction, and to the difficulties involved in synchronizing the STORE CLOCK (STCK) values between different CPUs.

Response Time

The transaction response time. This field is calculated by subtracting the transaction start time (owner: DFHCICS, field id: 005) from the transaction stop time (owner: DFHCICS, field id: 006).

For more information on CICS Business Transaction Services (BTS), see the *CICS Business Transaction Services* manual.

Workload Activity Report

The Workload Activity Report provides a transaction response time analysis by MVS Workload Manager (WLM) service and report class. This can be used in conjunction with the z/OS Resource Measurement Facility (RMF) workload activity reports to understand from a CICS perspective how well your CICS transactions are meeting their response time goals.

The Workload Activity List report is a cross-system report that correlates CMF performance class data from single or multiple CICS systems for each network unit-of-work. Importantly, this report ties MRO and function shipping tasks to their originating task so that their impact on response time can be assessed.

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

Note: The Workload Activity Report is only supported for CMF performance class data from CICS Transaction Server Version 1.1 or later.

The report processes all CMF transaction performance class records for network units-of-work containing multiple performance records as well as those with only a single performance record.

You can request a report from all available records, or you can provide criteria for data selection to request a report from only the records that meet specific requirements.

Report Command

You can request a detailed list of transaction activity, a summary report, or both.

The command to produce the default report, a summary report of BTE transactions, is:

```
CICSPA WORKLOAD or CICSPA WORKLOAD(SUMMARY)
```

To produce a summary report of BTE and EXE Y transactions:

```
CICSPA WORKLOAD(SUMMARY(EXE))
```

To produce a list report detailing BTE, EXE Y, and EXE N transactions:

```
CICSPA WORKLOAD(LIST)
```

To tailor the report, you can specify report options as follows:

```
CICSPA WORKLOAD(  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [LIST,]  
    [SUMMARY[(EXE)],]  
    [PEAK(nnn),]  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...)))]  
)
```

WLM is a valid alias for the **WORKLOAD** operand.

Report Format

The Workload Activity Report consists of a List report and a Summary report. For the List report, each line is printed from a single CMF performance class record. Records that are part of the same network unit-of-work are printed sequentially in groups, each group separated by a blank line. (The printed information allows you to find the corresponding record(s) in the Performance List Report.) The Summary report summarizes the information by Service Class and by Report Class.

The Workload Activity Report is produced using an external SORT facility. An External Work Data Set is required to store the records before they are sorted. This data set is either specified explicitly using **EXTERNAL(ddname)**, or CICS PA assigns one from the External Work File pool.

Note: If only the Summary report is requested, without EXE and without the List report, no external SORT is required.

The records are sorted in the following order:

1. by network unit-of-work NETNAME
2. by network unit-of-work ID
3. by syncpoint count concatenated with the task stop time in reverse (or descending) order

Note: In the third sort field, the syncpoint count is used to resolve unsynchronized STORE CLOCK (STCK) values between systems. The syncpoint count and stop time, sorted in reverse (descending) order, shows the sequence of tasks within the network unit-of-work. In some cases (for example, where user event monitor points (EMPs) are used), the syncpoint count does not reflect the sequence of events within a network unit-of-work. For these instances, all the task records are printed, but not necessarily in the order they happened. You can tell that this situation exists if the stop times are not in descending order.

For more information on correlating the performance class data by network unit-of-work id, see “Correlating Performance Class Data” on page 149.

Workload Activity Report

Special Point: Required CMF Fields

If you are using the CICS Monitoring Control Table (MCT) Exclude/Include parameters to reduce the size of the performance class record, you must ensure that the data fields required for the Workload Activity Report are not excluded.

The fields that must be collected in the performance class records to ensure correct correlation of the data records for the Workload Activity Report are:

Owner	Field Id	CICS Informal Name
DFHCICS	112	RTYPE
DFHCICS	130	RSYSID
DFHCICS	167	SRVCLASS
DFHCICS	168	RPTCLASS
DFHDEST	091	TDTOTCT
DFHFILE	093	FCTOTCT
DFHPROG	071	PGMNAME
DFHTASK	031	TRANNUM
DFHTASK	066	ICTOTCT
DFHTASK	097	NETUOWPX
DFHTASK	098	NETUOWSX
DFHTASK	163	FCTYNAME
DFHTASK	164	TRANFLAG
DFHTEMP	092	TSTOTCT
DFHTERM	111	LUNAME
DFHTERM	169	TERMCNNM

Report Content (List)

The Workload Activity Report shown in Figure 26 was created using the command:

CICSPA WORKLOAD(LIST,OUTPUT(ddname))

V1R2M0		CICS Performance Analyzer										Page 1					
Workload Manager Activity List																	
WKL00001 Printed at 13:33:29 2/04/2002 Data from 15:47:53 2/01/2002 to 15:58:53 2/01/2002																	
Tran	Userid	SC	TranType	Term	Request LUName	Type	Program	Fcty T/Name	Conn Name	Service Class	Report Class	APPLID	R Task	T P C	Stop Time	Response Time	A B
FINA	STEVEP	TP		<AAK	CICPTOR1 AP:		FINANCE	S/0005	53T1	FINSCLAS	FINRCLAS	CICPAOR1	44	T EXE	Y 15:57:53.92	.5239	
FINS	STEVEP	TP		0005	TCP00005 TR:AOR1			T/0005		FINSCLAS	FINRCLAS	CICPTOR1	73	T BTE	15:57:53.93	.5612	
STOA	SHIRLEY	TP		<AAK	CICPTOR1 AP:		STOCK	S/0006	53T1	STOSCLAS	STORCLAS	CICPAOR1	46	T EXE	Y 15:57:54.01	.8574	
STOS	SHIRLEY	TP		0006	TCP00006 TR:AOR1			T/0006		STOSCLAS	STORCLAS	CICPTOR1	78	T BTE	15:57:54.02	.9123	
ORDQ	SYLVIA	TO		0011	TCP00011 AP:		ORDRINQ	T/0011		QUIKSERV	QUIKSERV	CICPAOR1	79	T BTE	15:57:55.12	.3762	
ORDQ	JOHNX	TO		0012	TCP00012 AP:		ORDRINQ	T/0012		QUIKSERV	QUIKSERV	CICPAOR1	82	T BTE	15:50:55.23	.4321	
ORDU	SYLVIA	TO		0011	TCP00011 AP:		ORDRUPD	T/0011		LONGSERV	LONGSERV	CICPAOR1	98	T BTE	15:54:56.13	1.4581	
ORDU	JOHNX	TO		0012	TCP00012 AP:		ORDRUPD	T/0012		LONGSERV	LONGSERV	CICPAOR1	109	T BTE	15:58:56.17	1.2394	

Figure 26. Example of a Workload Activity Report (List)

The following fields are shown on the Workload Activity List Report. For more information on these fields, see “CMF Performance Class Data Fields” on page 154.

Tran

The Transaction id (field: TRAN, owner: DFHTASK, field id: 001) identifies the name of the transaction that this performance class record represents. Applications that are using Distributed Program Link (DPL) requests should use the TRANSID('xxxx') parameter on the EXEC CICS LINK PROGRAM('xxxxxxx') command to enable better transaction/application analysis from the monitoring performance class data. If the TRANSID('xxxx') parameter is not specified, all the performance class records on the target system for a Distributed Program Link (DPL) mirror transaction will have the same transaction id. For example, 'CSMI' for a Distributed Program Link (DPL) request from another connected CICS system.

Userid

The User identifier of the transaction (owner: DFHCICS, field id: 089).

SC

Type of transaction start or start code (owner: DFHTASK, field id: 004).

TranType

This column describes the transaction type as shown in the following table:

TranType	Description
S	System transaction
U	User transaction
M	Mirror transaction
D	DPL Mirror transaction
O	ONC RPC Alias transaction
W	WEB Alias transaction
B	Bridge transaction
-	Reserved
R	CICS BTS Run (ACQPROCESS or activity) transaction synchronous

The transaction type is represented as an interpretation of byte 1 of the transaction flags field (owner: DFHTASK, field id: 164).

Term

The Terminal id (field: TERM, owner: DFHTERM, field id: 002) is either the terminal id or the session id. This field is blank if the transaction was not associated with a terminal or session facility.

LUName

The LUName (field: LUNAME, owner: DFHTERM, field id: 111) is either the VTAM netname of the terminal id (if the Access Method for the terminal is VTAM) or the VTAM APPLID of the connection for the session id. For an EXCI connection, this field will be blank. The transaction's terminal or session type can be identified from the NATURE field (byte 0) within the terminal information field (field: TERMINFO, owner: DFHTERM, field id: 165). This field is blank if the transaction was not associated with a terminal or session facility.

Request Type

This field describes the type of request that the performance record represents:

Description

AP: Means an application program request. The **Program** field will identify the initial application program name invoked for the transaction.

Note: Function shipped Distributed Program Link (DPL) requests are interpreted as application requests. In this case the **AP:** is followed by the '----' (as for other function shipping requests) to indicate the type(s) of requests issued by the application program.

FS:---- Means a function shipping request. The '----' indicate the type(s) of function shipping request:

F	File Control
I	Interval Control
D	Transient Data
S	Temporary Storage

TR:xxxx Means a transaction routing request from a terminal-owning region. The 'xxxx' is the transaction routing sysid from the 'RSYSID' field (owner: DFHCICS, field id: 130) and identifies the connection name (sysid) of the remote system to which the transaction was routed.

Program

The Initial Program Name (field: PGMNAME, owner: DFHPROG, field id: 071) identifies the initial application program invoked for the transaction. Depending on the type of transaction, this field contains either the application program name as defined in the transaction definition, the program name returned by a user written dynamic routing program, the application program name passed on a function shipped Dynamic Program Link (DPL) request, the initial application program name of an ONC RPC Alias Transaction, or the initial application program name of a WEB Alias Transaction. A program name of ##### indicates that the transaction was invoked using the definition of the transaction id specified by the DTRTRAN system initialization parameter.

Fcty T

This field is an interpretation of byte 0 of the transaction flags field (owner: DFHTASK, field id: 164) and describes the transaction's facility type:

Fcty Type Description

<i>blank</i>	None
T	Terminal or Session
S	Surrogate
D	Transient Data queue
B	Bridge Terminal

Fcty Name

The transaction's facility name (owner: DFHTASK, field id: 163).

Conn Name

The terminal session connection name (owner: DFHTERM, field id: 169). If the terminal facility associated with this transaction is a session, then this field is the name of the owning connection (sysid).

Service Class

The MVS Workload Manager (WLM) service class for this transaction. This field is blank if there are no transaction classification rules defined for CICS subsystems in the active MVS Workload Manager (WLM) service policy or the transaction was WLM-classified in another CICS region.

For an EXE Y transaction, the Service Class is derived from the related BTE transaction. For an EXE N transaction, the Service Class is blank since it cannot be determined as the transaction was not complete.

Report Class

The MVS Workload Manager (WLM) report class for this transaction. This field is blank if there are no transaction classification rules defined for CICS subsystems in the active MVS Workload Manager (WLM) service policy or the transaction was WLM-classified in another CICS region.

For an EXE Y transaction, the Report Class is derived from the related BTE transaction. For an EXE N transaction, the Report Class is blank since it cannot be determined as the transaction was not complete.

APPLID

The APPLID of the CICS system upon which the CMF performance record was created. This field indicates the CICS system that performed the work recorded in the record.

Task

The transaction identification number (owner: DFHTASK, field id: 031). This is printed for all records to help identify the corresponding record(s) on a Performance List Report.

R T

This field describes the performance class record type (owner: DFHCICS, field id: 112):

- C** Record output for a terminal converse.
- D** Record output by a user event monitoring point (EMP) DELIVER request.
- F** Record output for a long running transaction.
- S** Record output for a syncpoint request.
- T** Record output for a transaction termination (detach).

P This field describes the MVS Workload Manager phase as reported by CICS. It can be either:

- BTE** The *begin-to-end phase* takes place in the first region to begin processing a transaction.
- EXE** The *execution phase* takes place in an application owning region (AOR) and a file owning region (FOR). However, only the *execution phase* that takes place in an application owning region (AOR) is reported to the MVS Workload Manager.

Workload Activity Report

C This field indicates the completion status of an *execution phase* of the work request as reported by CICS to the MVS Workload Manager. It can be either:

blank This performance class record is part of the *begin-to-end phase* of a transaction.

Y The entire *execution phase* of the work request, a transaction, has now completed.

N Only a portion of the *execution phase* of the work request, a transaction, has completed.

Stop Time

Stop time of the transaction (owner: DFHCICS, field id: 006). The transactions within the same network unit-of-work are generally displayed in ascending stop time sequence. This may not always be true, however, due to syncpointing within the transaction, and to the difficulties involved in synchronizing the STORE CLOCK (STCK) values between different CPUs.

Response Time

The transaction response time. This field is calculated by subtracting the transaction start time (owner: DFHCICS, field id: 005) from the transaction stop time (owner: DFHCICS, field id: 006).

A B

Y in this column indicates that the transaction abended.

Report Content (Summary)

The Workload Activity Summary Report provides summaries by Service Class and by Report Class of the transaction data detailed in the Workload Activity List Report.

V1R2M0		CICS Performance Analyzer						
		<u>Workload Manager Activity Summary by Service Class</u>						
WKLD0001 Printed at 13:33:29		2/04/2002 Data from 15:47:53		2/01/2002 to 15:58:53		2/01/2002		Page 728
Service Class	APPLID	Phase	#Tasks	----- Response Time -----				
				Average	Std Dev	90% Peak	Maximum	
FINSCLAS	CICPTOR1	BTE	176	.5665	.4369	.8753	1.3745	
	CICPAOR1	EXE	169	.5239	.4564	.8280	1.1684	
STOSCLAS	CICPTOR1	BTE	2123	.9265	.3981	1.2675	2.0246	
	CICPAOR1	EXE	2078	.8639	.3627	1.1927	1.8327	
QUIKSERV	CICPAOR1	BTE	5476	.3846	.1976	.4673	.6571	
LONGSERV	CICPAOR1	BTE	1958	1.5861	.8392	2.2179	5.5094	

V1R2M0		CICS Performance Analyzer						
		<u>Workload Manager Activity Summary by Report Class</u>						
WKLD0001 Printed at 13:33:29		2/04/2002 Data from 15:47:53		2/01/2002 to 15:58:53		2/01/2002		Page 729
Report Class	APPLID	Phase	#Tasks	----- Response Time -----				
				Average	Std Dev	90% Peak	Maximum	
FINSCLAS	CICPTOR1	BTE	176	.5665	.4369	.8753	1.3745	
	CICPAOR1	EXE	169	.5239	.4564	.8280	1.1684	
STOSCLAS	CICPTOR1	BTE	2123	.9265	.3981	1.2675	2.0246	
	CICPAOR1	EXE	2078	.8639	.3627	1.1927	1.8327	
QUIKSERV	CICPAOR1	BTE	5476	.3846	.1976	.4673	.6571	
LONGSERV	CICPAOR1	BTE	1958	1.5861	.8392	2.2179	5.5094	

Figure 27. Example of a Workload Activity Report (Summary)

The following columns appear on the report:

Service Class

The MVS Workload Manager (WLM) service class. ***Other*** indicates the service class is not available.

Report Class

The MVS Workload Manager (WLM) report class. ***Other*** indicates the report class is not available.

APPLID

The APPLID of the CICS system upon which the CMF performance records were created. This field indicates the CICS system that performed the work recorded in the records.

Phase

This field describes the MVS Workload Manager phase as reported by CICS. It can be either:

BTE For those transactions that completed a *begin-to-end* phase.

EXE For those transactions that completed an entire *execution* phase where work executes in a non-originating region.

#Tasks

The total number of transactions completed.

Average Response Time

The average response time.

Std Dev Response Time

The standard deviation of the response times. If this value is greater than or nearing the average response time, the distribution of response times will probably not be a normal distribution; for example, possibly skewed or with multiple peaks.

nnn% Peak Response Time

nnn% of transactions have a response time less than or equal to this response time. This is a statistical estimate assuming a normal distribution.

Maximum Response Time

The maximum response time for any transaction within this Service Class or Report Class.

DB2 Report

The DB2 Report processes CICS CMF records and DB2 Accounting (SMF 101) records to produce a consolidated and detailed view of DB2 usage by your CICS systems. The DB2 Report enables you to view CICS and DB2 resource usage statistics together in a single report.

The DB2 List report shows detailed information of DB2 activity for each transaction. The DB2 Summary reports summarize DB2 activity by transaction (for CMF records: by APPLID/transaction/program, for DB2 records: by APPLID/transaction/program/SSID/plan).

The reports include the following DB2 information:

- DB2 Thread Identification, for easy cross-reference to DB2 PM
- Class 1 Thread elapsed and CPU times
- Class 2 In-DB2 elapsed and CPU times
- Class 3 Suspend times
- Buffer Manager statistics
- Locking statistics
- SQL DML statistics

A Recap report showing processing statistics is always printed at the end.

Report Command

The command to produce the default report, a short summary showing average values, is:

```
CICSPA DB2 or CICSPA DB2(SHORTSUM)
```

To produce a long summary giving average and maximum values:

```
CICSPA DB2(LONGSUM)
```

To produce a detailed listing of all network units-of-work with DB2 activity:

```
CICSPA DB2(LIST)
```

To tailor the report, you can specify report options as follows:

```
CICSPA DB2(  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [LIST[(  
        CLASS1,CLASS2,CLASS3,BUFFER,LOCKING,DML1,DML2|ALL)],]  
    [LONGSUMMARY[(  
        CLASS1,CLASS2,CLASS3,BUFFER,LOCKING,DML1,DML2|ALL)],]  
    [SHORTSUMMARY,]  
    [SSID(id1,id2,...),]  
    [CMFONLY,]  
    [LISTZERO,]  
    [MAXLONGSUM|NOMAXLONGSUM,]  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])])
```


The report processes all CMF transaction performance class records for network units-of-work containing multiple performance records as well as those with only a single performance record.

You can request a report from all available records, or you can provide criteria for data selection to request a report from only the records that meet specific requirements.

Report Format

CICS PA processes CMF performance data from multiple CICS systems along with associated DB2 Accounting data, correlating the data by network unit-of-work. For each network unit-of-work with DB2 activity, CICS PA attempts to match each DB2 Accounting record to a CMF task.

In the DB2 List Report, a data line is presented for each CMF performance class record (column format), and a block of data lines is presented for each associated DB2 Accounting record (row format). Records that are part of the same network unit-of-work are printed sequentially in groups separated by blank lines. A network unit-of-work will only be presented if it involved some DB2 activity, that is, at least one CMF record is present with DB2 Request Count greater than zero (DB2REQCT>0).

The DB2 List report is presented in the same sequence as the Cross-System Work report so you can correlate the two reports. Also, the printed information allows you to find the corresponding record(s) in the CICS PA Performance List report and the DB2 PM reports.

Two summary reports (Long Summary and Short Summary) offer a summary of the CMF performance and DB2 Accounting data presented in the DB2 List report. The data is collated by APPLID, transaction and program for CMF data, and additionally by SSID and plan for DB2 data. Generally there is only one DB2 plan per APPLID/transaction/program combination, but it is possible for there to be more than one (via Dynamic Plan Switching), or for multiple plans to be used over time (via Dynamic Plan Selection, or system modification). Only DB2 Accounting data that matches a single CMF task is accumulated for the summary reports. There is no attempt to statistically apportion DB2 Accounting data that represents more than one CMF task.

The DB2 Report is produced from the following process:

1. Record Selection. CMF performance records that are part of a network unit-of-work that involves DB2 activity are selected. Associated DB2 Accounting records are selected. See “CMF-DB2 Record Selection” on page 70.
2. Sort. The selected records are sorted using an EXTERNAL sort process. See “Sorting the CMF-DB2 Records” on page 71.
3. Group by Network UOW. Records are grouped by network unit-of-work NETNAME and network unit-of-work ID.
4. Match CMF-DB2 Records within Network UOW. For each network unit-of-work, DB2 Accounting records are matched (where possible) to CMF tasks. See “Matching CMF-DB2 Records for a Network UOW” on page 72.

5. Report/Summarize.

- If requested, the DB2 List report is produced. For each network unit-of-work, one line is presented per CMF performance class record followed by the DB2 Accounting data for that network unit-of-work.
- If requested, the DB2 Summary reports accumulate statistics for each APPLID, transaction, and program combination. Then the DB2 statistics are accumulated for each SSID and plan used by the APPLID/transaction/program. The Summary reports are produced after the List report (if requested) is complete.

CMF-DB2 Record Selection

For the DB2 Report, CMF record selection is the same as for all CMF Performance Reports, with an additional criterion:

- **LISTZERO.** List CMF performance class records that do not involve DB2 activity (DB2REQCT=0) when they are part of a network unit-of-work that involves some DB2 activity.

DB2 Accounting record selection is based on:

1. **CMFONLY.** Suppress DB2 record processing.
2. **SMFSTART, SMFSTOP.** Like the CMF performance records, filter the DB2 Accounting records based on the SMF time stamp.
3. **SELECT(PERFORMANCE.** INCLUDE or EXCLUDE DB2 Accounting records based on whether the DB2 thread Begin-End times are within the specified FROM-TO report intervals. Also you can filter the DB2 Accounting records based on UOWID field values.
4. **APPLID.** Select by CICS generic APPLID.
5. **SSID.** Select by DB2 Subsystem ID.

Note: DB2 end time can be after CMF stop time if thread protection is in place. Consequently, if you specify SMFSTOP when protected threads are in use, it is possible that DB2 Accounting records are excluded that relate to CMF records that are included. In normal circumstances, 5 minutes (the initial DB2 thread PURGECYCLE delay after CICS startup) is expected to be the longest period an inactive DB2 thread will be present before it is terminated by a PURGECYCLE. To allow for this, you should specify the SMFSTOP time at least 5 minutes after the 'required stop time' specified in the FROM/TO report interval in the SELECT statement.

Required CMF Fields:**Special Point**

If you are using the CICS Monitoring Control Table (MCT) Exclude/Include parameters to reduce the size of the performance class record, you must ensure that the data fields required for the DB2 Report are not excluded.

The fields that must be collected in the performance class records so they are eligible for the DB2 Report are:

Owner	Field Id	CICS Informal Name	Description
DFHCICS	005	START	Store clock start time
DFHCICS	006	STOP	Store clock stop time
DFHCICS	089	USERID	User ID
DFHCICS	112	RTYPE	Record type
DFHDATA	180	DB2REQCT	DB2 request count
DFHDATA	187	DB2RDYQW	DB2 ready queue wait time
DFHDATA	188	DB2CONWT	DB2 connection wait time
DFHPROG	071	PGMNAME	Program name
DFHPROG	113	ABCODEO	Original abend code
DFHPROG	114	ABCODEC	Current abend code
DFHSYNC	060	SPSYNCCT	Syncpoint count for task
DFHTASK	001	TRAN	Transaction name
DFHTASK	008	USRCPUT	User CPU time
DFHTASK	031	TRANNUM	Transaction sequence number
DFHTASK	097	NETUOWPX	Network UOW - PX
DFHTASK	098	NETUOWSX	Network UOWID - SX
DFHTASK	164	TRANFLAG	Transaction flags
DFHTERM	002	TERM	Terminal ID
DFHTERM	111	LUNAME	LU name

Sorting the CMF-DB2 Records

The DB2 Report is produced using an external SORT facility. An External Work data set is required to store the records before they are sorted. This data set is either specified explicitly using **EXTERNAL(ddname)**, or CICS PA assigns one from the External Work File pool.

The records are sorted in the following order (the same as that used in the Cross-System Work Report):

1. Network unit-of-work NETNAME
2. Network unit-of-work ID
3. Syncpoint count concatenated with the task stop time in reverse (descending) order
4. APPLID

Note: The syncpoint count is used to resolve unsynchronized STORE CLOCK (STCK) values between systems. The syncpoint count and stop time, sorted in

reverse (descending) order, shows the sequence of tasks within the network unit-of-work. In some cases (for example, where user event monitor points (EMPs) are used), the syncpoint count does not reflect the sequence of events within a network unit-of-work. For these instances, all the task records are printed, but not necessarily in the order they happened. You can tell that this situation exists if the stop times are not in descending order.

For more information on correlating the performance class data by network unit-of-work id, see “Correlating Performance Class Data” on page 149.

For DB2 records:

- Network unit-of-work NETNAME and ID are derived from the Accounting Token (field: QWHCTOKN).
- Syncpoint count and task stop time are not applicable. Thread ID and DB2 Begin time (in ascending order) are used.
- APPLID is the CICS generic APPLID taken from the Connection Name (field: QWHCACCN).

Considerations for processing efficiency:

1. If **LISTZERO** is specified, CMF records without DB2 activity are passed to the sort as they may be part of a network unit-of-work that involved DB2 activity. Use of this option can dramatically *increase* the volume of sort data. This option is only applicable to the DB2 List report.
2. If **CMFONLY** is specified, only CMF performance records are processed. Use of this option can dramatically *reduce* the volume of sort data as all DB2 Accounting records are excluded.

Matching CMF-DB2 Records for a Network UOW

For each network unit-of-work with DB2 activity, CICS PA attempts to match each DB2 Accounting record to a CMF task.

The CICS-DB2 record relationship is usually one-to-one. However, it is possible that one DB2 thread serviced more than one CICS task. Conversely, it is possible that a single CICS task was associated with multiple DB2 threads (since threads are released at syncpoint). Also, with ACCOUNTREC(TASK), it is possible to get a network unit-of-work where the CMF-DB2 records cannot be correlated because the information available in the data records is insufficient.

DB2 Accounting data is accumulated for the Summary reports only if:

- It matches a single CMF task, or
- It matches multiple CMF tasks with the same APPLID/transaction/program, as the thread statistics are not apportioned in this case.

Report Content (List)

The DB2 List Report provides a detailed list of all network units-of-work with DB2 activity. This report consolidates CICS CMF performance class records and DB2 accounting statistics from a single or multiple CICS systems.

The following command produces a List report like that in Figure 28.

CICSPA DB2(LIST(ALL),LISTZERO)

```

V1R2M0                                CICS Performance Analyzer
                                      DB2 - List

DB2R0001 Printed at 14:22:11 7/15/2002   Data from 15:41:19 7/12/2002 to 16:19:15 7/12/2002   Page      1

Tran/  Userid/ Program/          UOW R          ..DB2 Wait Time..  DB2   User CPU          Response A
SSID  Authid  Planname  APPLID  Task Seq T Term  LUName  Connect  Thread  ReqCnt  Time   Start Time   Stop Time   Time  B
-----
CRD8  CICSUSER  CORD08P  CICPAOR1  53  2 T <AAK  CICPTOR1  .0000  .0000  22   .0185  15:49:40.023  15:49:40.105  .0827
CRD5  CICSUSER  CORD05P  CICPAOR1  52  2 T <AAK  CICPTOR1  .0000  .0000  12   .0137  15:49:39.960  15:49:40.016  .0566
CRDD  CICSUSER  CORD13P  CICPTOR1  45  1 T 0013 TCP00013  N/A    N/A    0    .0390  15:49:39.521  15:49:40.121  .6006

DB2P  CICSUSER  CPAPLAN  CICPAOR1  52  Thread Identification  ID=POOLCRD50001  NETName=P390.TCP00013  UOWID=1F7D3A6472BA
                                      Begin Time: 15:49:39.969 7/12/02  End Time: 15:49:40.007 7/12/02
                                      Elapsed= .0379 CPU= .019536
Class1: Thread Time
Class2: In-DB2 Time  Elapsed= .0184 CPU= .014040
Class3: Suspend Time Total = N/P I/O= N/P Lock/Latch= N/P
Buffer Manager Summary GtPgRq= 2 SyPgUp= 0
Locking Summary       Suspnd= 0 DeadLk= 0 TmeOut= 0 MxPgLk= 1
SQL DML Query/Update Sel= 0 Ins= 0 Upd= 0 Del= 0
SQL DML 'Other'      Des= 0 Pre= 0 Ope= 1 Fet= 10 Clo= 1

DB2P  CICSUSER  CPAPLAN  CICPAOR1  53  Thread Identification  ID=POOLCRD50001  NETName=P390.TCP00013  UOWID=1F7D3A6472BA
                                      Begin Time: 15:49:40.032 7/12/02  End Time: 15:49:40.097 7/12/02
                                      Elapsed= .0654 CPU= .031185
Class1: Thread Time
Class2: In-DB2 Time  Elapsed= .0231 CPU= .021452
Class3: Suspend Time Total = N/P I/O= N/P Lock/Latch= N/P
Buffer Manager Summary GtPgRq= 2 SyPgUp= 0
Locking Summary       Suspnd= 0 DeadLk= 0 TmeOut= 0 MxPgLk= 1
SQL DML Query/Update Sel= 0 Ins= 0 Upd= 0 Del= 0
SQL DML 'Other'      Des= 0 Pre= 0 Ope= 1 Fet= 20 Clo= 1

. . .

```

Figure 28. Example of a DB2 Report (List)

In the DB2 List Report, a data line is presented for each CMF performance class record (column format), and a block of data lines is presented for each associated DB2 Accounting record (row format). Records that are part of the same network unit-of-work are printed sequentially in groups separated by blank lines. A network unit-of-work will only be presented if it involved some DB2 activity.

The DB2 List Report contains the following information:

CMF Performance based fields:

Each CMF-based line of the report represents a CMF data record, not necessarily a task. It is possible for CMF data to be written at Syncpoint, on a Frequency basis (long running applications), at each terminal Converse (conversational), or at user-specified Event Monitoring Points (EMPs) using a Deliver request. The Task Number, UOW Sequence, and Record Type fields are provided to clarify what the line of data represents.

By default, only CMF performance class records with DB2 Request Count greater than zero (DB2REQCT>0) are included in the report. You can specify **LISTZERO** to also include those with DB2REQCT=0.

Tran

Transaction ID (field: TRAN, owner: DFHTASK, field id: 001).

Userid

User Identifier of the transaction (owner: DFHCICS, field id: 089).

Program

Initial Program Name (field: PGMNAME, owner: DFHPROG, field id: 071).

APPLID

APPLID of the CICS system where the CMF record was created.

Task

Transaction identification number (owner: DFHTASK, field id: 031).

UOW Seq

Syncpoint sequence number from the Network UOWID (field: NETUOWSX, owner: DFHTASK, field id: 098).

RT

Performance class record type (owner: DFHCICS, field id: 112). The record types are:

- C** Converse record; Conversational transaction terminal converse
- D** Deliver record; Deliver request at a user EMP
- F** Frequency record; Long running transaction
- S** Syncpoint record
- T** Termination (detach) record

Term

Terminal ID (field: TERM, owner: DFHTERM, field id: 002).

LUName

LU name (field: LUNAME, owner: DFHTERM, field id: 111).

DB2 Wait Time: Connect

DB2 Connection Wait time; wait for DB2 subtask to become available (owner: DFHDATA, field id: 188).

DB2 Wait Time: Thread

DB2 Ready Queue Wait time; wait for DB2 thread to become available (owner: DFHDATA, field id: 187).

DB2 ReqCnt

DB2 Request Count (EXEC SQL and IFI) (field: DB2REQCT, owner: DFHDATA, field id: 180).

User CPU Time

Transaction CPU time (owner: DFHTASK, field id: 008).

Start Time

Start Time (hh:mm:ss.thm) of the transaction (owner: DFHCICS, field id: 005).

Stop Time

Stop Time (hh:mm:ss.thm) of the transaction (owner: DFHCICS, field id: 006).

Response Time

Transaction response time, derived from Stop-Start time (owner: DFHCICS, field ids: 006-005).

A B

Y in this column indicates that the transaction abended.

DB2 Accounting based fields:

A block of data lines is presented for each DB2 Accounting record associated with the CMF performance record. This data is not present if **CMFONLY** is specified.

SSID

DB2 Subsystem ID (field: QWHSSSID). The values are filtered by the **SSID** operand.

Authid

Authorization ID (field: QWHCAID).

Planname

Plan name (field: QWHCPLAN).

APPLID

Connection name (field: QWHCCN, when connecting system type QWHCATYP is CICS attach QWHCCICS).

Task

Transaction identification number which, when combined with the APPLID field, identifies the CICS task to which the DB2 Accounting data relates.

This number is derived by CICS PA:

- If CICS PA matches the DB2 Accounting record to a single CICS task, the CMF task number is printed against the DB2 Accounting record details, otherwise the task number is **N/C** (cannot be calculated).
- If this field is N/C, then either the DB2 Accounting data could not be correlated to a task, or it was found to relate to more than one task in the Network UOW. This can occur, for example, if thread reuse occurs within a Network UOW and ACCOUNTREC(TASK) is being used. CICS PA will not apportion statistics. If this field is N/C, then the DB2 data will not be included in the Summary reports.

Thread Identification:

This is always present.

Thread ID Correlation ID value (field: QWHCCV).

CICS NETName To correlate to DB2 PM reports.

CICS UOWID To correlate to DB2 PM reports.

Begin Time Begin time (hh:mm:ss.thm mm/dd/yy) of the DB2 accounting period (STCK field: QWACBSC).

End Time End time (hh:mm:ss.thm mm/dd/yy) of the DB2 accounting period (STCK field: QWACESC).

Note: When you run the DB2 report on a system with a different time zone setting to that of the SMF data, the DB2 time stamps can be out of sync with the CMF time stamps. Every CMF record includes a time zone conversion factor. CICS PA uses this to convert the time stamps to reflect the local time of the SMF data. DB2 records, however, do not have a time zone conversion factor. CICS PA uses the reporting system's time zone. To synchronize the

CMF and DB2 time stamps, specify the **ZONE** operand to match the time zone of the SMF data. The ZONE specification will be used to convert both CMF and DB2 time stamps to local time, keeping them in sync.

Class1: Thread Time

This line is present only if **CLASS1** is specified.

Elapsed Elapsed time covered by the DB2 Accounting record; derived from End Time minus Begin Time. It gives the time from when the DB2 thread is obtained (at the first SQL call) to the time it is terminated or reused by another sign-on (which may be well after the task completes if it is a protected thread).

CPU TCB CPU time used by the thread; derived from QWACEJST minus QWACBJST.

Class2: In-DB2 Time

This is only available when DB2 Class 2 Accounting Trace data is present. This line is present only if **CLASS2** is specified.

Elapsed Accumulated elapsed time used in DB2 (field: QWACASC).

CPU Accumulated TCB CPU time used in DB2 (field: QWACAJST).

Class3: Suspend Time

This is only available when DB2 Class 3 Accounting Trace data is present. This line is present only if **CLASS3** is specified.

Total Total accumulated wait time; derived from I/O time plus Lock/Latch time.

I/O Accumulated elapsed I/O wait time (field: QWACAWTI).

Lock/Latch Accumulated lock and latch time (field: QWACAWTL).

Buffer Manager Summary

These fields will give the total for all buffer pools. This line is present only if **BUFFER** is specified.

GtPgRq Number of Get Page requests issued (field: QBACGET).

SyPgUp Number of system page (buffer) updates (field: QBACSWWS).

Locking Summary

This line is present only if **LOCKING** is specified.

Suspd Number of suspends due to lock conflict (field: QTASLOC).

DeadLk Number of deadlocks (field: QTXADEA).

TmeOut Number of timeouts (field: QTXATIM).

MxPgLk Maximum number of page locks held (field: QTXANPL).

SQL DML Query/Update

This line is present only if **DML1** is specified.

Sel Number of SELECTs (field: QXSELECT).

Ins Number of INSERTs (field: QXINSRT).

Upd Number of UPDATEs (field: QXUPDTE).

Del Number of DELETEs (field: QXDELET).

SQL DML 'Other'

This line is present only if **DML2** is specified.

- Des** Number of DESCRIBEs (field: QXDESC).
- Pre** Number of PREPAREs (field: QXPREP).
- Ope** Number of OPENs (field: QXOPEN).
- Fet** Number of FETCHes (field: QXFETCH).
- Clo** Number of CLOSEs (field: QXCLOSE).

Report Content (Long Summary)

The DB2 Long Summary report provides a summary of DB2 activity by transaction and program within APPLID, giving average and maximum values for each.

The Summary report represents a subset of the total data presented in the DB2 List report. It includes DB2 data that can be matched within a network unit-of-work to a *single* task, or multiple tasks that all used the same transaction and program. There is no data apportioning by CICS PA.

The DB2 Report shown in Figure 29 was created using the command:

CICSPA DB2(LONG(ALL))

```

V1R2M0                                CICS Performance Analyzer
                                       DB2 - Long Summary
DB2R0001 Printed at 14:22:11  7/15/2002  Data from 15:41:19  7/12/2002 to 16:19:15  7/12/2002  APPLID CICPA0R1  Page 1

Tran/ Program/ #Tasks/   Avg   Max   Avg   Max   Avg   Max   Avg   Max   Avg   Max   #Abends
SSID  Planname #Threads  Time  Time  Time  Time  Count Count  Time  Time  Time  Time

CRD5  CORD05P      6   .0000 .0000 .0000 .0000   16.0   24   .016544 .021648   .0721   .0942      0

DB2P  CPAPLAN      6  Thread Utilization      Entry=      0  Pool=      6  Command=      0
   Class1: Thread Time      Avg: Elapsed= .0534  CPU= .024245
   Max: Elapsed= .0733  CPU= .033569
   Class2: In-DB2 Time      Avg: Elapsed= .0189  CPU= .016890
   Max: Elapsed= .0236  CPU= .022496
   Class3: Suspend Time      Avg: Total =      N/P  I/O=      N/P  Lock/Latch=      N/P
   Max: Total =      N/P  I/O=      N/P  Lock/Latch=      N/P
   Buffer Manager Summary      Avg: GtPgRq=      2.0  SyPgUp=      .0
   Max: GtPgRq=      2  SyPgUp=      0
   Locking Summary            Avg: Suspnd=      .0  DeadLk=      .0  TmeOut=      .0  MxPgLk=      1.0
   Max: Suspnd=      0  DeadLk=      0  TmeOut=      0  MxPgLk=      1
   SQL DML Query/Update      Avg: Sel=      .0  Ins=      .0  Upd=      .0  Del=      .0
   Max: Sel=      0  Ins=      0  Upd=      0  Del=      0
   SQL DML 'Other'           Avg: Des=      .0  Pre=      .0  Ope=      1.3  Fet=      13.3  C1o=      1.3
   Max: Des=      0  Pre=      0  Ope=      2  Fet=      20  C1o=      2

. . .

```

Figure 29. Example of a DB2 Report (Long Summary)

In the DB2 Long Summary Report, for each APPLID, a data line is presented for the CMF performance class data summarized by transaction and program (column format), and a block of data lines is presented for the associated DB2 Accounting data summarized by SSID and planname (row format).

The DB2 Long Summary Report provides the following information:

CMF Performance based fields:

APPLID

(In the report heading.) The APPLID of the CICS system where the CMF records were created.

Tran

Transaction ID (field: TRAN, owner: DFHTASK, field id: 001).

Program

Initial Program Name (field: PGMNAME, owner: DFHPROG, field id: 071).

#Tasks

The number of tasks summarized.

Each CMF-based line of the List report represents a CMF data record. For the purpose of accumulating for the Summary report, a record is considered to represent a task, that is, for each CMF performance record included in the Summary report, #Tasks increments by 1. Only records with DB2REQCT>0 are included.

For each of the following fields (except #Abends), two values are presented:

Average The task average for the field.

Maximum The maximum value of the field over the reporting period.

DB2ConWt Time

DB2 Connection Wait time; wait for DB2 subtask to become available.

DB2ThdWt Time

DB2 Ready Queue Wait time; wait for DB2 thread to become available.

DB2Rqst Count

DB2 Request Count (EXEC SQL and IFI).

UserCPU Time

CICS task CPU time (does not include DB2 CPU). This can be added to the Class1: Thread CPU Time to get a reasonable picture of the overall CPU utilization.

Response Time

Task response time.

#Abends

Total number of abends for the transaction in the reporting period.

DB2 Accounting based fields:

A block of data lines is presented for the DB2 Accounting records associated with the CMF performance records. This data is not present if **CMFONLY** is specified.

SSID

DB2 Subsystem ID (field: QWHSSID). The values are filtered by the **SSID** operand.

Planname

Plan name (field: QWHPLAN). Note that there may be multiple plans associated with a Tran/Program if Dynamic Plan Selection and/or Dynamic Plan Switching is used, or if an application is modified within the reporting period.

#Threads

The number of threads summarized where DB2 data has been included for the given plan.

This gives the total number of matched DB2 threads used (for this APPLID/transaction/program and SSID/plan) in the reporting period. For simple transactions with default performance monitoring and ACCOUNTREC(TASK), this total would be expected to be equal to the #Tasks. Where a transaction has multiple UOWs however, the total number of threads used can be greater than the #Tasks, depending on thread reuse.

Thread Utilization

This data line is always present.

Entry The number of DB2Entry threads used in the reporting period.

Note: Transactions associated with a DB2Entry will generally run against a DB2Entry thread. However, it is possible for a transaction to overflow to a pool thread should the number of active DB2Entry threads reach the THREADLimit number defined for the DB2Entry.

Pool The number of Pool threads used in the reporting period.

Command The number of Command threads used in the reporting period.

Note: Command threads are reserved by the CICS DB2 attachment facility for issuing commands to DB2 using the DSNCR transaction. When the demand is great, commands overflow to the pool, and use a pool thread.

For each of the following optional DB2 data lines, two values are presented:

Average The thread average for the field.

Maximum The maximum value of the field encountered for all threads within the reporting period. If **NOMAXLONGSUM** is specified, the maximum values are omitted from the report.

Class1: Thread Time

Specify **CLASS1** to request this line.

Class2: In-DB2 Time

Specify **CLASS2** to request this line.

Class3: Suspend Time

Specify **CLASS3** to request this line.

Buffer Manager Summary

Specify **BUFFER** to request this line.

Locking Summary

Specify **LOCKING** to request this line.

SQL DML Query/Update

Specify **DML1** to request this line.

SQL DML 'Other'

Specify **DML2** to request this line.

See "Report Content (List)" on page 73 for an explanation of these DB2 data lines.

Report Content (Short Summary)

The DB2 Short Summary Report is an abridged version of the Long Summary Report. It provides a summary of DB2 activity by transaction and program within APPLID giving averages for each (no maximums).

The following command produces the default report like that shown in Figure 30. The default report is a Short Summary with both CMF performance records and DB2 Accounting records included. CMF performance records with DB2REQCT=0 are not included.

CICSPA DB2 or CICSPA DB2 (SHORTSUM)

V1R2M0

CICS Performance Analyzer
DB2 - Short Summary

DB2R0001 Printed at 14:22:11 7/15/2002 Data from 15:41:19 7/12/2002 to 16:19:15 7/12/2002 APPLID CICPA0R1 Page 1

Tran/ SSID	Program/ Planname	#Tasks/ #Threads	Average Response	Elapsed Time Thread	Average In-DB2	CPU Time DB2ConWt	Average User	Average Thread	Average In-DB2	Count DB2Reqs	GetPage	SysPgUpd	#Abends
CRD4	CORD04P	2	.3973		.0000	.0000	.044200			24.0			0
DB2P	CPAPLAN	4	.0569	.0205				.025045	.018777		3.3	.0	0
CRD5	CORD05P	6	.0721		.0000	.0000	.016544			16.0			0
DB2P	CPAPLAN	6	.0534	.0189				.024245	.016890		2.0	.0	0
CRD8	CORD08P	4	.0813		.0000	.0000	.019052			22.0			0
DB2P	CPAPLAN	4	.0640	.0240				.031123	.021375		2.0	.0	0
CSMI	CORD05P	4	.0643		.0000	.0000	.015044			12.0			0
DB2P	CPAPLAN	4	.0452	.0150				.019714	.014066		2.0	.0	0
. . .													

Figure 30. Example of a DB2 Report (Short Summary)

In the DB2 Short Summary Report, for each APPLID, a data line is presented for the CMF performance class data summarized by transaction and program, and a data line is presented for the associated DB2 Accounting data summarized by SSID and planname. Both data lines are in column format.

The DB2 Short Summary Report contains the following information:

CMF Performance based fields:

APPLID

(In the report heading.) The APPLID of the CICS system where the CMF records were created.

Tran

Transaction ID (field: TRAN, owner: DFHTASK, field id: 001).

Program

Initial Program Name (field: PGMNAME, owner: DFHPROG, field id: 071).

#Tasks

The number of tasks summarized.

Average Elapsed Response Time

Average task response time.

Average Elapsed DB2ConWt Time

Average task DB2 Connection Wait time; wait for DB2 subtask to become available.

Average Elapsed DB2ThdWt Time

Average task DB2 Ready Queue Wait time; wait for DB2 thread to become available.

Average CPU Time: User

Average CICS task CPU time (does not include DB2 CPU).

Average Count: DB2Reqs

Average task DB2 Request Count (EXEC SQL and IFI).

#Abends

Total number of abends for the transaction in the reporting period.

DB2 Accounting based fields:**SSID**

DB2 Subsystem ID (field: QWHSSSID).

Planname

Plan name (field: QWHCPLAN). Note that there may be multiple plans associated with a Tran/Program if Dynamic Plan Selection and/or Dynamic Plan Switching is used, or if an application is modified within the reporting period.

#Threads

The number of threads summarized where DB2 data has been included for the given plan.

This gives the total number of matched DB2 threads used (for this APPLID/transaction/program and SSID/plan) in the reporting period. For simple transactions with default performance monitoring and ACCOUNTREC(TASK), this total would be expected to be equal to the #Tasks. Where a transaction has multiple UOWs however, the total number of threads used can be greater than the #Tasks, depending on thread reuse.

Average Elapsed Thread Time

Average elapsed time covered by the DB2 accounting period. included for the given plan.

Average Elapsed In-DB2 Time

Average In-DB2 elapsed time. This field is only available when Class 2 data is present.

Average CPU Time: Thread

Average CPU time accumulated for the CICS-DB2 thread.

Average CPU Time: In-DB2

Average In-DB2 CPU time used, derived from the accumulated TCB time. This field is only available when Class 2 data is present.

Average Count: GetPage

Average task Get Page request count.

Average Count: SysPgUpd

Average task system page (buffer) update count.

Report Content (Recap)

An example of the Recap report which is always printed at the end of processing is shown in Figure 31. This report provides statistics on the record processing and matching.

V1R2M0	CICS Performance Analyzer	
	DB2 - Recap	
DB2R0001 Printed at 14:22:11 7/15/2002	Data from 15:41:19 7/12/2002 to 16:19:15 7/12/2002	Page 1

Records processed by the DB2 report processor:

	Count	% of Total
	-----	-----
CMF performance class records:		
Included	120	.6%
Excluded:		
CICS PA record selection	20,670	99.4%
No DB2 activity	0	.0%
Other	0	.0%
Total	20,790	
DB2 accounting records:		
Included	30	.5%
Excluded:		
CICS PA record selection	0	.0%
Not CICS Attach	368	6.6%
Accounting Token not set	5,196	92.9%
Other	0	.0%
Total	5,594	

Network units-of-work with DB2 activity:

	Count	% of Total
	-----	-----
Network units-of-work where:		
DB2 accounting records were resolved	30	100.0%
DB2 accounting records were not resolved	0	.0%
DB2 accounting records were not present	0	.0%
Total	30	
CMF performance class records with DB2 activity:		
Matched to a DB2 accounting record	30	100.0%
Not matched to any DB2 accounting records	0	.0%
Total	30	
CMF performance class records with no DB2 activity:		
Total	0	
DB2 accounting records:		
Eligible for summary reporting	30	100.0%
Matched to a single CICS task	30	100.0%
Matched to two or more CICS tasks	0	.0%
Not matched to any CICS tasks	0	.0%
Total	30	

Figure 31. Example of a DB2 Report (Recap)

The statistics reported are:

Records processed by the DB2 report processor:

This section of the report indicates the effect of basic record selection, and the effect of the LISTZERO and CMFONLY report options in terms of the volume of sort data.

Also, if DB2 connection options ACCOUNTREC(TASK) or ACCOUNTREC(UOW) were not set, this will be clearly evident by the number of DB2 accounting records that are excluded.

If no CMF performance data is selected for the report, only this section of the Recap report is produced.

CMF performance class records:

The results of CMF performance class record selection.

Included

The number of CMF performance class records from the input file selected for report processing, and subsequently passed to Sort.

Excluded

The number of CMF performance class records from the input file excluded from report processing for any of the following reasons:

1. They do not satisfy the Record Selection Criteria.
2. There was no DB2 activity. Using the report default, not-LISTZERO, CMF performance class records with DB2REQCT=0 will be excluded. If only the Summary report(s) are requested, not-LISTZERO is assumed since the Summary reports only report on CMF performance class records with DB2REQCT>0.
3. Other reasons, such as missing required fields. See "Required CMF Fields" on page 71 for a list of the fields that must be present in the CMF performance record.

Total

The total number of CMF performance class records passed to the DB2 record processor from the input file.

DB2 accounting records:

The results of DB2 accounting record selection.

Included

The number of DB2 accounting records from the input file selected for report processing, and subsequently passed to Sort (provided at least one CMF record was included).

Excluded

The number of DB2 accounting records from the input file excluded from report processing for any of the following reasons:

1. They do not satisfy the Record Selection Criteria.
2. They are not generated by 'CICS Attach'.
3. The accounting token in the Correlation Header is not set. The accounting token is only set if ACCOUNTREC(TASK) or ACCOUNTREC(UOW) is specified.
4. Other reasons, such as records from unsupported DB2 releases.

Total

The total number of DB2 accounting records passed to the DB2 record processor from the input file.

Network units-of-work with DB2 activity:

This section of the report provides details on the results of CMF-DB2 record matching and therefore indicates the value of the Summary reports. This is performed for each network unit-of-work that has at least one CMF performance class record indicating DB2 activity (DB2REQCT>0).

The various CMF-DB2 matching statistics are marked **N/A** (not applicable) when no DB2 records are selected, so no record matching takes place (for example, when CMFONLY).

Network units-of-work where:

The results of CMF-DB2 record matching for network units-of-work with DB2 activity.

DB2 accounting records were resolved

The number of network units-of-work where CMF-DB2 record matching was able to fully resolve the relationship between the data records, and at least one DB2 accounting record was present.

DB2 accounting records were not resolved

The number of network units-of-work where CMF-DB2 record matching was *not* able to fully resolve the relationship between the data records, and at least one DB2 accounting record was present.

DB2 accounting records were not present

The number of network units-of-work where no DB2 accounting records were present.

Total

The total number of network units-of-work.

CMF performance class records with DB2 activity:

The results of CMF-DB2 record matching for the CMF performance class records with DB2 activity that are within network units-of-work with DB2 activity.

Matched to a DB2 accounting record

The number of CMF performance class records with DB2REQCT>0 that were able to be matched to a DB2 accounting record.

Not matched to any DB2 accounting records

The number of CMF performance class records with DB2REQCT>0 that were *not* able to be matched to any DB2 accounting records, that is, there is 'missing' DB2 accounting data.

Total

The total number of CMF performance class records with DB2REQCT>0.

Total CMF performance class records with no DB2 activity:

The total number of CMF performance class records with DB2REQCT=0.

When LISTZERO is specified (explicitly or implicitly because only Summary reports are requested), this count is marked **N/A** (not applicable) because *all* CMF performance class records with DB2REQCT=0 are excluded.

DB2 accounting records:

The results of CMF-DB2 record matching for the DB2 accounting records.

Eligible for summary reporting

The number of DB2 accounting records eligible for summary reporting. To be eligible, a DB2 accounting record must have been matched to either a single CICS task, or multiple tasks which were all related to the same APPLID, transaction, and program.

Matched to a single CICS task

The number of DB2 accounting records matched to a single CICS task.

Matched to two or more CICS task

The number of DB2 accounting records matched to more than one CICS task. This can occur in a network unit-of-work that utilizes the DPL function.

Not matched to any CICS tasks

The number of DB2 accounting records that were not able to be matched to any CMF performance class records within the network unit-of-work, that is, there is 'missing' CMF data.

Total

The total number of DB2 accounting records.

Numerics and Mnemonics

In the DB2 Report, all numeric fields are formatted to 8 bytes.

The following mnemonics can appear in numeric fields:

- N/A** Occurs when the field is not applicable. For example, DB2 Connection Wait Time is not applicable when DB2REQCT=0. Also, in the Recap report, various DB2 record and matching statistics are not applicable when no DB2 records are selected, hence no record matching takes place.
- N/C** Occurs when a value cannot be calculated. For example, in the Recap report, when the '% of Total' field cannot be calculated because the total is zero.
- N/P** Occurs when the data is not present. For example, in the DB2 List or Long Summary reports, when DB2 details are requested that are not present in the DB2 Accounting records. For example, you requested Class 3 details when only DB2 Accounting Classes 1 and 2 were traced.

System Logger Report

The System Logger Report processes System Logger (SMF 88) records to provide information on the System Logger logstreams and coupling facility structures that are used by CICS Transaction Server for logging, recovery and backout operations. The report can assist with measuring the effects of tuning changes and identifying Logstream or Structure performance problems.

The System Logger List report shows information on Logstream writes, deletes, and events, as well as Structure Alter events for each SMF recording interval.

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

These reports, when used in conjunction with the CICS Logger reports produced from the standard CICS statistics reporting utilities, provide a comprehensive analysis of the logstream activity for all your CICS systems.

You can request the reports from all available records, or you can provide criteria for data selection to request a report from only the records that meet specific requirements.

Note: The System Logger Report is only supported for CICS Transaction Server Version 1.1 or later.

Report Command

You can request a detailed list of transaction activity, a summary report, or both.

The command to produce the default report, a summary report of System Logger activity by Logstream name, is:

```
CICSPA LOGGER or CICSPA LOGGER(SUMMARY)
```

To produce a detailed list of System Logger activity:

```
CICSPA LOGGER(LIST)
```

To produce a detailed list of System Logger activity with Alter records:

```
CICSPA LOGGER(LIST(ALTER))
```

To tailor the report, you can specify report options as follows:

```
CICSPA LOGGER(  
    [OUTPUT(ddname),]  
    [EXTERNAL(ddname),]  
    [DETAIL[(ALTER)],]  
    [SUMMARY,]  
    [INTERVAL(minutes),]  
    [SORT(LOGSTREAMNAME|STRUCTURENAME),]  
    [LOGSTREAMNAME(name or mask),]  
    [STRUCTURENAME(name or mask),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...')]  
)
```

Report Format

The System Logger Report examines SMF 88 records.

The report is produced using an external SORT facility. An External Work data set is required to store the records before they are sorted. This data set is either specified explicitly using the **EXTERNAL(ddname)** operand or CICS PA assigns one from the External Work File pool.

The records are sorted in the following order:

- If **SORT(LOGSTREAMNAME)** is specified, the data is sorted by Logstream name, MVS ID, Structure name, then time stamp. This is the default.
- If **SORT(STRUCTURENAME)** is specified, the data is sorted by Structure name, Logstream name, MVS ID, then time stamp.

You can filter on Logstream name and/or Structure name by specifying a name or pattern in the **LOGSTREAMNAME** or **STRUCTURENAME** operands.

Report Content (List)

The following command produces a System Logger List report like that shown in Figure 32.

CICSPA LOGGER(LIST(ALTER))

CICS Performance Analyzer
System Logger Report - List

LOGR0001 Printed at 9:30:09 7/11/2002 Data from 7:00:40:14 6/20/2002 to 9:59:40:16 6/20/2002 Page 1

Logstream name	Structure name	Flag	Interval expired at	MVSID	Level
IYOT1.DFHLOG	LOG_JG	Staging	09:00:00:00 6/20/2002	MV55	SP6.0.8

IXGWRITES				DELETIONS			
Count	Total Bytes	Average Buffer Size	Bytes Writn to Int Stor	With DASD Write	Without DASD Write	Bytes After Offload w. DASD	Bytes Int Stor w/o DASD Write
11248	4348827	386	6768128	0	9327	0	3348643

EVENTS								
Offloads	Staging Threshld	Demand DASD Shifts	Staging Full	Entry Full	Struct Full	Demand Init'd Offloads	Minimum Block Length	Maximum Block Length
3	0	0	0	0	0	0	116	1422

EVENTS			DASD Writes						
Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Compl't'd	Count	Total Bytes	Average	Waits	
11216	32	0	0	0	0	0	0	0	

Logstream name	Structure name	MVSID	Level
ALTER	LOG_JG	MV55	SP6.0.8

STRUCTURE ALTER									
SMF record timestamp	9:36:38:05	6/20/2002	Current Bytes Written	Offloads	Current Avg Bufsz	Targeted Avg Bufsz	Struct Size (Blocks)	Log Data Writes	Log Streams Connectd
			0	2	768	768	5056	0	0

Figure 32. Example of a System Logger Report (List)

System Logger Report

The following fields are shown on the System Logger List Report:

Logstream Name

The name of the logstream.

Structure Name

The name of the structure.

Flag

Staging. If the SMF88LFT flag is set, this logstream used the staging data set during this interval.

Disconnect. If SMF88LDS is on, this SMF record was generated as a result of a logstream disconnect.

Interval expired at

The time of day when the current SMF interval expired.

Note: When you run the Logger report on a system with a different time zone setting to that of the SMF data, you must specify the **ZONE** operand to convert the System Logger time stamps from GMT to local time. By default, CICS PA will use the reporting system's time zone settings and the Logger report time stamps will not reflect the local time of the data. Specify ZONE to match the time zone of the SMF data and the Logger report time stamps will reflect the local time of the data.

MVSID

MVS System ID.

Level

MVS Release level.

Information on **IXGWrites:**

No.

The number of IXGWRITE requests.

Total Bytes

Bytes written by IXGWRITE requests.

Avg Bytes

The average number of bytes written by IXGWRITE requests.

Bytes Writn to Int Stor

The number of bytes written to interim storage.

Information on **DELETIONS:**

No. With DASD Write

The number of deletes from interim storage written to DASD.

No. Without DASD Write log data set and then deleted.

Number of deletes from interim storage without having been written to the log data set.

Bytes After Offload w. DASD

Bytes deleted after data was offloaded to DASD log data sets. If SMF88SIB is high and the SMF88SAB is low, CICS is successfully using interim storage to avoid the I/O incurred by offloading to DASD log data sets.

Bytes Int Stor w/o DASD Write

Count of bytes deleted instead of being written to DASD. Due to CICS tail trimming, that is, deletion of records which are no longer required for recovery. It shows how successfully CICS avoids offloads for data that it intends to delete from interim storage.

Information on **EVENTS:**

Offloads

Number of times the log stream was offloaded.

Staging Threshold

Number of times system logger detected a Staging Data Set Threshold Hit condition (HIGHOFFLOAD reached) for the staging data set.

Demand DASD Shifts

Number of log stream DASD shifts (additional log data set allocates) initiated by this system. For DFHLOG and DFHSHUNT this value should be small, otherwise too much data is being offloaded. (the LS_SIZE parameter for the IXCMIAPU logstream definition utility should be checked).

Staging Full

Number of times staging dataset was full. The cause of any non-zero condition should be investigated.

Entry Full

Number of times all log streams connected to the structure are offloaded by IXLOGR due to 90% of the structure's list entries being full.

Struct Full

Number of times a structure full condition was reached. The cause of any non-zero condition should be investigated.

Demand Init'd Offloads

Number of demand initiated offloads.

Min Blocklen

Minimum block length. If set to **7FFFFFFF** then there was no activity for this interval.

Max BlockLen

Maximum block length.

Type1

Type 1 CF event. Normal write. Indicates that, after the write completed, the percentage of resource in use by the structure was less than the high offload threshold, meaning that system logger is using the coupling facility successfully. This number should be high.

Type2

Type 2 CF event. Indicates that, after the write completed, the percentage of the logstream in use was greater than or equal to the high off load threshold. This can happen at the point where the offload value is reached or the offload is already in progress.

Type3

Type 3 CF event. Indicates that a given log stream is close to consuming 90% of the coupling facility resource allocated to it. A type-3 completion can occur if there is a failure which prevents system logger from promptly moving data from

the coupling facility structure to DASD log data sets or if the system logger configuration is tuned incorrectly. For example, system logger's access to its DASD log data sets would be slowed if those data sets reside on the same device as some other heavily-used data sets. A type-3 can also occur if many log streams are defined to share the same structure, because each newly defined log stream causes system logger to dynamically repartition storage among the existing logstreams. If a log stream has a large proportion of type-3 completions, system logger is getting dangerously close to the STRUCTURE FULL condition.

Struct Rebuilds Init'd

Number of structure rebuild events initiated for this log stream, as seen by this system. Excessive structure rebuilds should be investigated. Structures are rebuilt in the event of logstream connectivity failure in accordance with the REBUILDPERCENT parameter of the IXCMIAPU utility.

Struct Rebuilds Compl'd

Number of structure rebuild events completed for this log stream, as seen by this system. Excessive structure rebuilds should be investigated. Structures are rebuilt in the event of logstream connectivity failure in accordance with the REBUILDPERCENT parameter of the IXCMIAPU utility.

Information on **DASD Writes:**

No.

No. of DASD write requests.

Total Bytes

Total bytes written to DASD (offload data sets).

Avg

Average number of bytes written to DASD (offload data sets).

Waits

No. of times System Logger had to suspend processing before writing to DASD because a previous DASD write request had not completed.

Information on **STRUCTURE ALTER:**

SMF record timestamp

The time of day when this SMF record was written.

Current Bytes Written

Current WRITTEN-Bytes-Structure. Count of bytes written to the structure on this system.

Offloads

The number of offloads that occurred for this structure.

Current Avg Bufsz

Current allocated average buffer size for the structure.

Targeted Avg Bufsz

Targeted average buffer size. Average buffer size System Logger attempted to achieve, by altering the element to entry ratio.

Struct Size (Blocks)

Structure Size. Represented in the number of 4K blocks.

Log Data Writes

Total number of log data writes at the time of the recording interval.

Log Streams Connectd

Total number of log streams connected to the structure on this system at the time of the recording interval.

Report Content (Summary)

The following command produces the Logstream and Structure Summary reports like that shown in Figure 33. The report is sorted by Logstream name, without Alter events, and uses the system default interval.

CICSPA LOGGER or

CICSPA LOGGER(SUMMARY) ,SORT (LOGSTREAMNAME)

CICS Performance Analyzer
System Logger Report - Logstream Summary

LOGR0001 Printed at 9:30:09 7/11/2002 Data from 7:00:40:14 6/20/2002 to 9:59:40:16 6/20/2002 Page 7

Logstream name	Structure name	Start of Interval	End of Interval	Interval	MVSID
IYOT1.IY01.DFHJ03	*DASDONLY*	06:45:00:00 6/20/2002	09:00:00:00 6/20/2002	02:15:00	MV55

IXGWrites				DELETIONS			
No.	Total Bytes	Avg Bytes	Bytes Writn to Int Stor	No. With DASD Write	No. Without DASD Write	Bytes After Offload w. DASD	Bytes Int Stor w/o DASD Write
Total	45	2506582	55702	2543616	20	0	1130496
Rate(/Sec)	0	309		314	0	0	140
Minimum	45	2506582		2543616	20	0	1130496
Maximum	45	2506582		2543616	20	0	1130496

EVENTS							
Offloads	Staging Threshld	Demand DASD Shifts	Block Length	Staging Full	Entry Full	Struct Full	Demand Init'd Offloads
Total	2	6	6	0	0	0	0
Rate(/Sec)	0	0	0	0	0	0	0
Minimum	2	0	6	16998	0	0	0
Maximum	2	0	6	65372	0	0	0

EVENTS				DASD Writes				
Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Compl't'd	No.	Total Bytes	Avg	Waits
Total	0	0	0	0	8	1114992	0	0
Rate(/Sec)	0	0	0	0	0	138		0
Minimum	0	0	0	0	8	1114992		0
Maximum	0	0	0	0	8	1114992		0

System Logger Report

CICS Performance Analyzer
System Logger Report - Structure Summary

LOGR0001 Printed at 9:30:09 7/11/2002 Data from 7:59:40:14 6/20/2002 to 9:59:40:16 6/20/2002 Page 8

Structure name	Start Expiry Interval	Stop Expiry Interval	Interval	MVSID
LOG_JG	07:00:00:00 6/20/2002	09:00:00:00 6/20/2002	02:15:00	MV55

IXGWrites				DELETIONS			
No.	Total Bytes	Avg Bytes	Bytes Writn to Int Stor	No. With DASD Write	No. Without DASD Write	Bytes After Offload w. DASD	Bytes Int Stor w/o DASD Write
Total	9025	2549654	283	4622848	4892	3484	984622
Rate(/Sec)	1	315	571	0	0	170	122
Minimum	0	0	0	0	0	0	0
Maximum	9022	2546799	4619520	4891	3484	1379267	984622

EVENTS							
Offloads	Staging Threshld	Demand DASD Shifts	Block Length	Staging Full	Entry Full	Struct Full	Demand Init'd Offloads
Total	3	257	1	0	0	0	0
Rate(/Sec)	0	0	0	0	0	0	0
Minimum	0	0	116	0	0	0	0
Maximum	2	257	1	1422	0	0	0

EVENTS				DASD Writes				
Type1	Type2	Type3	Struct Rebuilds Init'd	Struct Rebuilds Compl't'd	No.	Total Bytes	Avg	Waits
Total	9025	0	0	0	9	1575063	0	5
Rate(/Sec)	1	0	0	0	0	194	0	0
Minimum	0	0	0	0	0	0	0	0
Maximum	9022	0	0	0	8	1574907	0	5

Figure 33 (Part 2 of 2). Example of a System Logger Report (Summary)

These reports summarize SMF 88 Subtype 1 and Subtype 11 record data. There are two types of summary report:

1. Summary by Logstream.

Data is sorted by Logstream, MVS ID, Structure, then time stamp. The second row of result data represents the rate per second (for example, IXGWrites per second) calculated from the estimated beginning time of the lowest expiry interval to the end of the highest expiry interval. The beginning time of the lowest expiry interval is calculated by subtracting the first expired TOD from the second expired TOD and subtracting the result from the first expired TOD. If the report data contains only one expiry interval, rates per second are omitted, since the length of the expired interval cannot be estimated.

2. Summary by Structure.

Data is sorted by Structure, Logstream, MVS ID, then time stamp.

These reports have the same fields as the System Logger List report.

The summary statistics reported are:

- Total** Total for this field across all intervals
- Rate(/Sec)** Activity Rate per second for this field.
- Minimum** Minimum value seen for this field in any interval
- Maximum** Maximum value seen for this field in any interval

Transaction Resource Usage Report

The Transaction Resource Usage Report provides comprehensive reporting of CMF transaction resource class data in SMF 110 records.

Three reports can be requested:

1. **Transaction Resource Usage List.** This report provides a list of all Transaction resource class records in the sequence that they appear in the SMF file. It gives Transaction information, detailing their individual File usage.
2. **Transaction File Usage Summary.** This report summarizes File usage by Transaction ID. For each Transaction ID, it gives Transaction and File Control statistics followed by a breakdown of File usage for each File used.
3. **File Usage Summary.** This report summarizes File activity. For each File, it gives a breakdown of File usage by Transaction ID.

Note: The Transaction Resource Usage Report is only supported for CMF transaction resource class data from CICS Transaction Server Versions 1.3 and 2.2. Currently, File usage is the only type of transaction resource data available.

Report Command

You can request a detailed list of transaction resource class data records or summary reports on file usage.

The command to produce the default report is:

```
CICSPA RESUSAGE
```

This produces the two summary reports, and is the same as specifying:

```
CICSPA RESUSAGE(TRANSUMM,      Transaction File Usage Summary
                  FILESUMM(      File Usage Summary
                  BYTRAN,        break down by Transaction ID
                  TOTAL))       include transaction totals
```

To produce a detailed list of transaction resource class records:

```
CICSPA RESUSAGE(TRANLIST)      Transaction Resource Usage List
```

To tailor the report, you can specify report options as follows:

```
CICSPA RESUSAGE(
                  [OUTPUT(ddname),]
                  [TRANLIST[(FILE)],]
                  [TRANSUMMARY[(FILE)],]
                  [FILESUMMARY([BYTRAN],[TOTAL]),]
                  [LINECOUNT(nnn),]
                  [TITLE1('...sub-heading left ...'),]
                  [TITLE2('...sub-heading right...'),]
                  [SELECT(PERFORMANCE(action1(field1(value1),...),...))])
```

Performance Selection Criteria

Performance Selection Criteria applies to both transaction resource class data and performance class data. You can request a report from all available records, or you can provide Selection Criteria to request a report from only the records that meet your specific requirements.

Transaction resource class records contain Task Identification and File Entry information. For details, see “Format of Transaction Resource Class Data Records” on page 202. For the selection of transaction resource class records, only some fields in the Selection Criteria are applicable. All other fields are ignored.

The Selection Criteria fields applicable to the Task Identification section are:

ACTIVE
FCTY
LUNAME
NETUOWSX
PROGRAM
RSYSID
START
STOP
TASKNO
TERM
TRAN
USERID

The Selection Criteria fields applicable to the File Entries (see note 1) are:

FILENAME (see note 2)
FCAMCT (Count)
FCADD (Count only, see note 3)
FCBROWSE (Count only, see note 3)
FCDELETE (Count only, see note 3)
FCGET (Count only, see note 3)
FCPUT (Count only, see note 3)
FCTOTAL (Count only, see note 3)
CFDTWAIT (Time and Count)
RLSWAIT (Time and Count)

Notes:

1. Selection Criteria for File Entries can affect Task Identification selection. If all File entries for a task are excluded, then the task is also excluded.
2. FILENAME is a special field that applies only to transaction resource class data. It is ignored when processing performance class data.
3. Selection Criteria only supports the checking of the Count component of File request fields. The Time component cannot be checked. These fields are common to both performance class (Count) and transaction resource class (Clock - COUNT and TIME), but have differing data types. Since the performance fields are Count (not Clock) fields, only the Count component is supported by Selection Criteria.

Transaction Resource Usage Report

TranType

This column describes the transaction type as shown in the following table:

TranType	Description
S	System transaction.
U	User transaction.
M	Mirror transaction.
D	DPL Mirror transaction.
O	ONC RPC Alias transaction.
W	WEB Alias transaction.
B	Bridge transaction.
-	Reserved.
R	CICS BTS Run (ACQPROCESS or activity) transaction synchronous.

The transaction type is represented as an interpretation of byte 1 of the transaction flags field. See the performance class data field TRANFLAG (owner: DFHTASK, field id: 164).

Term

The Terminal ID is either the terminal ID or the session ID. This field is blank if the transaction was not associated with a terminal or session facility. See the performance class data field TERM (owner: DFHTERM, field id: 002).

LUName

The LUName is either the VTAM netname of the terminal ID (if the Access Method for the terminal is VTAM) or the VTAM APPLID of the connection for the session ID. This field is blank if the transaction was not associated with a terminal or session facility. See the performance class data field LUNAME (owner: DFHTERM, field id: 111).

Request Type

This field describes the type of request that the transaction resource record represents:

Description

AP: Means an application program request. The **Program** field will identify the initial application program name invoked for the transaction.

Note: Function shipped Distributed Program Link (DPL) requests are interpreted as application requests. In this case the **AP:** is followed by the '----' (as for other function shipping requests) to indicate the type(s) of requests issued by the application program.

FS:---- Means a function shipping request. The '----' indicate the type(s) of function shipping request:

F	File Control
I	Interval Control
D	Transient Data
S	Temporary Storage

TR:xxxx Means a transaction routing request from a terminal-owning region. The 'xxxx' is the transaction routing sysid and identifies the connection name (sysid) of the remote system to which the transaction was routed. See the performance class data field RSYSID (owner: DFHCICS, field id: 130).

Program

The Initial Program Name. This identifies the initial application program invoked for the transaction. Depending on the type of transaction, this field contains either the application program name as defined in the transaction definition, the program name returned by a user written dynamic routing program, the application program name passed on a function shipped Dynamic Program Link (DPL) request, the initial application program name of an ONC RPC Alias Transaction, or the initial application program name of a WEB Alias Transaction. A program name of ##### indicates that the transaction was invoked using the definition of the transaction ID specified by the DTRTRAN system initialization parameter. See the performance class data field PGMNAME (owner: DFHPROG, field id: 071).

FCTY T

This field is an interpretation of byte 0 of the transaction flags field. See performance class data field TRANFLAG (owner: DFHTASK, field id: 164). It describes the transaction's facility type:

<i>Type</i>	<i>Description</i>
<i>blank</i>	None
T	Terminal or Session
S	Surrogate
D	Transient Data queue
B	Bridge Terminal

FCTY Name

The transaction's facility name (owner: DFHTASK, field id: 163).

Conn Name

The terminal session connection name. If the terminal facility associated with this transaction is a session, then this field is the name of the owning connection (sysid). See the performance class data field TERMCNNM (owner: DFHTERM, field id: 169).

NETName

This column is the Network Unit-of-Work ID from the system where the network unit-of-work ID originated. This name is constant within each network unit-of-work ID. See the performance class data field NETUOWPX (owner: DFHTASK, field id: 097) on page 176.

APPLID

The APPLID of the CICS system upon which the CMF transaction resource record was created. This field indicates the CICS system that performed the work recorded in the record.

Task

The transaction identification number. See the performance class data field TRANNUM (owner: DFHTASK, field id: 031). This is printed for all records to help identify the corresponding record(s) on a Performance List Report.

UOW Seq

This column is the syncpoint sequence number from the Network Unit-of-Work ID that was assigned at transaction attach time. See the performance class data field NETUOWSX (owner: DFHTASK, field id: 098) on page 177.

Transaction Resource Usage Report

R T

This field describes the performance class record type (see performance class data field RTYPE, owner: DFHCICS, field id: 112):

- C** Record output for a terminal converse.
- D** Record output by a user event monitoring point (EMP) DELIVER request.
- F** Record output for a long running transaction.
- S** Record output for a syncpoint request.
- T** Record was output for a transaction termination (detach).

For transaction resource class data, this field is always **T**.

Stop Time

Stop time (hh:mm:ss.thm) of the transaction. See performance class data field STOP (owner: DFHCICS, field id: 006).

Response Time

The transaction response time. This field is calculated by subtracting the transaction Start Time (owner: DFHCICS, field id: 005) from the transaction Stop Time (owner: DFHCICS, field id: 006).

File Entries: For more information on these fields, see “File Entry Fields” on page 205.

File

The File name.

FC Calls

File Control statistics.

Get Elapse

The elapsed time that the user task waited for completion of GET requests issued by the user task for this file.

Get Count

The number of GET requests issued against the file by the user task.

Put Elapse

The elapsed time that the user task waited for completion of PUT requests issued by the user task for this file.

Put Count

The number of PUT requests issued against the file by the user task.

Browse Elapse

The elapsed time that the user task waited for completion of BRO requests issued by the user task for this file.

Browse Count

The number of BRO requests issued against the file by the user task.

Add Elapse

The elapsed time that the user task waited for completion of ADD requests issued by the user task for this file.

| **Add Count**

| The number of ADD requests issued against the file by the user task.

| **Delete Elapse**

| The elapsed time that the user task waited for completion of DEL requests
| issued by the user task for this file.

| **Delete Count**

| The number of DEL requests issued against the file by the user task.

| **Total Elapse**

| The total elapsed time that the user task waited for completion of all
| requests issued by the user task for this file.

| **Total Count**

| The total number of all requests issued against the file by the user task.

| **I/O Waits**

| **File Elapse**

| The total I/O wait time on this file by the user task.

| **File Count**

| The number of I/O waits on this file by the user task.

| **RLS Elapse**

| The elapsed time that the user task waited for RLS file I/O on this file.

| **RLS Count**

| The number of times that the user task waited for RLS file I/O on this file.

| **CFDT Elapse**

| The elapsed time that the user task waited for a data table access request
| to the coupling facility data table server to complete for this file.

| **CFDT Count**

| The number of times that the user task waited for a data table access
| request to the coupling facility data table server to complete for this file.

| **AccMeth Requests Count**

| The number of times the user task invoked file access-method interfaces.

Transaction Resource Usage Report

Report Content (Transaction File Usage Summary)

The Transaction File Usage Summary report provides a summary of File usage by Transaction ID. See the sample report in Figure 35 created with the command:

CICSPA RESUSAGE(TRANSUMM(FILE),OUTPUT(ddname))

```

V1R2M0
CICS Performance Analyzer
Transaction File Usage Summary
RESU0001 Printed at 11:00:52 7/26/2002 Data from 07:30:47 5/29/2002 to 08:35:48 5/29/2002 APPLID IYK2Z1V1 Page 11
***** FC Calls *****
Tran #Tasks Get Put Browse Add Delete Total File I/O Waits RLS CFDT AccMeth Requests
-----
STOK 9 Elapse Avg .2452 .0000 .0000
Max 1.5718 .0000 .0000
Count Avg 48 0 506 2 1 568 65 0 0 595
Max 369 7 4354 9 4 4739 426 0 0 4925
***** FC Calls *****
File #Tasks Get Put Browse Add Delete Total File I/O Waits RLS CFDT AccMeth Requests
-----
STOCKF1 9 Elapse Avg .1907 .0045 .0170 .0154 .0094 .2544 .2452 .0000 .0000
Max 1.4601 .0110 .1195 .0458 .0358 1.6370 1.5718 .0000 .0000
Count Avg 48 0 506 2 1 568 65 0 0 595
Max 369 2 4354 8 4 4739 426 0 0 4925
STOCKF2 9 Elapse Avg .0261 .0054 .0036 .0113 .0068 .0712 .0690 .0000 .0000
Max .0352 .0065 .0042 .0176 .0098 .1029 .0837 .0000 .0000
Count Avg 7 1 9 2 1 28 18 0 0 34
Max 253 7 15 9 3 253 47 0 0 765

```

Figure 35. Example of a Transaction Resource Usage Report (Transaction File Usage Summary)

The report consists of two sections:

1. The Identification section that identifies the CICS Transaction ID. The column headings identify this section which also consists of a summary of performance group DFHFILE fields. Note that data in this section is obtained from CMF performance class records, not transaction resource class records.
2. The Resource section(s) associated with the Transaction ID immediately above it. Currently, only File Entries are available. They are identified by a File declaration.

The Transaction File Usage Summary report provides average and maximum values for each field in the report. For an explanation of these fields, refer to "File Entries" on page 98.

Report Content (File Usage Summary)

The File Usage Summary report provides a summary of File usage broken down by Transaction ID. See the sample report in Figure 36 created with the command:

CICSPA RESUSAGE(FILESUMM(BYTRAN,TOTAL),OUTPUT(ddname))

```

V1R2M0                                CICS Performance Analyzer
                                         File Usage Summary
RESU0001 Printed at 11:00:52 7/26/2002   Data from 07:30:47 5/29/2002 to 08:35:48 5/29/2002   APPLID IYK2Z1V1   Page 15
-----
File      Tran  #Tasks          ***** FC Calls *****          I/O Waits          ***** AccMeth
-----  ---  -
Get      Put      Browse    Add    Delete    Total    File    RLS    CFDT    Requests
-----  ---  -
STOCK1   STOK    9 Elapse Avg    .1907    .0045    .0170    .0154    .0094    .2544    .2452    .0000    .0000
          Count Max    1.4601    .0110    .1195    .0458    .0358    1.6370    1.5718    .0000    .0000
          Count Avg    48        0        506     2        1        568     65        0        0        595
          Count Max    369       0       4354    8        4       4739    426       0        0        4925
          ORDR    4 Elapse Avg    .6174    .0000 10139.51 .0000    .0000 10140.44 1.2854    .0000    .0000
          Count Max    .8421    .0000 40557.78 .0000    .0000 40557.78 1.3365    .0000    .0000
          Count Avg    162      0       3273    0        0       3600    356       0        0       3754
          Count Max    217      0       3273    0        0       3710    356       0        0       3754
          Totl   13 Elapse Avg    .3220    .0031 3119.862 .0107    .0065 3120.313 .5653    .0000    .0000
          Count Max    2.4697    .0401 40558.06 .1390    .0842 40561.78 5.1415    .0000    .0000
          Count Avg    83        0       1357    1        0       1501    154       0        0       1567
          Count Max    651       7      13092    23       12      14403   1424       0        0      15016
    
```

Figure 36. Example of a Transaction Resource Usage Report (File Usage Summary)

The report consists of one section:

1. The File/Transaction ID section which shows for each File, a File usage summary per Transaction.

The File Usage Summary report provides average and maximum values for each field in the report. For an explanation of these fields, refer to “File Entries” on page 98.

Exception Reports

The Exception Reports provide detailed analysis of the CMF exception class data. The Exception Reports are:

- Exception List Report
- Exception Summary Report

Exception List Report

The Exception List Report provides two types of information:

- The cause of the exception condition
- The information necessary to relate this record to the performance class record on the Performance List Report.

You can request a report that uses all the exception records, or you can provide criteria to select only the records that meet specific requirements.

Report Command

The command to produce the default report is:

```
CICSPA LISTEXception
```

To tailor the report, you can specify report options as follows:

```
CICSPA LISTEXC(  
    [OUTPUT(ddname),]  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(EXCEPTION(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])
```

Report Content

In this report, one line is printed for every exception record written by the CICS Monitoring Facility (CMF). Selected data within the exception record is displayed on this line. (The printed information allows you to find the corresponding record(s) in the Performance List Report.)

V1R2M0

CICS Performance Analyzer
Exception List

XLST0001 Printed at 8:26:51 2/17/2002 Data from 08:08:37 2/16/2002 APPLID Page 1

Tran	Term	LUName	Userid	Tran SC Class	Service Class	Report Class	Taskno	Exp Seq	Time Start	Time Elapsed	Current Program	Resource Type	Resource ID	Exception Type
ABRW	P045	IG2ZP045	CBAKER	TP			834	1	08:08:37	10.189	DFHSABRW	FILE	FILE	STRING
ABRW	S205	IGCS205	BRENNER	TP			835	1	08:08:47	7.245	DFHSABRW	FILE	FILE	STRING
ABRW	S220	IGCS220	BRENNER	TP			837	1	08:08:52	2.996	DFHSABRW	FILE	FILE	STRING
CECI	S220	IGCS220	BRENNER	TO			1151	1	08:12:10	.005	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	2	08:12:10	.002	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	3	08:12:10	.002	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	1	08:12:10	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	2	08:12:10	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	3	08:12:10	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	4	08:12:10	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	5	08:12:10	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	6	08:12:10	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	7	08:12:10	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	8	08:12:10	.003	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	9	08:12:10	.003	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	10	08:12:11	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	11	08:12:11	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	12	08:12:11	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	13	08:12:11	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	14	08:12:11	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	15	08:12:11	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	16	08:12:11	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	17	08:12:11	.002	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	P045	IG2ZP045	CBAKER	TO			1149	18	08:12:11	.004	DFHECID	TEMPSTOR	LONGTSNAME	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	4	08:12:11	.002	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	5	08:12:11	.002	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	6	08:12:11	.003	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	7	08:12:11	.003	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	8	08:12:11	.002	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	9	08:12:11	.003	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	10	08:12:11	.003	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	11	08:12:11	.003	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	12	08:12:12	.004	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	13	08:12:12	.003	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	14	08:12:12	.004	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	1	08:12:12	.002	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	15	08:12:12	.004	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	2	08:12:12	.004	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	16	08:12:12	.004	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	3	08:12:12	.004	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	17	08:12:12	.004	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	4	08:12:12	.004	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S220	IGCS220	BRENNER	TO			1151	18	08:12:12	.005	DFHECID	TEMPSTOR	CACA	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	5	08:12:12	.006	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	6	08:12:12	.002	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	7	08:12:12	.002	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	8	08:12:12	.002	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	9	08:12:12	.002	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	10	08:12:12	.002	DFHECID	TEMPSTOR	FRED	BUFFER
CECI	S205	IGCS205	BRENNER	TO			1150	11	08:12:12	.002	DFHECID	TEMPSTOR	FRED	BUFFER

Figure 37. Example of an Exception List Report

The leftmost columns in this report contain similar information as reported in the Performance List Report to identify the exception transaction. The rightmost columns provide additional information about the actual exception.

For detailed information on the exception class data fields shown in the Exception List Report, see "CMF Exception Class Data Fields" on page 195.

Exception List Report

The following columns are the same as the Performance List Report:

Tran

The Transaction ID (field: TRAN, owner: DFHTASK, field id: 001) identifies the name of the transaction that this performance class record represents. Applications that are using Distributed Program Link (DPL) requests should use the TRANSID('xxxx') parameter on the EXEC CICS LINK PROGRAM('xxxxxxx') command to enable better transaction/application analysis from the monitoring performance class data. If the TRANSID('xxxx') parameter is not specified all the performance class records on the target system for a Distributed Program Link (DPL) mirror transaction will have the same transaction id. For example, 'CSMI' for a Distributed Program Link (DPL) request from another connected CICS system.

Term

The Terminal ID (field: TERM, owner: DFHTERM, field id: 002) is either the terminal id or the session id. This field is blank if the transaction was not associated with a terminal or session facility.

LUName

The LUName (field: LUNAME, owner: DFHTERM, field id: 111) is either the VTAM netname of the terminal id (if the Access Method for the terminal is VTAM) or the VTAM APPLID of the connection for the session id. For an EXCI connection, this field will be blank. The transaction's terminal or session type can be identified from the NATURE field (byte 0) within the terminal information field (field: TERMINFO, owner: DFHTERM, field id: 165). This field is blank if the transaction was not associated with a terminal or session facility.

Userid

The User identifier of the transaction (owner: DFHCICS, field id: 089).

SC

The transaction start type (field: STYPE, owner: DFHTASK, field id: 004).

Tran Class

The transaction class for this transaction (owner: DFHTASK, field id: 166). If the transaction is not in a transaction class then this field is blank.

Service Class

The MVS Workload Manager (WLM) service class (owner: DFHCICS, field id: 167) for the transaction (CICS Transaction Server Version 1.1 or later only).

Report Class

The MVS Workload Manager (WLM) report class (owner: DFHCICS, field id: 168) for the transaction (CICS Transaction Server Version 1.1 or later only).

Taskno

The transaction identification number (owner: DFHTASK, field id: 031).

Exp Seq

The sequence number of this exception within the transaction.

Start

The Start time of the exception condition.

Elapsed

The Elapsed time of the exception condition.

The following columns provide additional information about the exception:

Resource Type

The exception resource type:

CFDTLRSW The exception resource id is a CFDTPOOL name.

CFDTPOOL The exception resource id is a CFDTPOOL name.

FILE The exception resource id is a file name.

LSRPOOL The exception resource id is an LSRPOOL id.

STORAGE The exception resource id is CICS storage.

TEMPSTOR The exception resource id is temporary storage queue name.

Resource ID

The exception resource id.

Exception Type

The exception type:

WAIT Exception is due to a wait.

BUFFER Exception is due to a buffer wait.

STRING Exception is due to a string wait.

Table 1 shows the exception types and the corresponding resource type and resource id values along with a brief description of the exception condition.

Table 1. Exception Types

Exception Type	Resource Type	Resource Id	Meaning
WAIT	CFDTLRSW	CFDTPOOL name	Wait for CF (coupling facility) data table locking request slot
WAIT	CFDTPOOL	CFDTPOOL name	Wait for CF (coupling facility) data table non-locking request slot
WAIT	STORAGE	CDSA	Wait for CDSA storage
WAIT	STORAGE	ECDSA	Wait for ECDSA storage
WAIT	STORAGE	UDSA	Wait for UDSA storage
WAIT	STORAGE	EUDSA	Wait for EUDSA storage
WAIT	STORAGE	SDSA	Wait for SDSA storage
WAIT	STORAGE	ESDSA	Wait for ESDSA storage
WAIT	TEMPSTOR	TS Qname	Wait for temporary storage
STRING	FILE	filename	Wait for VSAM string associated with a file
STRING	LSRPOOL	filename	Wait for VSAM string associated with an LSRPOOL
STRING	TEMPSTOR	TS Qname	Wait for VSAM string associated with DFHTEMP
BUFFER	LSRPOOL	LSRPOOL	Wait for VSAM buffer associated with an LSRPOOL
BUFFER	TEMPSTOR	TS Qname	Wait for VSAM buffer associated with DFHTEMP

Exception Summary Report

To obtain the number of exception records written for each transaction, look at the Count component of the exception wait time (field: EXWTTIME, owner: DFHCICS, field id: 103) on the Performance List Report or Performance List Extended Report. Note that this field is not in the default reports. You'll need to request the **EXWAIT** field in a Report Form or FIELDS operand.

Exception Summary Report

The Exception Summary Report summarizes the exception records collected by the CICS Monitoring Facility (CMF). Records are summarized by transaction identifier code. The report provides the total number of exceptions for each transaction, according to the following:

- For auxiliary temporary storage VSAM buffer and string wait conditions
- For coupling facility data table pool wait conditions
- For VSAM LSRPOOL buffer and string wait conditions
- For VSAM file string wait conditions
- For temporary storage wait conditions
- For main storage wait conditions

You can request a report that summarizes all available records, or you can provide selection criteria to summarize only the data that meets specific requirements.

Report Command

The command to produce the default report is:

```
CICSPA SUMEXception
```

To tailor the report, you can specify report options as follows:

```
CICSPA SUMEXC(  
    [OUTPUT(ddname),]  
    [LINECOUNT(nnn),]  
    [TITLE1('...sub-heading left ...'),]  
    [TITLE2('...sub-heading right...'),]  
    [SELECT(EXCEPTION(INCLUDE|EXCLUDE(field1(values1),...),  
        ...))])
```

Report Content

Each line on the report represents the summarized information for a single Transaction ID, and is printed in alphanumeric order by Transaction ID.

V1R2M0	CICS Performance Analyzer														
	Exception Summary														
XSUM0001 Printed at 8:26:51 2/17/2002			Data from 08:08:37 2/16/2002 to 08:12:36 2/16/2002						Page 1						
Tran ID	Total Excepts	TS-Buffer-Wait Average	TS-Buffer-Wait Count	TS-String-Wait Average	TS-String-Wait Count	Pool-Buffr-Wait Average	Pool-Buffr-Wait Count	Pool-Strng-Wait Average	Pool-Strng-Wait Count	File-Strng-Wait Average	File-Strng-Wait Count	..Temp Storage. Average	..Temp Storage. Count	..Main Storage. Average	..Main Storage. Count
ABRW	3			.003	16					6.810	3				
CEBR	16			.003	1										
CECI	257	.006	256	.003	1										
TOTAL	276	.006	256	.003	17					6.810	3				

Figure 38. Example of an Exception Summary Report

For detailed information on the exception class data fields shown in the Exception Summary Report, see “CMF Exception Class Data Fields” on page 195.

The Exception Summary Report contains the following information:

Tran

The Transaction ID.

Total Excepts

The total number of exceptions for the transaction.

The average elapsed time (**Average**) and number of exceptions (**Count**) for the following exception resource types:

TS-Buffer-Wait

Waits for an auxiliary temporary storage VSAM buffer.

TS-String-Wait

Waits for an auxiliary temporary storage VSAM string.

Pool-Buffr-Wait

Waits for a VSAM LSRPOOL buffer.

Pool-Strng-Wait

Waits for a VSAM LSRPOOL string.

File Strng-Waits

Waits for a VSAM file string.

Temp Storage

Waits for auxiliary temporary storage (NOSPACE).

Main Storage

Waits for storage from a CICS dynamic storage area (DSA).

Performance Graph Reports

There are two Transaction Measurement Graph Reports available from CMF performance class data:

Transaction Rate Graph

Shows the number of transactions completed in the time period and the rate at which the CICS system is running or is able to run.

Transaction Response Time Graph

Shows the service level (response time) for completed transactions.

These graphs are useful as daily indicators of system activity.

You can request a graph using all available records, or you can provide selection criteria to report only the data that meets specific requirements.

The following conditions may prevent the production of complete graph reports:

- If all of the CMF performance class record fields providing data for the graph program are excluded during installation, the graph does not print. A message is issued indicating that the data could not be found.
- If only part of the data for the graph can be located, the graph report prints with an error message indicating that the graph is incomplete.

Report Command

To create a graph report, use the command:

```
CICSPA GRAPH(graphname)
```

where **graphname** is one of the following suboperands to designate the type of graph desired:

TRANRATE for the Transaction Rate Graph
RESPONSE for the Transaction Response Time Graph

To tailor the report, you can specify report options as follows:

```
CICSPA GRAPH(RESPONSE|TRANRATE,  
              [OUTPUT(ddname),]  
              [RANGE1(nnnnn),]  
              [RANGE2(nnnnn),]  
              [INTERVAL(nnnnn),]  
              [LINECOUNT(nnn),]  
              [TITLE1('...sub-heading left ...'),]  
              [TITLE2('...sub-heading right...'),]  
              [SELECT(EXCEPTION(INCLUDE|EXCLUDE(field1(values1),...),  
                                  ...))])
```

Report Format

All the graphs produced by CICS PA have a similar structure. Data from the CMF performance class records is collected and time-stamped based on the Stop Time from the CICS CMF performance class records. Once the entire input data is processed, the graphing facility of CICS PA is used to print the data. Each line on a graph represents activity for transactions that stopped between the time marked on the current line and the time marked on the previous line.

The default is to print one line for each five (5) minute period. The **INTERVAL** suboperand can be used to accumulate data spanning several minutes. The data is presented as a single line on a graph. For example:

```
CICSPA GRAPH(RESPONSE, INTERVAL(15))
```

This example generates the Transaction Response Time Graph with each line containing data for each fifteen (15) minute interval. **INTERVAL** cannot be used to make the reporting interval smaller than one minute.

You can use the Performance Summary Report, sorted by **START** or **STOP** and with an **INTERVAL** as low as one second, to gauge transaction throughput over small time intervals. See Figure 11 on page 25 and Figure 12 on page 26 for examples of the Summary Report by time interval.

To limit the range of the y-axis, use **SELECT(PERFORMANCE)** statements. For example, if the input file contains a week's worth of data, the command:

```
CICSPA SELECT(PERFORMANCE(INCLUDE(
    START(FROM(2002/02/13,08:00),
    STOP(TO(2002/02/13,18:00))))),
    GRAPH(RESPONSE)
```

generates the Response Time Graph, with the y-axis of the graph beginning at 8:00 in the morning and ending at 6:00 in the evening on February 13, 2002.

The default range for the x-axis of the graph is from zero to the highest value reported. Suboperands **RANGE1** and **RANGE2** can be used to set the high-value range of the x-axis of the left and right graphs, respectively. For example, if the service level for response time is defined as a maximum of four seconds, the command:

```
CICSPA GRAPH(RESPONSE, RANGE1(4), RANGE2(4))
```

generates the Transaction Response Time graph using the entire acceptable service level as the range of the x-axis. If a line's data exceeds the x-axis range for a graph, the line is printed with an arrow (->) at the right.

The CMF performance class records may be reported in intervals which differ from the intervals in which the data was written. The data is written either:

- in the case of conversational transactions, when CMF can write a performance record at the end of a conversation (specified by **MNCONV=YES** in the SIT), or
- when a transaction issues a syncpoint and the monitoring syncpoint option has been requested (specified by **MNSYNC=YES** in the SIT), or
- when a transaction has resided in the system longer than the monitoring frequency interval (specified by **MNFREQ=hhmmss** in the SIT), or
- when a user event monitoring point (EMP) with the **DELIVER** option specified is invoked by an application program, or
- when the transaction finishes (is detached).

For example, if there are long-running transactions such as transactions which span entire monitor intervals, the data from these records for these transactions is reflected in the graph of the interval in which the transaction finishes. This data may be different from the interval(s) in which the data is collected.

For more information, see "Interpreting Performance Class Data" on page 137.

Transaction Rate Graph Report

The Transaction Rate Graph helps you understand other graphs and reports by showing the number of transactions on which the reported data is based. It is also useful in understanding the rate at which the CICS system is running or is able to run.

Report Command

The command to produce the default graph report is:

CICSPA GRAPH(TRANRATE)

Report Content

V1R2M0	CICS Performance Analyzer										
	Transaction Rate										
GRTE0002 Printed at 11:41:17 3/25/2002	Data from 11:10:51 3/24/2002 to 11:35:00 3/24/2002	Page	1								

Time	Value	Average Response Time in Secs	Value	Number of Transactions Completed
HH.MM.SS		1.10 2.19 3.29 4.39 5.48 6.58 7.67 8.77 9.87 10.9		80 160 240 320 400 480 560 640 720 800
		----- ----- ----- ----- ----- ----- ----- ----- ----- -----		----- ----- ----- ----- ----- ----- ----- ----- ----- -----
11:10:52		*****		
11:15:00	3.9	*****	51	***
11:20:00	3.0	*****	67	****
11:25:00	4.0	*****	78	*****
11:30:00	3.6	*****	37	**
11:35:00	10.9	*****	713	*****

Figure 39. Example of a Transaction Rate Graph

Average Response Time (Left Graph)

The average response time in each time interval is plotted against the y-axis using asterisks (**).

This value is computed by subtracting the Start Time (DFHCICS T005) from the Stop Time (DFHCICS T006) for all transactions completed in this time interval. These times are summed and then divided by the Task Count at the end of the interval. The result is the average response time of those transactions that completed within the time interval.

For detailed information on these performance class data fields, see “CMF Performance Class Data Fields” on page 154.

Number of Transactions Completed (Right Graph)

The number of transactions completed in each time interval is plotted against the y-axis using asterisks (**).

This value is a count of all the CMF performance class records written during the interval.

Transaction Response Time Graph Report

The Transaction Response Time Graph can be requested daily to determine, over a period of time, the level of service (response time).

Report Command

The command to produce the default graph report is:

CICSPA GRAPH(RESPONSE)

Report Content

V1R2M0	CICS Performance Analyzer									
	<u>Response Time</u>									
GRSP0001	Printed at 11:41:17	3/25/2002	Data from 11:10:51	3/24/2002	to 11:35:00	3/24/2002	Page	1		
	3/24/2002									

Time	Value	Average Response Time in Secs										Value	Maximum Response Time in Secs									
HH.MM.SS		1.10	2.19	3.29	4.39	5.48	6.58	7.67	8.77	9.87	10.9		140	280	420	560	700	840	980	1120	1260	1400
11:10:52		----	----	----	----	----	----	----	----	----		----	----	----	----	----	----	----	----	----	----	
11:15:00	3.9	*****										81.3	***									
11:20:00	3.0	*****										95.1	***									
11:25:00	4.0	*****										308.9	*****									
11:30:00	3.6	*****										61.0	**									
11:35:00	10.9	*****										1,386.7	*****									

Figure 40. Example of a Transaction Response Time Graph

Average Response Time (Left Graph)

The average response time in each time interval is plotted against the y-axis using asterisks (***) .

This value is computed by subtracting the start time (DFHCICS T005) from the stop time (DFHCICS T006) for all transactions completed in this time interval. These times are summed and then divided by the task count at the end of the interval. The result is the average response time of those transactions that completed within the time interval.

Maximum Response Time (Right Graph)

The maximum response time in each time interval is plotted against the y-axis using asterisks (***) .

This value is the same as the value in the left graph, except that the maximum response time is used instead of an average value. This value represents the transaction with the longest response time among those completed during the interval.

For detailed information on these performance class data fields, see "CMF Performance Class Data Fields" on page 154.]*

Performance Extracts

The Performance Extracts process CMF performance class data to produce extract data sets suitable for further manipulation and analysis. For example:

- Analyze the Cross-System Work Extract data using CICS PA Performance Reports such as the List, Summary, and Totals reports.
- Analyze the Performance Export data using external programs such as DB2, or PC tools such as Lotus 1-2-3.
- Specify the Record Selection Extract data sets as your SMF Files in System Definitions enabling more efficient reporting.

Cross-System Work Extract

The Cross-System Work Extract accepts performance class data from a single or multiple CICS systems and correlates the data by network unit-of-work. A single performance class record is then written to the Extract data set. That one record represents all the work done on behalf of the network unit-of-work.

The default is to extract only the CMF performance class records that are contained in a unique network unit-of-work that includes multiple performance records.

Note: The Cross-System Work Extract will also include multiple performance class records from a single system.

You can request an extract that processes all available input records, or you can specify criteria for record selection to extract only the data that meets specific requirements.

After a Cross-System Work Extract data set has been created, it can be used as input to CICS PA for further processing. For example, the Performance List, Performance List Extended, Performance Summary, and Performance Totals Reports can be run against this data set.

Note: If you are using conversational transactions, and you have specified MNCONV=YES in your system initialization parameters to get separate CMF records for each pair of terminal I/O requests, or you have specified MNSYNC=YES in your system initialization parameters to get separate CMF records for each unit-of-work, or you have applications that are using user event monitoring points (EMPs) with the DELIVER option, all records will still be part of the same network unit-of-work. Since they are part of the same network unit-of-work, they will all be merged into one record in the Cross-System Work Extract Data Set. If you, for example, run the Performance Summary Report against this data set, the response time does not represent the response time of an individual screen display, but the complete lifetime of this conversational transaction. The AVE, DEV, MAX, MIN, and TOT statistics may also be skewed in the same way.

Extract Command

The command to create the default extract data set is:

```
CICSPA CROSSSYSTEM
```

This is the basic command which produces the default Cross-System Work extract data set. When the extract data set is created, the default is to create a new performance record for a network unit-of-work only when there were multiple records within the same network unit-of-work. A network unit-of-work containing a single performance record is not written to the extract data set unless it is requested. It is possible to request that all tasks, single and multiple, or any other variation, be used to create the extract. For more information on how to do this, see the *CICS Performance Analyzer for OS/390 User's Guide*, which also discusses how user fields can be included when creating the data set.

To tailor the extract data set, specify extract options as follows:

```
CICSPA CROSSSYSTEM(
    [DDNAME(ddname),]
    [EXTERNAL(ddname),]
    [SYSID(applid,mvsid),]
    [WRITEMULTIPLE,]
    [NOWRITEMULTIPLE,]
    [WRITESINGLE,]
    [NOPRINT,]
    [CHARACTER(OWNER(owner),LENGTH(nnn),HEADER(header)),]
    [CLOCK(OWNER(owner),NUMBER(nnn),HEADER(header)),]
    [COUNT(OWNER(owner),NUMBER(nnn),HEADER(header)),]
    [SELECT(PERFORMANCE(INCLUDE|EXCLUDE(field1(values1),...),
    ...)))]
```

Notes:

1. The DDname used for the cross-system work data set defaults to **CPAOCROS**. The CICS PA dialog generates DDnames in the format **CPAOXsnn** where **nn** is a sequence number 01-99. The DDname can be overridden by specifying the **DDNAME** operand.
2. When extract records are written, CICS PA sets the APPLID and MVS SMF ID in the new record to your specification in the **SYSID** operand. The defaults are **MULTIPLE** and **CICS** respectively. The APPLID and MVS ID you specify can then be defined in SMF Input in the CICS PA dialog, along with the Extract data set name. This enables you to use the Extract data set for reporting from the CICS PA dialog.

Extract Record Format

The record format of the Cross-System Work Extract Data Set is variable blocked and the block size has to be large enough to contain a performance class record plus the fields CICS PA adds and any other user fields specified. CICS PA will assign default DCB attributes of **RECFM=VB,LRECL=8188,BLKSIZE=8192** if they are not specified.

The Cross-System Work Extract that is created is fully compatible with the CICS Monitoring Facility (CMF) performance data format. However, there are some important differences between the data created by CICS PA and the data collected by CMF. Still, any program that fully exploits the self-defining data format of CMF should have no problem in processing the data created. The important considerations are:

- Fields
 - Five user fields are in the extract (see page 118).
 - Additional user fields are in the extract if requested.
 - All standard CICS CMF fields are in the extract. If a field was missing in the input data, it is set to hexadecimal zeros.
- Records
 - The records from each network unit-of-work id are combined into one record
 - Only performance class records are created
 - Each SMF (CMF) record created contains only one performance class record
 - The records are not written in time sequence.
- IDs and TIME STAMPS
 - The APPLID of the new data is set to **MULTIPLE** unless overridden by the **SYSID** operand.
 - The SMF time stamp is set to the latest Stop Time of records in the UOW.
 - The Dictionary START and STOP time stamps are set to the earliest start and latest stop time of records in the UOW.

How Cross-System Records are Created

The records that make up the Cross-System Work Extract are created by combining records, that is, by combining corresponding fields in the records, of the input data sets. How the fields are combined depends on both the type of record and the type of field.

The types of records that can be combined are:

- Normal Application records
- Terminal Owning Region (TOR) records
- Function Shipping request records.

Note: Function Shipped Distributed Program Link (DPL) records are interpreted as normal Application records.

The types of fields that can be combined are:

- Character fields
- Packed decimal fields (transaction sequence number)
- Time of day fields (start and stop times)
- Stopwatch (elapsed time) fields

- Accumulators (counters)
 - Normal
 - High-Water Marks (program storage and user storage)
 - Error flags
 - Terminal information flags
 - Transaction definition and status flags.

The following paragraphs describe how the different field types are combined to create the fields for the Cross-System Extract records:

Character Fields

Character fields are normally taken from the application records, except for the following special fields:

DFHCBTS C202 PRCSID	The CICS-assigned identifier of the CICS BTS root activity (process id).
DFHCBTS C203 ACTVTYID	The CICS-assigned identifier of the CICS BTS activity.
DFHTASK C082 TRNGRPID	The transaction group id.
DFHTASK C190 RRMSURID	The RRMS/MVS Unit-of-Recovery Id (URID).
DFHTASK C194 OTSTID	The Object Transaction Service (OTS) Transaction Id (Tid).

The CICS BTS process id and activity id are taken from application records only. If no application record is found, the process id and activity id fields appear as hexadecimal zeros.

The transaction group id is taken from application records only. If no application record is found, the transaction group id field appears as hexadecimal zeros.

The RRMS/MVS unit-of-recovery id (URID) is taken from application records only. If no application record is found, the unit-of-recovery id (URID) field appears as hexadecimal zeros.

The OTS Tid is taken from application records only. If no application record is found or the record is not part of an OTS transaction, the OTS transaction id (OTSTID) field appears as hexadecimal zeros.

All other character fields are processed as follows:

1. If no application record is found, the character fields appear as hexadecimal zeros.
2. If multiple application records are found, the character fields are taken from the first one in the sort order. Because the sort order within the network unit-of-work is in reverse stop time, the first one in the sort order is usually the one with the latest stop time.

If the field is shorter in the output data than in the input data, only the left-hand bytes that fit are saved. Also, if the field is shorter in the input data than in the output data, it is padded on the right in the output record with hexadecimal zeros.

Packed Fields

The only packed decimal field is the transaction sequence number. It is treated in the same way as a character field and is usually taken from the application records. However:

1. If no application record is found, the packed decimal field appears as packed decimal zeros.
2. If multiple application records are found, the packed decimal field is taken from the first one in the sort order. Because the sort order within the network unit-of-work is in reverse stop time, the first one in the sort order is usually the one with the latest stop time.

Time of Day Fields

Time of day fields include the task start time and the task stop time. The earliest start time of any record and the latest stop time of any record are used. (Exception: if a time is incorrectly set to hexadecimal zero, it is not used). Normally, the difference between the start and stop time is the length of time it took to complete the entire unit-of-work (response time). This may not be accurate due to unsynchronized STCK values across multiple systems.

The only other time of day field is processed as a special field:

DFHTASK T132 RMUOWID The identifier of the local unit of work (unit of recovery) for this task.

The local unit of work (unit of recovery) is taken from application records only. If no application record is found, the local unit of work field appears as hexadecimal zeros.

Stopwatch Fields

Stopwatch fields are the fields that CICS uses to measure elapsed time such as dispatch time, CPU time, or terminal control wait time. These fields are added together. However, each stopwatch is actually a combination of the three different components of the stopwatch field described below:

- The first component is the elapsed time measured, and is calculated by adding all of the field time values in the input records.
- The second field is one byte of flags CICS uses to indicate errors. The field is OR'd together so that the result contains any flags that were turned on in any of the input records.
- The third field is a three-byte counter that counts the number of intervals that were timed, and is calculated by adding all of the field count values in the input records.

Note: Whenever fields are added together, it is possible to get an overflow. If an overflow condition occurs, CICS PA catches the error and forces the result to remain as the highest value that will fit within the field.

Accumulator Fields

The accumulator fields are calculated by adding all of the field values in the input records, except eighteen special fields, which are:

DFH SOCK A292 SONPSHWM	The non-persistent socket high-water mark.
DFH SOCK A293 SOPSHWM	The persistent socket high-water mark.
DFH STOR A033 SCUSRHWM	The high-water mark of USER storage below 16MB.
DFH STOR A106 SCUSRHWM	The high-water mark of USER storage above 16MB.
DFH STOR A116 SCUSRHWM	The high-water mark of CICS storage below 16MB.
DFH STOR A119 SCUSRHWM	The high-water mark of CICS storage above 16MB.
DFH STOR A087 PCSTGHWM	The program storage high-water mark.
DFH STOR A108 PC24BHWM	The program storage high-water mark below 16MB.
DFH STOR A139 PC31AHWM	The program storage high-water mark above 16MB.
DFH STOR A143 PC24CHWM	The CDSA program storage high-water mark below 16MB.
DFH STOR A142 PC31CHWM	The ECDSA program storage high-water mark above 16MB.
DFH STOR A160 PC24SHWM	The SDSA program storage high-water mark below 16MB.
DFH STOR A161 PC31SHWM	The ESDSA program storage high-water mark above 16MB.
DFH STOR A162 PC24RHWM	The RDSA program storage high-water mark below 16MB.
DFH STOR A122 PC31RHWM	The ERDSA program storage high-water mark above 16MB.
DFH TASK A064 TASKFLAG	The transaction error flags for this transaction.
DFH TASK A164 TRANFLAG	The CICS transaction definition and status information flags for the transaction.
DFH TERM A165 TERMINFO	The CICS terminal information for the transaction.

For the high-water mark fields, the highest value from **any** record within the network unit-of-work is used.

Note: This provides a true high-water mark except for one condition: if two tasks within the same network unit-of-work execute concurrently, it is not possible to determine the total high-water mark. The tasks peak at different times.

The transaction error flags special accumulator field is a fullword field used as an indicator of error conditions. Instead of being added together, this field is

OR'd together. The result has a flag turned on if it was turned on in any record within that network unit-of-work.

The transaction definition and status information flags field is taken from application records only. If no application record is found, the transaction flags field appears as hexadecimal zeros.

The terminal information is a four byte field containing terminal or session information for the task's principal facility. This information is taken from terminal owning records (TOR) only; if no terminal owning record is found, the terminal information field appears as hexadecimal zeros.

New User Fields

The five new user fields added by CICS PA are:

CICSPA A001 TOTRECS	The total number of input records that were added to produce this record
CICSPA A002 APPLRECS	The total number of application program records that were added to produce this record
CICSPA A003 TRANROUT	The total number of terminal-owning region records that were added to produce this record
CICSPA A004 FUNCSHIP	The total number of function shipping request records that were added to produce this record
CICSPA A005 DPLRECS	The total number of function shipping distributed program link (DPL) request records that were added into this record. This field is a subset of the total number of function shipping requests field.

These CICS PA user fields are always present.

User-Specified

User fields can also be specified on the **CROSSsystem** command. When specified, these user fields are added to the dictionary and the cross-system output record.

Note: It is possible that the input data may not include the standard CICS fields or the user fields that you requested. If this occurs, the cross-system performance records created by CICS PA will still contain these fields. However, the values within the fields are null (hexadecimal zeros).

APPLID Limitations

Because the input data sets typically contain CMF records from many CICS systems, the APPLID of the output data set cannot be made to match the input data. Instead, it is set to **MULTIPLE** to indicate that this data contains information from multiple CICS systems with different APPLIDs. You can override this by specifying the **SYSID** operand.

Note: Do *not* use the APPLID of "MULTIPLE" for any of your online systems. This allows you to determine if the data you are processing is from CMF or from CICS PA simply by checking the APPLID.

CMF Requirements

Because only CMF performance class records contain the token field that associates the record with a network unit-of-work, only CMF performance records are processed by the cross-system function of CICS PA.

Within a single logical record, CMF can block several types of data. Within each type of data, CMF can block many data rows. CICS PA does not block the data within the logical record which means that for every record there is a single unit of data.

Note: A user typically concatenates, as input for the Cross-System Work Extract, two or more unloaded SMF data sets containing CMF performance class records. An example of this would be data sets from a terminal owning region, an application owning region, and a data base owning region.

You should not merge a Cross-System Work Extract data set with another CMF data set, as the resulting records would not contain useful data. However, if you do, be aware of the following:

- The five new user fields added to the Cross-System record will no longer accurately reflect the overall total for that network unit-of-work. The totals in the Cross-System record are lost and will only reflect the totals from the additional CMF data set.
- Any user fields included in the original Cross-System extract are not included in the final Cross-System data set unless they are specified on the command input.
- Due to the manner in which the different field types are combined, some of the final Cross-System records may not be correct. See “How Cross-System Records are Created” on page 114 to understand the possible results when combining CMF records with cross-system records.

Recommendation

It is recommended that the Cross-System Work Extract created from the CMF performance class records from two or more systems should **not** be concatenated with other CMF files. The results of such a concatenation are questionable as to their use. The Cross-System Extract data set **can** be used by itself as input to the CICS PA Performance Reports (especially the List, List Extended, Summary, and Totals reports) to monitor the total amount of resources used by a transaction within a single or across multiple CICS systems.

Cross-System Work Extract Record

Two factors make it difficult to create a DSECT for the Cross-System record:

1. User fields may be added to the record. This adds additional information to the middle of the record, and also adds to data for these fields at the end of the record.
2. With a maintenance change to CICS PA, the record format can change as long as it remains compatible with the CICS CMF format using the dictionary record supplied at the front of the data set.

The format of the Cross-System Work Extract record is the same as that of a standard CMF performance class record. A sample record format is shown in Figure 41 on page 121.

Because the records must be sorted by their network unit-of-work, before they are combined, as they are not in the same time sequence as when they were created. The Cross-System Work Extract data set is normally in “network unit-of-work id” sequence. It is possible to sort the data set by time sequence if required. Simply use any SORT program and sort the time and date in the SMF header. This field is set to the stop time of the data recorded for each data record. To ensure that the dictionary is the first record in a sorted data set, the time and date in its SMF header is set to the earliest start time of any CMF record in the original data.

The following table shows the layout of the dictionary record created by the Cross-System Work Extract record processor.

All the CICS fields listed in the table (before the user fields) are the “standard” fields included in every data record written to the Cross-System Work Extract data set. In addition, five user fields, as shown in the table, are always written after the CICS fields.

Additional user fields can be requested and are placed in the output record following the listed fields. These additional fields cause the variable information in the dictionary to change, and affect the length of the records. The length of each additional field depends on the type of the field (and the specified range for character fields).

For a complete description of the units for each field and to understand how the fields are collected, see the *CICS Performance Guide*.

```

*
* Dictionary information - start
*
* Standard CICS fields - start
*

```

CICS Field	Owner	Type	Id	Length	Connector	Offset	CICS CMF	Informal Name
-----	-----	-----	-----	-----	-----	-----	-----	-----
DFHTASK	C001			4	X'0001'	X'0000'	TRAN	
DFHTERM	C002			4	X'0002'	X'0004'	TERM	
DFHCICS	C089			8	X'0003'	X'0008'	USERID	
DFHTASK	C004			4	X'0004'	X'0010'	TTYTYPE	
DFHCICS	T005			8	X'0005'	X'0014'	START	
DFHCICS	T006			8	X'0006'	X'001C'	STOP	
DFHTASK	P031			4	X'0007'	X'0024'	TRANNUM	
DFHTASK	A109			4	X'0008'	X'0028'	TRANPRI	
DFHTASK	C166			8	X'0009'	X'002C'	TCLSNM	
DFHTERM	C111			8	X'000A'	X'0034'	LUNAME	
DFHPROG	C071			8	X'000B'	X'003C'	PGMNAME	
DFHTASK	C097			20	X'000C'	X'0044'	NETUOWPX	
DFHTASK	C098			8	X'000D'	X'0058'	NETUOWSX	
DFHCICS	C130			4	X'000E'	X'0060'	RSYSID	
DFHCICS	A131			4	X'000F'	X'0064'	PERRECNT	
DFHTASK	T132			8	X'0010'	X'0068'	RMUOWID	
DFHCICS	C167			8	X'0011'	X'0070'	SRVCLSNM	
DFHCICS	C168			8	X'0012'	X'0078'	RPTCLSNM	
DFHTASK	C163			4	X'0013'	X'0080'	FCTYNAME	
DFHTASK	A164			8	X'0014'	X'0084'	TRANFLAG	
DFHTERM	A165			4	X'0015'	X'008C'	TERMINFO	
DFHTERM	C169			4	X'0016'	X'0090'	TERMCNNM	
DFHTASK	C124			4	X'0017'	X'0094'	BRDGRAN	
DFHTASK	C190			16	X'0018'	X'0098'	RRMSURID	
DFHCBTS	C200			36	X'0019'	X'00A8'	PRCSNAME	
DFHCBTS	C201			8	X'001A'	X'00CC'	PRCSATYPE	
DFHCBTS	C202			52	X'001B'	X'00D4'	PRCSID	
DFHCBTS	C203			52	X'001C'	X'0108'	ACTVTYID	
DFHCBTS	C204			16	X'001D'	X'013C'	ACTVTYNM	
DFH SOCK	C244			16	X'001E'	X'014C'	CLIPADDR	
DFHTASK	C082			28	X'001F'	X'015C'	TRNGRPID	
DFHTERM	C197			8	X'0020'	X'0178'	NETID	
DFHTERM	C198			8	X'0021'	X'0180'	RLUNAME	
DFH SOCK	C245			8	X'0022'	X'0188'	TCPSRVCE	
DFH SOCK	A246			4	X'0023'	X'0190'	PORTNUM	
DFHTASK	C194			128	X'0024'	X'0194'	OTSTID	
DFHTASK	C064			4	X'0025'	X'0214'	TASKFLAG	
DFHPROG	C113			4	X'0026'	X'0218'	ABCODE0	
DFHPROG	C114			4	X'0027'	X'021C'	ABCODEC	
DFHCICS	C112			4	X'0028'	X'0220'	RATYPE	
DFHTERM	A034			4	X'0029'	X'0224'	TCMSGIN1	
DFHTERM	A083			4	X'002A'	X'0228'	TCCHRIN1	
DFHTERM	A035			4	X'002B'	X'022C'	TCMSGOU1	
DFHTERM	A084			4	X'002C'	X'0230'	TCCHROU1	
DFHTERM	A067			4	X'002D'	X'0234'	TCMSGIN2	
DFHTERM	A085			4	X'002E'	X'0238'	TCCHRIN2	
DFHTERM	A068			4	X'002F'	X'023C'	TCMSGOU2	

Figure 41 (Part 1 of 5). Cross-System Work Extract Record Format

Cross-System Work Extract

CICS Field		Length	Connector	Offset	CICS CMF
Owner	Type Id				Informal Name
-----	-----	-----	-----	-----	-----
DFHTERM	A086	4	X'0030'	X'0240'	TCCHROU2
DFHTERM	A135	4	X'0031'	X'0244'	TCM62IN2
DFHTERM	A137	4	X'0032'	X'0248'	TCC62IN2
DFHTERM	A136	4	X'0033'	X'024C'	TCM62OU2
DFHTERM	A138	4	X'0034'	X'0250'	TCC62OU2
DFHTERM	A069	4	X'0035'	X'0254'	TCALLOCT
DFHSTOR	A054	4	X'0036'	X'0258'	SCUGETCT
DFHSTOR	A105	4	X'0037'	X'025C'	SCUGETCT
DFHSTOR	A117	4	X'0038'	X'0260'	SCCGETCT
DFHSTOR	A120	4	X'0039'	X'0264'	SCCGETCT
DFHSTOR	A033	4	X'003A'	X'0268'	SCUSRHWM
DFHSTOR	A106	4	X'003B'	X'026C'	SCUSRHWM
DFHSTOR	A116	4	X'003C'	X'0270'	SC24CHWM
DFHSTOR	A119	4	X'003D'	X'0274'	SC31CHWM
DFHSTOR	A095	8	X'003E'	X'0278'	SCUSRSTG
DFHSTOR	A107	8	X'003F'	X'0280'	SCUSRSTG
DFHSTOR	A118	8	X'0040'	X'0288'	SC24COCC
DFHSTOR	A121	8	X'0041'	X'0290'	SC31COCC
DFHSTOR	A144	4	X'0042'	X'0298'	SC24SGCT
DFHSTOR	A145	4	X'0043'	X'029C'	SC24GSHR
DFHSTOR	A146	4	X'0044'	X'02A0'	SC24FSHR
DFHSTOR	A147	4	X'0045'	X'02A4'	SC31SGCT
DFHSTOR	A148	4	X'0046'	X'02A8'	SC31GSHR
DFHSTOR	A149	4	X'0047'	X'02AC'	SC31FSHR
DFHSTOR	A087	4	X'0048'	X'02B0'	PCSTGHWM
DFHSTOR	A139	4	X'0049'	X'02B4'	PC31AHWM
DFHSTOR	A108	4	X'004A'	X'02B8'	PC24BHWM
DFHSTOR	A142	4	X'004B'	X'02BC'	PC31CHWM
DFHSTOR	A143	4	X'004C'	X'02C0'	PC24CHWM
DFHSTOR	A122	4	X'004D'	X'02C4'	PC31RHWM
DFHSTOR	A162	4	X'004E'	X'02C8'	PC24RHWM
DFHSTOR	A161	4	X'004F'	X'02CC'	PC31SHWM
DFHSTOR	A160	4	X'0050'	X'02D0'	PC24SHWM
DFHFILE	A036	4	X'0051'	X'02D4'	FCGETCT
DFHFILE	A037	4	X'0052'	X'02D8'	FCPUTCT
DFHFILE	A038	4	X'0053'	X'02DC'	FCBRWCT
DFHFILE	A039	4	X'0054'	X'02E0'	FCADDCT
DFHFILE	A040	4	X'0055'	X'02E4'	FCDELCT
DFHFILE	A093	4	X'0056'	X'02E8'	FCTOTCT
DFHFILE	A070	4	X'0057'	X'02EC'	FCAMCT
DFHDEST	A041	4	X'0058'	X'02F0'	TDGETCT
DFHDEST	A042	4	X'0059'	X'02F4'	TDPUTCT
DFHDEST	A043	4	X'005A'	X'02F8'	TDPURCT
DFHDEST	A091	4	X'005B'	X'02FC'	TDTOTCT
DFHTEMP	A044	4	X'005C'	X'0200'	TSGETCT
DFHTEMP	A046	4	X'005D'	X'0304'	TSPUTACT
DFHTEMP	A047	4	X'005E'	X'0308'	TSPUTMCT
DFHTEMP	A092	4	X'005F'	X'030C'	TSTOTCT
DFHMAPP	A050	4	X'0060'	X'0310'	BMSMAPCT
DFHMAPP	A051	4	X'0061'	X'0314'	BMSINCT
DFHMAPP	A052	4	X'0062'	X'0318'	BMSOUTCT
DFHMAPP	A090	4	X'0063'	X'031C'	BMSTOTCT
DFHPROG	A055	4	X'0064'	X'0320'	PCLINKCT

Figure 41 (Part 2 of 5). Cross-System Work Extract Record Format

CICS Field		Length	Connector	Offset	CICS CMF
Owner	Type Id				Informal Name
-----	-----	-----	-----	-----	-----
DFHPROG	A056	4	X'0065'	X'0324'	PCXCTLCT
DFHPROG	A057	4	X'0066'	X'0328'	PCLLOADCT
DFHPROG	A072	4	X'0067'	X'032C'	PCLURMCT
DFHPROG	A073	4	X'0068'	X'0330'	PCDPLCT
DFHJOUR	A058	4	X'0069'	X'0334'	JNLWRTCT
DFHJOUR	A172	4	X'006A'	X'0338'	LOGWRTCT
DFHTASK	A059	4	X'006B'	X'033C'	ICPUINCT
DFHTASK	A066	4	X'006C'	X'0340'	ICTOTCT
DFHSYNC	A060	4	X'006D'	X'0344'	SPSYNCT
DFHCICS	A025	4	X'006E'	X'0348'	CFCAPICT
DFHFPEI	A150	4	X'006F'	X'034C'	SZALLOCT
DFHFPEI	A151	4	X'0070'	X'0350'	SZRCVCT
DFHFPEI	A152	4	X'0071'	X'0354'	SZSENDCT
DFHFPEI	A153	4	X'0072'	X'0358'	SZSTRCT
DFHFPEI	A154	4	X'0073'	X'035C'	SZCHROUT
DFHFPEI	A155	4	X'0074'	X'0360'	SZCHRIN
DFHFPEI	A157	4	X'0075'	X'0364'	SZALLCTO
DFHFPEI	A158	4	X'0076'	X'0368'	SZRCVTO
DFHFPEI	A159	4	X'0077'	X'036C'	SZTOTCT
DFHCBTS	A205	4	X'0078'	X'0370'	BARSYNCT
DFHCBTS	A206	4	X'0079'	X'0374'	BARASYCT
DFHCBTS	A207	4	X'007A'	X'0378'	BALKPACT
DFHCBTS	A208	4	X'007B'	X'037C'	BADPROCT
DFHCBTS	A209	4	X'007C'	X'0380'	BADACTCT
DFHCBTS	A210	4	X'007D'	X'0384'	BARSPACT
DFHCBTS	A211	4	X'007E'	X'0388'	BASUPACT
DFHCBTS	A212	4	X'007F'	X'038C'	BARMPACT
DFHCBTS	A213	4	X'0080'	X'0390'	BADCPACT
DFHCBTS	A214	4	X'0081'	X'0394'	BAACQPCT
DFHCBTS	A215	4	X'0082'	X'0398'	BATOTPCT
DFHCBTS	A216	4	X'0083'	X'039C'	BAPRDCCT
DFHCBTS	A217	4	X'0084'	X'03A0'	BAACDCCT
DFHCBTS	A218	4	X'0085'	X'03A4'	BATOTCCT
DFHCBTS	A219	4	X'0086'	X'03A8'	BARATECT
DFHCBTS	A220	4	X'0087'	X'03AC'	BADFIECT
DFHCBTS	A221	4	X'0088'	X'03B0'	BATIAECT
DFHCBTS	A222	4	X'0089'	X'03B4'	BATOTECT
DFHWEBB	A231	4	X'008A'	X'03B8'	WBRCVCT
DFHWEBB	A232	4	X'008B'	X'03BC'	WBCHRIN
DFHWEBB	A233	4	X'008C'	X'03C0'	WBSENDCT
DFHWEBB	A234	4	X'008D'	X'03C4'	WBCHROUT
DFHWEBB	A235	4	X'008E'	X'03C8'	WBTOTCT
DFHWEBB	A236	4	X'008F'	X'03CC'	WBREPRCT
DFHWEBB	A237	4	X'0090'	X'03D0'	WBREPWCT
DFHWEBB	A238	4	X'0091'	X'03D4'	WBEXTRCT
DFHWEBB	A239	4	X'0092'	X'03D8'	WBBRWCT
DFHWEBB	A224	4	X'0093'	X'03DC'	WBREADCT
DFHWEBB	A225	4	X'0094'	X'03E0'	WBWRITCT
DFHDOCH	A226	4	X'0095'	X'03E4'	DHRECT
DFHDOCH	A227	4	X'0096'	X'03E8'	DHINSCT
DFHDOCH	A228	4	X'0097'	X'03EC'	DHSETCT
DFHDOCH	A229	4	X'0098'	X'03F0'	DHRETCT
DFHDOCH	A230	4	X'0099'	X'03F4'	DHTOTCT
DFHDOCH	A240	4	X'009A'	X'03F8'	DHTOTDCL

Figure 41 (Part 3 of 5). Cross-System Work Extract Record Format

Cross-System Work Extract

CICS Field						CICS CMF
Owner	Type	Id	Length	Connector	Offset	Informal Name
-----	-----	-----	-----	-----	-----	-----
DFH SOCK	A	242	4	X'009B'	X'03FC'	SOBYENCT
DFH SOCK	A	243	4	X'009C'	X'0400'	SOBYDECT
DFH SOCK	A	289	4	X'009D'	X'0404'	SOEXTRCT
DFH SOCK	A	290	4	X'009E'	X'0408'	SOCNPSCT
DFH SOCK	A	291	4	X'009F'	X'040C'	SOCPSCT
DFH SOCK	A	292	4	X'00A0'	X'0410'	SONPSHWM
DFH SOCK	A	293	4	X'00A1'	X'0414'	SOPSHWM
DFH SOCK	A	294	4	X'00A2'	X'0418'	SORCVCT
DFH SOCK	A	295	4	X'00A3'	X'041C'	SOCHRIN
DFH SOCK	A	296	4	X'00A4'	X'0420'	SOSENDCT
DFH SOCK	A	297	4	X'00A5'	X'0424'	SOCHROUT
DFH SOCK	A	298	4	X'00A6'	X'0428'	SOTOTCT
DFH SOCK	A	301	4	X'00A7'	X'042C'	SOMSGINI
DFH SOCK	A	302	4	X'00A8'	X'0430'	SOCHRINI
DFH SOCK	A	303	4	X'00A9'	X'0434'	SOMSGOUI
DFH SOCK	A	304	4	X'00AA'	X'0438'	SOCHROU1
DFH DATA	A	179	4	X'00AB'	X'043C'	IMSREQCT
DFH DATA	A	180	4	X'00AC'	X'0440'	DB2REQCT
DFH TASK	A	248	4	X'00AD'	X'0444'	CHMODECT
DFH TASK	A	251	4	X'00AE'	X'0448'	TCBATTCT
DFH TASK	S	007	8	X'00AF'	X'044C'	USRDISPT
DFH TASK	S	008	8	X'00B0'	X'0454'	USRCPUT
DFH TASK	S	014	8	X'00B1'	X'045C'	SUSPTIME
DFH TASK	S	102	8	X'00B2'	X'0464'	DISPWT
DFH TASK	S	255	8	X'00B3'	X'046C'	QRDISPT
DFH TASK	S	256	8	X'00B4'	X'0474'	QRCPUT
DFH TASK	S	257	8	X'00B5'	X'047C'	MSDISPT
DFH TASK	S	258	8	X'00B6'	X'0484'	MSCPUT
DFH TASK	S	269	8	X'00B7'	X'048C'	RODISPT
DFH TASK	S	270	8	X'00B8'	X'0494'	ROCPUT
DFH TASK	S	262	8	X'00B9'	X'049C'	KY8DISPT
DFH TASK	S	263	8	X'00BA'	X'04A4'	KY8CPUT
DFH TASK	S	259	8	X'00BB'	X'04AC'	L8CPUT
DFH TASK	S	260	8	X'00BC'	X'04B4'	J8CPUT
DFH TASK	S	261	8	X'00BD'	X'04BC'	S8CPUT
DFH TASK	S	249	8	X'00BE'	X'04C4'	QRMODDLY
DFH TASK	S	277	8	X'00BF'	X'04CC'	MAXOTDLY
DFH TASK	S	278	8	X'00C0'	X'04D4'	MAXJTDLY
DFH TASK	S	250	8	X'00C1'	X'04DC'	MAXHTDLY
DFH CICS	S	103	8	X'00C2'	X'04E4'	EXWTTIME
DFH TERM	S	009	8	X'00C3'	X'04EC'	TCIOWTT
DFH FILE	S	063	8	X'00C4'	X'04F4'	FCIOWTT
DFH JOUR	S	010	8	X'00C5'	X'04FC'	JCIOWTT
DFH TEMP	S	011	8	X'00C6'	X'0504'	TSIOWTT
DFH TERM	S	100	8	X'00C7'	X'050C'	IRIOWTT
DFH DEST	S	101	8	X'00C8'	X'0514'	TDIOWTT
DFH PROG	S	115	8	X'00C9'	X'051C'	PCLOADTM
DFH TASK	S	125	8	X'00CA'	X'0524'	DSPDELAY
DFH TASK	S	126	8	X'00CB'	X'052C'	TCLDELAY
DFH TASK	S	127	8	X'00CC'	X'0534'	MXTDELAY
DFH TASK	S	129	8	X'00CD'	X'053C'	ENQDELAY
DFH TASK	S	123	8	X'00CE'	X'0544'	GNQDELAY
DFH TERM	S	133	8	X'00CF'	X'054C'	LU61WTT

Figure 41 (Part 4 of 5). Cross-System Work Extract Record Format

CICS Field					CICS CMF	
Owner	Type	Id	Length	Connector	Offset	Informal Name
-----	-----	-----	-----	-----	-----	-----
DFHTERM	S	134	8	X'00D0'	X'0554'	LU62WTT
DFHFEPI	S	156	8	X'00D1'	X'055C'	SZWAIT
DFHTASK	S	170	8	X'00D2'	X'0564'	RMITIME
DFHTASK	S	171	8	X'00D3'	X'056C'	RMISUSP
DFHSYNC	S	173	8	X'00D4'	X'0574'	SYNCTIME
DFHFILE	S	174	8	X'00D5'	X'057C'	RLSWAIT
DFHFILE	S	175	8	X'00D6'	X'0584'	RLSCPUT
DFHTASK	S	128	8	X'00D7'	X'058C'	LMDELAY
DFHTASK	S	181	8	X'00D8'	X'0594'	WTEXWAIT
DFHTASK	S	182	8	X'00D9'	X'059C'	WTCEWAIT
DFHTASK	S	183	8	X'00DA'	X'05A4'	ICDELAY
DFHTASK	S	184	8	X'00DB'	X'05AC'	GVUPWAIT
DFHTEMP	S	178	8	X'00DC'	X'05B4'	TSSHWAIT
DFHFILE	S	176	8	X'00DD'	X'05BC'	CFDTPWAIT
DFHSYNC	S	177	8	X'00DE'	X'05C4'	SRVSYWTT
DFHTASK	S	191	8	X'00DF'	X'05CC'	RRMSWAIT
DFHTASK	S	195	8	X'00E0'	X'05D4'	RUNTRWTT
DFHSYNC	S	196	8	X'00E1'	X'05DC'	SYNCDLY
DFH SOCK	S	241	8	X'00E2'	X'05E4'	SOIOWTT
DFHDATA	S	186	8	X'00D3'	X'05EC'	IMSWAIT
DFHDATA	S	187	8	X'00E4'	X'05F4'	DB2RDYQW
DFHDATA	S	188	8	X'00E5'	X'05FC'	DB2CONWT
DFHDATA	S	189	8	X'00E6'	X'0604'	DB2WAIT
DFHTASK	S	253	8	X'00E7'	X'060C'	JVMTIME
DFHTASK	S	254	8	X'00E8'	X'0614'	JVMSUSP
DFH SOCK	S	299	8	X'00E9'	X'061C'	SOO IOWTT
DFHTASK	S	192	8	X'00EA'	X'0624'	RQRWAIT
DFHTASK	S	193	8	X'00EB'	X'062C'	RQPWAIT
DFHSYNC	S	199	8	X'00EC'	X'0634'	OTSINDWT
DFHTASK	S	273	8	X'00ED'	X'063C'	JVMITIME
DFHTASK	S	275	8	X'00EE'	X'0644'	JVMRTIME
DFHTASK	S	285	8	X'00EF'	X'064C'	PTPWAIT
* Standard CICS fields - end						
* User count fields that are always present						
CICSPA	A	001	4	X'00F0'	X'0654'	TOTRECS
CICSPA	A	002	4	X'00F1'	X'0658'	APPLRECS
CICSPA	A	003	4	X'00F2'	X'065C'	TRANROUT
CICSPA	A	004	4	X'00F3'	X'0660'	FUNCSHIP
CICSPA	A	005	4	X'00F4'	X'0664'	DPLRECS
* Any additional user fields requested are inserted here.						
* For each additional User Field, there is also an						
* additional halfword inserted. The halfword contains a hex value,						
* starting with X'00F5', that increments for each additional field.						
* This increases the offset to each field by 2 for each User Field						
* that is requested. It also increases the size of the entire record.						
* Dictionary information - end						

Figure 41 (Part 5 of 5). Cross-System Work Extract Record Format

Exported Performance Data Extract

An Exported Performance Data Extract is created as a delimited text file for the purpose of importing the CMF performance class data into PC spreadsheet or database tools for further detailed analysis and reporting.

You can export all the CMF performance class records in the input file, or you can specify criteria for data selection to export a subset of the records which meet specific requirements.

Once transferred to a workstation file the exported performance class data is available to PC applications such as Lotus 1-2-3 or Microsoft® Excel.

Extract Command (Default Export)

The command to create the default export file is:

```
CICSPA EXPORT
```

To tailor the export file, specify extract options as follows:

```
CICSPA EXPORT (  
    [OUTPUT (ddname),]  
    [DDNAME (ddname),]  
    [DELIMIT ('field-delimiter'),]  
    [LABELS | NOLABELS,]  
    [SELECT (PERFORMANCE (INCLUDE | EXCLUDE (field1 (values1), ...),  
        ...))])
```

The exported performance data extract is created using a subset of the CMF performance class data. The CMF exception class data is not used.

CICS PA extracts the data values from the CMF performance class records, formats them, and then adds a field delimiter after each field. The default field delimiter is a semicolon (;) but can be changed by specifying the **DELIMIT** operand.

If any of the required data fields were not collected by the CICS Monitoring Facility, a message is issued and the field in the extract record contains zeros or Missing.

The DDname for the Export data set defaults to **CPAOEXPT**. The CICS PA dialog generates DDnames in the format **CPAOEXnn** where nn is a sequence number **01-99**. The DDname can be overridden by using the **DDNAME** operand.

Extract Command (List Export)

To tailor the format of the export file like the Performance List Report, see “Report Command (List Export)” on page 8.

Extract Command (Summary Export)

To tailor the format of the export file like the Performance Summary Report, see “Report Command (Summary Export)” on page 21.

Extract Record Format (Default Export)

The following table shows the fields in the extract file.

Table 2. Export Record Format (default)

Data Field	Length	Description
APPLID	8	Generic APPLID
TRAN	4	Transaction ID
TERM	4	Terminal ID
USERID	8	User ID
TASKNO	8	Transaction sequence number
STOP DATE	10	Transaction stop date (yyyy-mm-dd)
STOP TIME	12	Transaction stop time (hh:mm:ss.thm)
RESPONSE	8	Transaction response time
Clocks	8	All 65 clock fields, elapsed time in seconds with a precision of 0.0001 second (sss.thmi)

The format of the Exported Performance Data record is static and contains fixed-length blocked records with a record size of 655 bytes. Each field in the record is followed by a text file field delimiter. The default field delimiter is a semicolon (;).

```

APPLID ;TRAN;TERM;USERID ; TASKNO; STOP DATE; STOP TIME ;RESPONSE;DISPATCH;CPU ;SUSPEND ;DISPWAIT;QRDISPT ;QRCPU ; . . .
IYK2Z1V1;CSSY; ;CBAKER ; 14;2002-05-23; 9:00:11.306; .4796; .0837; .0145; .3958; .2169; .0763; .0136;
IYK2Z1V1;CSSY; ;CBAKER ; 11;2002-05-23; 9:00:11.596; .7716; .1924; .0164; .5791; .3425; .0212; .0093;
IYK2Z1V1;CSSY; ;CBAKER ; 10;2002-05-23; 9:00:11.600; .7756; .1598; .0169; .6158; .5744; .0087; .0041;
IYK2Z1V1;CPLT; ;CBAKER ; 7;2002-05-23; 9:00:27.503; 16.8286; .8059; .0279; 16.0227; .0082; .0095; .0039;
IYK2Z1V1;CSSY; ;CBAKER ; III;2002-05-23; 9:00:28.310; 17.4857; 10.3468; 1.9987; 7.1389; .7171; 2.8730; 1.6315;
. . .
IYK2Z1V1;CMAC;0031;CBAKER ; 72;2002-05-23; 9:03:04.207; .0007; .0007; .0006; .0000; .0000; .0007; .0006;
IYK2Z1V1;CMAC;0031;CBAKER ; 73;2002-05-23; 9:03:05.908; .0008; .0007; .0006; .0000; .0000; .0007; .0006;
IYK2Z1V1;CMAC;0031;CBAKER ; 74;2002-05-23; 9:03:06.410; .0007; .0007; .0006; .0000; .0000; .0007; .0006;
IYK2Z1V1;CSHQ; ;CBAKER ; 23;2002-05-23; 9:03:15.659; 167.394; .2466; .0246; 167.147; .0012; .0573; .0046;
IYK2Z1V1;CESD; ;CBAKER ; 76;2002-05-23; 9:03:15.699; .0387; .0307; .0042; .0080; .0026; .0016; .0015;
IYK2Z1V1;CSNC; ;CBAKER ; 21;2002-05-23; 9:03:17.527; 175.828; 1.0305; .0056; 174.797; .0071; 1.0053; .0020;
    
```

Figure 42. Example of an Export Extract (default format)

```

V1R2M0                                CICS Performance Analyzer
                                         Export
EXPT0001 Printed at 1:09:50 7/31/2002   Data from 09:00:09 5/23/2002 to 09:03:22 5/23/2002   Page 1
CPA0EX01 Extract has completed successfully
Data Set Name . . . . . CICSSPA.DEFAULT.EXPORT
Record count . . . . . 74
    
```

Figure 43. Example of an Export Recap Report (default extract)

Exported Performance Data Extract

Extract Record Format (List Export)

The following command produces a List Export file like that in Figure 44.

```
CICSPA LIST(OUTPUT(EXPT0001),
           DDNAME(CPAOEX01),
           DELIMIT(';'),
           LABELS,
           FIELDS(TRAN,STYPE,TERM,USERID,RSYSID,
                 PROGRAM,TASKNO,
                 STOP(TIMET),RESPONSE,
                 DISPATCH(TIME),
                 CPU(TIME),
                 SUSPEND(TIME),
                 DISPWAIT(TIME),
                 FCWAIT(TIME),FCAMCT,
                 IRWAIT(TIME)))
```

To use the CICS PA dialog to request this extract, simply specify a LIST or LISTX Report Form for the Export Extract.

Tran;SC;Term;Userid;RSID;Program;TaskNo;Stop Time;Response;Dispatch Time;User CPU Time;Suspend Time;DispWait Time;;FC Wait Ti . . .
CPLT;U ; ;CICSUSER; ;DFHSIPLT; 6;15:41:29.169; .5196; .1771; .0316; .3425; .3422; .0000; 0; .0000
CSSY;U ; ;CICSUSER; ;DFHAPATT; 15;15:41:30.057; .4595; .0036; .0033; .4558; .0000; .0000; 0; .0000
CSSY;U ; ;CICSUSER; ;DFHAPATT; 16;15:41:30.570; .9663; .0069; .0088; .9594; .0795; .0000; 0; .0000
CSSY;U ; ;CICSUSER; ;DFHAPATT; 17;15:41:33.624; 4.0131; .1379; .0311; 3.8752; 1.7449; .0000; 0; .0000
CSSY;U ; ;CICSUSER; ;DFHAPATT; 12;15:41:33.783; 4.2133; .1621; .0494; 4.0511; 2.5906; .0000; 0; .0000
CGRP;U ; ;CICSUSER; ;DFHZCGRP; 11;15:41:34.307; 5.1156; .1956; .0603; 4.9199; 1.9401; .0000; 0; .0000
CSSY;U ; ;CICSUSER; ;DFHAPATT; 14;15:41:34.388; 4.7978; .1880; .0652; 4.6098; 2.3487; .0000; 0; .0000
CSSY;U ; ;CICSUSER; ;DFHAPATT; 10;15:41:34.452; 5.2738; 1.4746; .2259; 3.7992; .6720; .0000; 0; .0000
CSSY;U ; ;CICSUSER; ;DFHAPATT; 9;15:41:34.513; 5.3366; .7647; .1494; 4.5719; 1.6657; .0000; 0; .0000
CSSY;U ; ;CICSUSER; ;DFHAPATT; 13;15:41:34.868; 5.2787; .7009; .1740; 4.5778; 2.0694; .0000; 0; .0000
CLQ2;U ; ;CICSUSER; ;DFHLUP ; 19;15:42:31.258; 7.2473; .2907; .0416; 6.9566; 1.9555; .0000; 0; 3.7840
CSSY;U ; ;CICSUSER; ;DFHAPATT; III;15:42:43.811; 74.6388; 48.6230; 18.0249; 26.0158; 7.7521; .6756; 1506; .0000
CLR2;TO;<AAK;CICSUSER; ;DFHLUP ; 20;15:42:43.847; .4513; .0130; .0128; .4383; .0215; .0000; 0; .4363
CSFU;S ; ;CICSUSER; ;DFHFCU ; 25;15:42:45.071; .3998; .3770; .0234; .0228; .0184; .0000; 0; .0000
CRSQ;S ; ;CICSUSER; ;DFHCRQ ; 24;15:42:45.437; .7659; .0740; .0247; .6919; .6893; .0000; 0; .0000
CXRE;S ; ;CICSUSER; ;DFHZXRE ; 26;15:42:45.919; .8530; .4739; .0316; .3791; .3788; .0000; 0; .0000
CWBG;S ; ;CICSUSER; ;DFHWWGB ; 23;15:42:46.342; 1.6720; .4074; .0248; 1.2645; 1.2634; .0000; 0; .0000

Figure 44. Example of an Export Extract (List)

```
V1R2M0                                CICS Performance Analyzer
                                       Performance List

EXPT0001 Printed at 2:29:25 7/14/2002   Data from 15:41:29 7/12/2002   APPLID CICPAOR1   Page 1

CPAOEX01 Extract has completed successfully
Data Set Name . . . . CICSPA.LIST.EXPORT
Record count . . . . 119
```

Figure 45. Example of an Export Recap Report (List)

Extract Record Format (Summary Export)

The following command produces a Summary Export file like that in Figure 46.

```
CICSPA SUMMARY(OUTPUT(EXPT0001),
                DDNAME(CPAOEX01),
                DELIMIT('; '),
                LABELS,
                EXTERNAL(CPAXW001),
                INTERVAL(00:01:00),
                BY(TRAN),
                FIELDS(TRAN,TASKCNT,
                    RESPONSE(AVE,MAX),DISPATCH(TIME(AVE)),
                    CPU(TIME(AVE)),SUSPEND(TIME(AVE)),
                    QRCPU(TIME(AVE)),MSCPU(TIME(AVE)),
                    ROCPU(TIME(AVE)),KY8CPU(TIME(AVE)),
                    J8CPU(TIME(AVE)),L8CPU(TIME(AVE)),
                    S8CPU(TIME(AVE))),
                TITLE1('Transaction CICS TCB CPU Analysis - Summary'))
```

To use the CICS PA dialog to request this extract, simply specify a SUMMARY Report Form for the Export Extract. You could use the sample Report Forms. This example is the same as using the sample Report Form CPUSUM.

Tran;	#Tasks;	Response Avg;	Response Max;	Dispatch Time Avg;	User CPU Time Avg;	Suspend Time Avg;	QR CPU Time Avg;	MS CPU Time Avg;	DFH . . .
CATA ;	2;	.5038;	.5107;	.4635;	.1050;	.0403;	.0339;	.0711;Missing ;Missing ;	.0000; .0000; .0000
CATR ;	2;	.3946;	.4069;	.2240;	.0281;	.1706;	.0058;	.0223;Missing ;Missing ;	.0000; .0000; .0000
CEMT ;	2;	6.2161;	7.2793;	2.8673;	.7499;	3.3488;	.2549;	.4950;Missing ;Missing ;	.0000; .0000; .0000
CESD ;	2;	.9081;	.9702;	.1021;	.0411;	.8061;	.0163;	.0249;Missing ;Missing ;	.0000; .0000; .0000
CEX2 ;	2;	1937.94;	1957.76;	.3062;	.0843;	1937.64;	.0582;	.0262;Missing ;Missing ;	.0000; .0000; .0000
CGRP ;	2;	5.3068;	5.4980;	.4944;	.0608;	4.8124;	.0372;	.0236;Missing ;Missing ;	.0000; .0000; .0000
CLQ2 ;	2;	12.7568;	18.2664;	.6439;	.0430;	12.1129;	.0152;	.0278;Missing ;Missing ;	.0000; .0000; .0000
CLR2 ;	2;	.4497;	.4513;	.0131;	.0124;	.4366;	.0124;	.0000;Missing ;Missing ;	.0000; .0000; .0000
CPLT ;	2;	.4568;	.5196;	.1276;	.0321;	.3291;	.0030;	.0290;Missing ;Missing ;	.0000; .0000; .0000
CQRY ;	2;	.4066;	.4157;	.0955;	.0321;	.3110;	.0075;	.0246;Missing ;Missing ;	.0000; .0000; .0000
CRDB ;	2;	2.8808;	3.5474;	.0676;	.0256;	2.8132;	.0108;	.0148;Missing ;Missing ;	.0000; .0000; .0000
CRDC ;	2;	.3234;	.5345;	.2274;	.0243;	.0960;	.0096;	.0148;Missing ;Missing ;	.0000; .0000; .0000
CRDD ;	2;	.3828;	.6006;	.0551;	.0241;	.3277;	.0098;	.0144;Missing ;Missing ;	.0000; .0000; .0000
CRDE ;	2;	.3141;	.5208;	.0670;	.0369;	.2470;	.0227;	.0142;Missing ;Missing ;	.0000; .0000; .0000
CRD3 ;	2;	.5020;	.8081;	.0604;	.0229;	.4416;	.0078;	.0150;Missing ;Missing ;	.0000; .0000; .0000

Figure 46. Example of an Export Extract (Summary)

V1R2M0	CICS Performance Analyzer Performance Summary	
EXPT0001 Printed at 2.43.23 7-24-2002	Data from 15.41.19 7-12-2002 to 16.19.15 7-12-2002	Page 1
Transaction CICS TCB CPU Analysis - Summary		
CPAOEX01 Extract has completed successfully		
Data Set Name	CICSPA.SUMMARY.EXPORT	
Record count	41	

Figure 47. Example of an Export Recap Report (Summary)

Importing into Lotus 1-2-3

To import the exported performance data into Lotus 1-2-3, follow these steps:

1. In 1-2-3, click on the Import SmartIcon or choose File - New. 1-2-3 opens the File dialog box.
2. Select a text type of Text - Delimited (*.TXT).
3. Select the file to be opened. You may have to go to another folder or drive to find it.
4. Click on Open. 1-2-3 displays the Text File Options dialog box.
5. Either click on the option button 'start a new column at each Semicolon' to indicate the character that separates the data fields, or type the separator character in the Other character(s) text box.
6. Click on OK. After a few seconds of processing, 1-2-3 imports the data into records in the worksheet.

Importing into Lotus Approach

To import the exported text file performance data set into Lotus Approach, switch to the Approach Browse environment, and follow these steps:

1. In Approach, click on the Import SmartIcon or choose File - Import Data. Approach opens the Import Data dialog box.
2. Select a text type of Text - Delimited (*.TXT).
3. Select the file to be imported. You may have to go to another folder or drive to find it.
4. Click on Import. Approach displays the Text File Options dialog box.
5. Either click on the option button to indicate the character that separates the data fields or type the separator character in the Other text box.
6. Place a checkmark in the First Row Contains Field Names checkbox. A checked checkbox is the default.
7. Click on OK. Approach opens the Import Setup dialog box.
8. Drag the fields on the right side of the dialog box to match the related fields on the left side.
9. Click on OK. After a few seconds of processing, Approach imports the data into records at the end of the file.
10. Edit the new records as needed.

Record Selection Extract

The Record Selection Extract is a facility that allows you to create a small extract file containing only the CMF performance (and optionally DB2 Accounting) records of interest to you. The extract file can then be used as input to CICS PA, allowing more efficient reporting.

The Record Selection Extract filters large SMF Files, writing only SMF records that match the following criteria:

- CICS and DB2 System Selection
- Performance Selection Criteria
- Run-time SMF reporting interval

A Recap report containing processing statistics is always printed at the end of extract processing.

You can request an extract of all available CMF performance records, or provide criteria for data selection to extract only the data that meets specific requirements.

Extract Command

The command to create the default extract file is:

CICSPA RECSEL or **CICSPA RECORDSELECTION**

To tailor the extract file, specify extract options as follows:

```
[CICSPA APPLID(app1id1,app1id2,...)]
CICSPA RECSEL(
    [OUTPUT(ddname),]
    [DDNAME(ddname),]
    [SSID(id1,id2,...),]
    [SELECT(PERFORMANCE(action1(field1(value1),...),...))])
```

Extract Format

The extract file contains CMF performance records (SMF 110) and if requested, DB2 Accounting records (SMF 101).

Recap Report

A Recap report is always produced at the end of extract processing.

```
V1R2M0                                CICS Performance Analyzer
                                       Record Selection Extract

RSEL0001 Printed at 11:49:18 7/27/2002   Data from 15:41:28 7/12/2002 to 14:43:47 7/21/2002   Page 1

CPAORS01 Extract has completed successfully
Data Set Name . . . . . CICSPA.RECSEL.EXTRACT
Record Counts:
Performance Dictionary . . . . . 8
Performance Class . . . . . 573
DB2 Accounting . . . . . 172
SMF Records . . . . . 204
```

Figure 48. Example of a Performance Record Selection Extract (Recap Report)

Record Selection Extract

The report contains the following information:

RSEL0001

This is the DDname for the Recap output specified in the **OUTPUT(ddname)** operand. If not specified, the default is **RECSnnnn** where nnnn is **0001-9999** to uniquely identify it.

CPAORS01

This is the DDname of the extract data set specified in the **DDNAME(ddname)** operand. If not specified, the default is **CPAORSEL**. The CICS PA dialog generates the DDnames **CPARSnn** where nn is the extract sequence number **01-99**.

Data Set Name

This is the name of the extract data set. Your usual CICS PA reporting can now occur using this data set as input.

Record Counts

The number of records written to the extract data set.

Performance Dictionary

The number of Dictionary records written.

Performance Class

The number of CMF performance class data records written. The **APPLID** operand provides a filter on CICS generic APPLID. The **SELECT(PERFORMANCE)** statement selects only those records with data fields that match the selection criteria. If these operands are not specified, then all CMF performance records are written.

DB2 Accounting

The number of DB2 Accounting records written. The **SSID** operand indicates that DB2 Accounting data is required. Only records for DB2 Subsystems that match the ID or pattern are written. If the SSID operand is not specified, no DB2 Accounting records are written.

SMF Records

The total number of SMF Records written to the extract data set. There is only one Dictionary record per SMF record. There is only one DB2 Accounting record per SMF record. However there may be many performance class records contained in one SMF record.

By comparing the numbers in the End of File Record Counts (see Figure 50 on page 134) and the Record Selection Extract report you can see the effect of filtering on the extract process.

Dispatcher Tables Summary Report

The Dispatcher Tables Summary Report provides a summary of the processing performed by CICS PA. It can provide valuable information for problem determination. If no records are being processed for your requested reports and extracts, there is an excellent chance that the Dispatcher Tables Summary provides all the information needed to resolve the problem.

Report Command

The report is automatically produced prior to report and extract processing. It cannot be explicitly requested.

Report Content

V1R2M0	07:49:07	3/22/2002				CICS Performance Analyzer Dispatcher Tables Summary
SMF File	Off	PreScan	Routine	Output	EOF	ParmName Codes
SMFIN001+	4	CPAPRSMF	CPALSTMF	LIST0001	Y	LIST0001 31
			CPALSXMF	LSTX0001	Y	LSTX0001 31
			CPASUMMF	SUMM0001	Y	SUMM0001 31
			CPAFNLMF	TOTL0001	Y	TOTL0001 31
			CPATRUMF	RESU0001	Y	RESU0001 31,35
SMFIN002	4	CPAPRSMF*	CPALOGMF*	LOGR0002	Y	LOGR0002 58
SMFIN003	4	CPAPRSMF	CPADB2MF	DB2R0003	Y	DB2R0001 31,65
SMFIN004+	4	CPAPRSMF*	CPAMROMF*	CROS0001*	Y	CROS0003 31
			CPAMROMF*	CROS000M*	Y	CROS0004 31
			CPAMROMF*	CROS0001*	Y	CROS0005 31
			CPAMROMF*	CROS000M*	Y	CROS0006 31
			CPAMROMF*	CROS0001*	Y	CROS0007 31
			CPAMROMF*	CROS000M*	Y	CROS0008 31

Figure 49. Example of the Dispatcher Tables Summary Report

The Dispatcher Tables Summary as shown in Figure 49 contains the following information:

SMF File

The DDname of the SMF input file, followed by a plus (+) sign if more than one DDname was specified in the **INPUT** operand.

Off

This is the offset into the data record that the CICS PA scan program uses to determine whether or not the record should be processed.

PreScan

The CICS PA module name that pre-processes each CMF record before they are passed to the record processors.

Routine

This is the name of the record processing module. Each specification of the program causes a separate use of the module. However, only one copy of the module is loaded.

Output

The output file DDname that was either specified in the **OUTPUT** operand or assigned by CICS PA. The name is followed by a (N0) if the file failed to open. It can also be followed by a (DY) if the file is a DUMMY data set.

End of File Record Counts Report

EOF

This indicates whether (Y) or not (N) the record processor is invoked at End of File of the input file.

ParmName

This name is assigned by CICS PA to uniquely identify each invocation of a record processing module.

Codes

This field represents the CMF record codes which are checked at the offset location (**Off**) in the data record.

An asterisk (*) next to the PreScan routine, Record Processing routine or Output DDname signifies that this entry has been used by a previous report. Try to avoid reusing Output DDnames, as the report output may be merged or difficult to distinguish.

End of File Record Counts Report

The End of File Record Counts Report provides a summary of the input records processed. It can provide valuable information for problem determination.

Report Command

The report is automatically produced at the end of report and extract processing. It cannot be explicitly requested.

Report Content

V1R2M0	16:26:54	7/23/2002	CICS Performance Analyzer		
			<u>End of File Record Counts</u>		
DDname	RecID	Record Type	Count	Pct of Total	
SMFIN001+	X'30'	Performance Dictionary	18	0.06%	
	X'31'	Performance Class	1,277	4.29%	
	X'35'	Resource Usage	306	1.02%	
	X'51'	CICS Statistics	27,134	91.15%	
	X'58'	MVS System Logger	733	2.46%	
	X'65'	DB2 Accounting	304	1.02%	
SMFIN001+	Total		29,772	100.00%	
		SMF Records	2,092		
SMFIN002	X'30'	Performance Dictionary	3	0.04%	
	X'31'	Performance Class	250	3.18%	
	X'51'	CICS Statistics	7,596	96.73%	
	X'54'	CICS Server Statistics	4	0.05%	
SMFIN002	Total		7,853	100.00%	
		SMF Records	3,419		
SMFIN003	X'30'	Performance Dictionary	3	0.01%	
	X'31'	Performance Class	126	0.22%	
	X'41'	Exception Class	8	0.01%	
	X'51'	CICS Statistics	57,294	99.76%	
SMFIN003	Total		57,431	100.00%	
		SMF Records	2,462		

Figure 50. Example of the End of File Record Counts Report

The information shown in the End of File Record Counts report in Figure 50 on page 134 is:

DDname

This is the name associated with the SMF input file.

RecID

This is the hexadecimal ID of each CMF record in the input data set. This value was found at the offset (**Off**) shown in the Dispatcher Tables Summary. The Record ID values are:

- X'30' CMF performance class dictionary
- X'31' CMF performance class data
- X'35' CMF transaction resource class data
- X'51' CICS statistics data
- X'52' CICS temporary storage server statistics data
- X'53' CICS coupling facility data table server statistics data
- X'54' CICS named counter server statistics data
- X'58' MVS System Logger data
- X'65' DB2 Accounting data

Record Type

This is the name associated with the record type defined in the **RecID** field. “**Total SMF Records**” is the total number of SMF records in the input file.

Count

This is a count of the number of records of the particular type in the input file.

The “**Total SMF Records**” is usually different from the “**100% Total**” because the one SMF record can contain many CMF performance class records.

Pct of Total

This value represents the percentage of the records of the specified type against the total number of records in the file.

Chapter 3. Interpreting CMF Data

To understand the function of CICS PA and to interpret the reports and extracts properly, some knowledge of the CMF data records and their relationship to one another is necessary.

Interpreting Performance Class Data

Special Point

Care should be taken when using the information in this section to analyze monitoring data that is appropriate to your release of CICS.

Appendix A, “Cross-Reference by CMF Field ID” on page 207 can be used to determine in which CICS release a particular monitoring field was first introduced.

A user task can be represented by one or more performance class monitoring records depending on whether the monitoring system initialization parameters MNCONV, MNSYNC, or MNFREQ are selected and whether an application program invokes a user event monitoring point (EMP) with the DELIVER option specified. In the descriptions that follow, the term “user task” means “that part or whole of a transaction that is represented by a performance class record” unless the description states otherwise.

Transaction Timing Fields

The CMF performance class record provides detailed timing information for each transaction as it is processed by CICS. A transaction can be represented by one or more performance class records depending on the monitoring options selected. The key transaction timing fields are:

Transaction Response Time

The Transaction Start time and Stop time represent the start and end of a transaction measurement interval. This is normally the period between transaction attach and transaction detach but the performance class record could represent a part of a transaction depending on the monitoring options selected. The “Transaction Response Time” can be calculated by subtracting the transaction start time from the transaction stop time.

Transaction Dispatch Time

The Transaction Dispatch Time is the elapsed time that the transaction was dispatched by the CICS dispatcher domain.

Transaction CPU Time

The Transaction CPU time is the amount of processor (CPU) time used during the execution of the task while it is dispatched.

Interpreting Performance Class Data

Transaction Suspend Time

The Transaction Suspend time is the total elapsed time that the transaction was suspended by the CICS dispatcher domain and includes:

- All task suspend (wait) time, which includes:
 - The total I/O wait and other wait times
 - The wait time for redispach (dispatch wait)
 - The wait time for first dispatch (first dispatch delay).
- The First Dispatch Delay time is then further broken down into:
 - First Dispatch Delay due to TRANCLASS limits
 - First Dispatch Delay due to MXT limits.

Transaction Dispatch Wait Time

The Transaction Dispatch Wait time is the time the transaction was still suspended but awaiting dispatch (wait for redispach) by the CICS dispatcher domain.

Transaction Response Time

The transaction response time can be calculated by subtracting the transaction start time field (owner: DFHCICS, field id: 005) from the transaction stop time field (owner: DFHCICS, field id: 006).

Figure 51 shows an overall view of the relationship of the transaction response time with the transaction's dispatch time, CPU time, and suspend (wait) time.

*

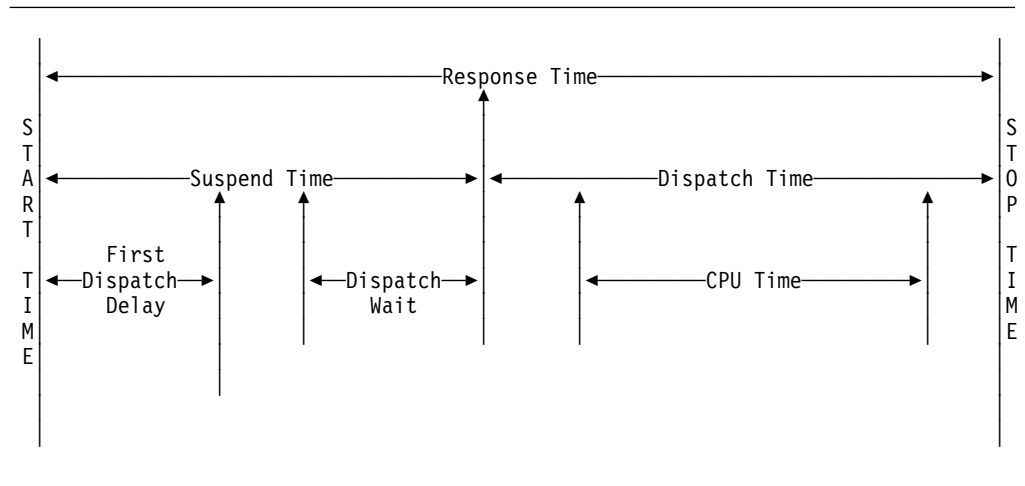


Figure 51. Transaction Response time

Transaction Dispatch and CPU time

The transaction total dispatch time field (owner: DFHTASK, field id: 007) is the total elapsed time during which the user task was dispatched by the CICS dispatcher domain on each CICS TCB under which the task executed. This can include any of the CICS dispatcher domain TCB modes QR, RO, CO, FO, SZ, RP, SL, SO, D2, H8, J8, L8, and S8.

The transaction total CPU time field (owner: DFHTASK, field id: 008) is the total processor time during which the user task was dispatched by the CICS dispatcher

domain on each CICS TCB under which the task executed. This can include any of the CICS dispatcher domain TCB modes QR, RO, CO, FO, SZ, RP, SL, SO, D2, H8, J8, L8, and S8.

For detailed information on all the fields relating to the CICS dispatcher domain including the CICS open transaction environment (OTE), see the DFHTASK performance data on page 174.

Transaction Suspend (Wait) Time

The transaction suspend (wait) time field (owner: DFHTASK, field id: 014) is the total elapsed suspend (wait) time for which the user task was suspended by the CICS dispatcher domain. This includes:

- The task suspend (wait) time
- The elapsed time the transaction waited for its first dispatch by the CICS dispatcher domain. This also includes any delay incurred because of the limits set for this transaction's transaction class (if any) or by the system parameter MXT being reached by this transaction.
- The elapsed time waiting for redispach after a suspended task has been resumed.

Table 3 identifies all the individual or specific suspend (wait) fields that are collected in the performance class data. All the suspend (wait) time fields listed are included in the total transaction suspend time field (owner: DFHTASK, field id: 014). Each of the individual suspend (wait) time fields also contains a portion of the transaction's dispatch wait (wait for redispach) time field (owner: DFHTASK, field id: 102).

Table 3 (Page 1 of 2). Performance class suspend (wait) time fields

Field ID	Owner	Field Description
009	DFHTERM	Terminal Control I/O wait time
010	DFHJOUR	Journal Control I/O wait time
011	DFHTEMP	Temporary Storage I/O wait time
063	DFHFILE	File Control I/O wait time
100	DFHTERM	Inter-Region (MRO) I/O wait time
101	DFHDEST	Transient Data I/O wait time
123	DFHTASK	Global ENQ delay time
128	DFHTASK	Lock Manager (LM) delay time
129	DFHTASK	Local ENQ delay time
133	DFHTERM	LU 6.1 I/O wait time
134	DFHTERM	LU 6.2 I/O wait time
156	DFHFPEI	FEPI I/O wait time
171	DFHTASK	RMI suspend time
174	DFHFILE	RLS File I/O wait time
176	DFHFILE	Coupling facility data table server I/O wait time
177	DFHSYNC	Coupling facility data table server syncpoint and resynchronization wait time
178	DFHTEMP	Shared Temporary Storage I/O wait time

Interpreting Performance Class Data

Table 3 (Page 2 of 2). Performance class suspend (wait) time fields

Field ID	Owner	Field Description
181	DFHTASK	EXEC CICS WAIT EXTERNAL wait time
182	DFHTASK	EXEC CICS WAITCICS and EXEC CICS WAIT EVENT wait time
183	DFHTASK	Interval Control delay time
184	DFHTASK	Dispatchable Wait's wait time
186	DFHDATA	IMS (DBCTL) wait time
187	DFHDATA	DB2 ready queue wait time
188	DFHDATA	DB2 connection wait time
189	DFHDATA	DB2 wait time
191	DFHTASK	RRMS/MVS Indoubt wait time
192	DFHTASK	Request Receiver wait time
193	DFHTASK	Request Processor wait time
195	DFHTASK	CICS BTS Run transaction synchronous wait time
196	DFHSYNC	CICS BTS Syncpoint delay time
241	DFH SOCK	Inbound Socket I/O wait time
250	DFHTASK	CICS MAXOPENTCBS delay time
254	DFHTASK	JVM suspend time
277	DFHTASK	CICS MAXJVMTCBS delay time
278	DFHTASK	CICS MAXHPTCBS delay time
285	DFHTASK	3270 bridge partner wait time
299	DFH SOCK	Outbound Socket I/O wait time

The performance class data fields 009, 010, 011, 063, 100, 101, 123, 128, 129, 133, 134, 156, 171, 174, 176, 177, 178, 181, 182, 183, 184, 186, 187, 188, 189, 191, 192, 193, 195, 196, 241, 250, 254, 277, 278, 285, and 299 all record the elapsed time waiting for a particular type of I/O operation or transaction suspend (wait). For example, DFHTERM field id 009 records the elapsed time waiting for terminal I/O. The elapsed time includes not only the time during which the I/O operation is actually taking place, but also the time during which the access method is completing the outstanding event control block, and the time subsequent to that until the waiting transaction is redispached by the CICS dispatcher domain.

Figure 52 on page 141 shows a representation of the relationship of a typical transaction's wait time field with the suspend (wait) time, the dispatch time, CPU time and dispatch wait time (wait for redispach) fields.

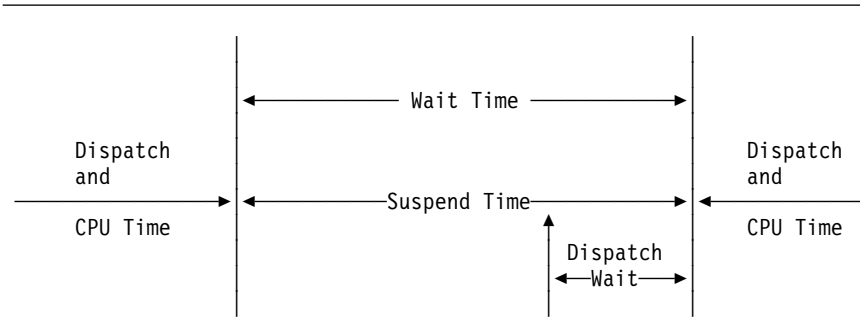


Figure 52. Suspend (Wait) time relationship

In the sections that follow, a number of calculations are shown that can be performed using the transaction's total suspend (wait) time field and the individual suspend (wait) time fields.

For example, the "Total I/O Wait Time" can be calculated as follows:

"Total I/O Wait Time" =
 (Terminal I/O wait time +
 Temporary Storage I/O wait time +
 Shared Temporary Storage I/O wait time +
 Transient Data I/O wait time +
 Journal (MVS Logger) I/O wait time +
 File I/O wait time +
 RLS File I/O wait time +
 Coupling Facility Data Table I/O wait time +
 Inbound Socket I/O wait time +
 Outbound Socket I/O wait time +
 Inter-Region (MRO) I/O wait time +
 LU 6.1 I/O wait time +
 LU 6.2 I/O wait time +
 FEPI I/O wait time)

The "Total Other Wait Time" can be calculated as follows:

"Total Other Wait Time" =
 (First Dispatch delay +
 CICS MAXHPTCBS delay time +
 CICS MAXJVMTCBS delay time +
 CICS MAXOPENTCBS delay time +
 Local ENQ delay time +
 Global ENQ delay time +
 Interval Control delay time +
 Lock Manager (LM) delay time +
 EXEC CICS WAIT EXTERNAL wait time +
 EXEC CICS WAITCICS wait time +
 Request Receiver wait time +
 Request Processor wait time +
 RRMS/MVS indoubt wait time +
 3270 bridge partner wait time +
 Coupling Facility Data Table server syncpoint wait time +

Interpreting Performance Class Data

CICS BTS Run Transaction synchronous wait time +
CICS BTS Syncpoint delay time +
Dispatchable Wait's wait time +
RMI suspend time +
JVM suspend time)

Notes:

1. The First Dispatch Delay field includes the MXT Delay and TRANCLASS delay fields.
2. The RMI Suspend Time field includes:
 - DB2 readyq wait time
 - DB2 connection wait time
 - DB2 wait time
 - IMS wait time.

See "RMI Elapsed and Suspend Time" on page 144 for further information.

The "Unaccounted Wait Time" (or "Uncaptured Wait Time") can be calculated as follows:

"Unaccounted Wait Time" =

(Suspend - (Total I/O Wait time + Total Other Wait time))

The "Unaccounted Wait Time" is the amount of transaction "Suspend (wait) Time" that is not specifically measured in an individual wait time field.

In addition to the transaction "Suspend (wait) Time" breakdown, the CMF performance class data provides several other important transaction timing measurements. They include:

Exception Wait Time

The Exception wait time is the accumulated time from all the exception conditions measured by the CMF exception class records for the transaction. See "CMF Exception Class Data Fields" on page 195 for more information on the CMF exception class records.

Program Load Time

The Program load time is the total program fetch time (dispatch time, CPU time and DFHRPL I/O wait time) for all programs invoked by the transaction that have to be loaded into CICS program storage from the DFHRPL program library. See "Program Load Time" on page 143 for more information.

Syncpoint Elapsed Time

The Syncpoint elapsed time is the total elapsed time that the transaction spent processing a syncpoint. See "Syncpoint Elapsed Time" on page 144 for more information.

The OTS indoubt wait time is the total elapsed time the transaction spent indoubt whilst processing an Object Transaction Service (OTS) syncpoint.

RMI Elapsed Time

The RMI elapsed time is the total elapsed time the transaction spent in all Resource Managers (such as DB2, IMS DBCTL, MQSeries®) invoked by the transaction using the CICS Resource Manager Interface (RMI). See "RMI Elapsed and Suspend Time" on page 144 for more information.

JVM Elapsed Time

The JVM elapsed time is the total elapsed time the transaction spent in the Java™ Virtual Machine (JVM) for all the CICS Java application programs invoked by the transaction. See “JVM Elapsed and Suspend Time” on page 145 for more information.

JVM Initialization Time

The JVM initialization time is the elapsed time the transaction spent initializing the Java Virtual Machine (JVM) for all the CICS Java application programs invoked by the transaction. See “JVM Elapsed and Suspend Time” on page 145 for more information.

JVM Reset Time

The JVM reset time is the elapsed time the transaction spent resetting the Java Virtual Machine (JVM) for all the CICS Java application programs invoked by the transaction. See “JVM Elapsed and Suspend Time” on page 145 for more information.

Exception Wait Time

The Exception wait time field, EXWTTIME (owner: DFHCICS, field id: 103) is the accumulated time from all the exception conditions measured by the CMF exception class records for the transaction. For more information on the exception class records, see “CMF Exception Class Data Fields” on page 195.

Program Load Time

The program load time is the total elapsed time during which the user task waited for program fetches from the DFHRPL program library. Only fetches for programs with installed program definitions or autoinstalled as a result of application program requests are included in this figure. Installed programs residing in the LPA are not included because they do not incur a physical fetch from a program library.

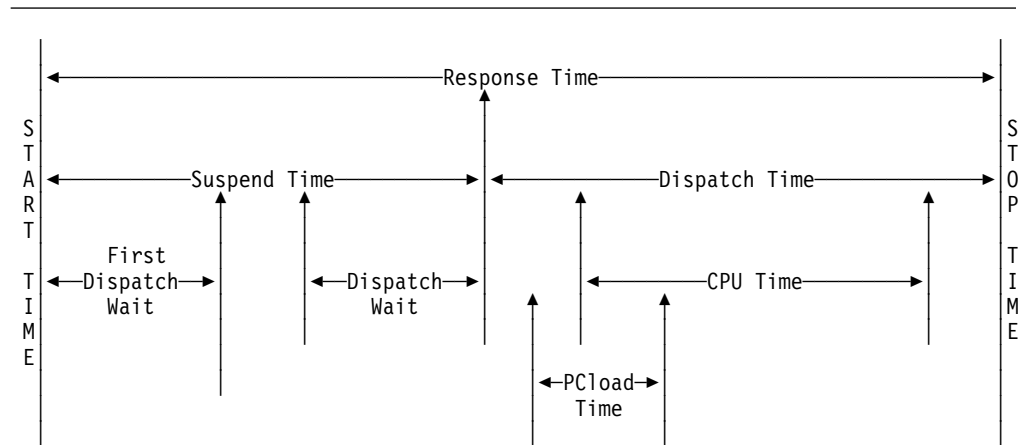


Figure 53. Program load time

Figure 53 shows an example of the relationship between the program load time field (owner: DFHPROG, field id: 115) and the transaction dispatch time (owner: DFHTASK, field id: 007) and the transaction suspend time (owner: DFHTASK, field id: 014).

Syncpoint Elapsed Time

The performance class data includes a number of timing fields relating to the syncpoint processing performed by a transaction. These data fields include the following:

- Syncpoint elapsed time
- Coupling Facility Data Table (CFDT) server syncpoint time
- CICS Business Transaction Services (BTS) syncpoint delay time
- Object Transaction Services (OTS) indoubt wait time

These fields provide an in depth understanding of the amount of time a transaction spends processing syncpoints and the wait time for coupling facility data table server, CICS BTS syncpoint requests, and OTS indoubt time.

In particular, the CICS BTS syncpoint delay time field, SYNCDLY (owner: DFHSYNC, field id: 196) can be used to determine the amount of time a transaction is suspended waiting for the syncpoint from the invoking (parent) transaction and should be analyzed in conjunction with the CICS BTS run transaction (ACQPROCESS or activity) wait time field (owner: DFHTASK, field id: 195) from the invoking transaction to fully understand the syncpoint delay time in the correct context.

RMI Elapsed and Suspend Time

Figure 54 shows an example of the relationship between the CICS Resource Manager Interface (RMI) elapsed and suspend time fields (owner: DFHTASK, field ids: 170 and 171), the transaction dispatch time (owner: DFHTASK, field id: 007) and the transaction suspend time (owner: DFHTASK, field id: 014).

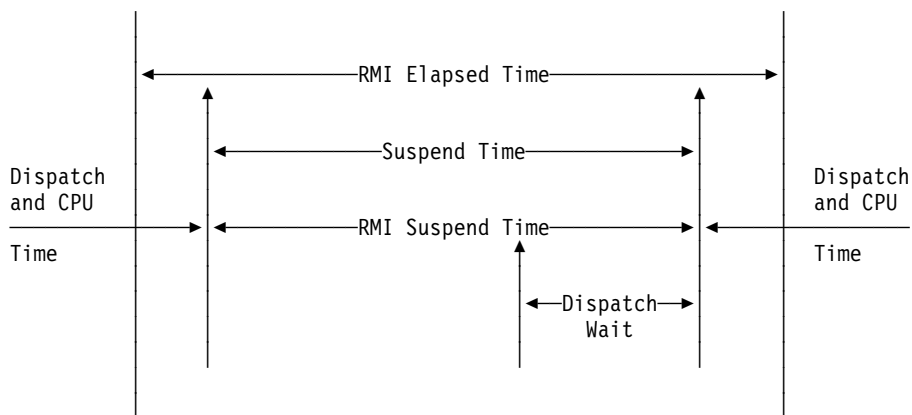


Figure 54. CICS Resource Manager Interface (RMI) Elapsed and Suspend Time

When investigating performance problems relating to the CICS Resource Manager Interface (RMI) you will find it helpful in assisting your interpretation of the RMI timing fields if you have some knowledge of how CICS resource managers, such as DB2, IMS (DBCTL), MQSeries, or user written, are being used by your CICS applications.

If an application invokes a CICS resource manager that in turn invokes another CICS resource manager from within the task-related user exit program (sometimes known as stacking RMIs) the CICS Resource Manager Interface (RMI) elapsed

time field (RMITIME) will contain the total elapsed time from entry to exit of the first, or highest, level CICS resource manager.

Note: In CICS Transaction Server Version 1.3 or later, the DB2 wait, DB2 connection wait, and DB2 readyq wait time fields as well as the IMS wait time field are included in the RMI suspend time.

The "RMI Other Wait Time" can be calculated as follows:

$$\text{"RMI Other Wait Time"} = (\text{RMI Suspend} - (\text{IMS Wait time} + \text{DB2 Readyq Wait time} + \text{DB2 Connection Wait time} + \text{DB2 Wait time}))$$

The "RMI Other Wait Time" will contain the suspend (wait) time in the CICS dispatcher domain for other Resource Managers such as MQSeries, CICS Sockets, or user written.

For more detailed information on the timing fields for DB2 and IMS, see the DFHDATA performance data on page 160.

When investigating performance problems relating to the CICS Resource Manager Interface (RMI) in CICS Transaction Server for z/OS Version 2.2, you may also find it useful to read the section on the "Open Transaction Environment" on page 146.

JVM Elapsed and Suspend Time

The JVM elapsed and suspend time fields provide an insight into the amount of time that a transaction spends in a Java Virtual Machine (JVM).

Care must be taken when using the JVM elapsed time (owner: DFHTASK, field id: 253) and JVM suspend time (owner: DFHTASK, field id: 254) fields in any calculation with other CMF timing fields. This is because of the likelihood of double accounting other CMF timing fields in the performance class record within the JVM time fields. For example, if a Java application program invoked by a transaction issues a read file (non-RLS) request using the Java API for CICS (JCICS) classes, the file I/O wait time will be included in both the file I/O wait time field (owner: DFHFILE, field id: 063), the transaction suspend time field (owner: DFHTASK, field id: 014) as well as the JVM suspend time field.

A JVM application will invoke the CICS JVM for a number of reasons not just to invoke the main method of the application. These calls include:

- Creating and destroying the JVM
- Finding the wrapper class and the main method within the class
- Building the arguments to pass to the main method
- Invoking the main method of the application

The JVM elapsed and suspend time fields are best evaluated from the overall transaction performance view and their relationship with the transaction response time, transaction dispatch time, and transaction suspend time. The performance class data also includes the amount of processor (CPU) time that a transaction used whilst in a JVM on a CICS J8 mode TCB in the J8CPUT field (owner: DFHTASK, field id: 260).

Note: The number of Java API for CICS (JCICS) requests issued by the user task is included in the CICS OO foundation class request count field (owner: DFHCICS, field id: 025).

Interpreting Performance Class Data

In CICS Transaction Server for z/OS Version 2 Release 1, new monitoring fields were introduced to provide additional insight into the processing of CICS Java (JVM) applications. These new fields are, the JVM init time (owner: DFHTASK, field id: 273), the JVM reset time (owner: DFHTASK, field id: 275), and the JVM status information in byte 6 of the TRANFLAG field (owner: DFHTASK, field id: 164).

You can use the sample Report Forms to produce a Performance List Report (JVMLST Form) and a Performance Summary Report (JVMSUM Form) showing the fields related to a transaction's use of a Java Virtual Machine (JVM).

Open Transaction Environment

The performance class data includes a number of timing fields relating to the exploitation of the CICS open transaction environment (OTE) by a transaction. These data fields provide an in depth understanding into the CICS Dispatcher Domain TCBs used by a transaction and include the following:

1. QR mode TCB Dispatch and CPU time
2. RO mode TCB Dispatch and CPU time (CICS TS 2.2)
3. Key 8 mode TCB Dispatch and CPU time
4. J8, L8 and S8 mode TCB CPU times
5. QR mode TCB dispatch delay time
6. CICS dispatcher TCB attach count
7. CICS dispatcher TCB change mode count
8. Max open TCB delay time
9. Max JVM TCB delay time (CICS TS 2.2)
10. Max Hot-Pooling TCB delay time (CICS TS 2.2)

For detailed information on all the fields relating to the CICS dispatcher domain including the CICS open transaction environment (OTE), see the DFHTASK performance data on page 174.

For more general information on the CICS open transaction environment (OTE), see the *CICS Application Programming Guide*.

For more information on the CICS DB2 attachment facility and its use of the open transaction environment (OTE) in CICS Transaction Server for z/OS Version 2.2, see the *CICS DB2 Guide*.

User Storage

The performance class data provides a number of data fields relating to the CICS storage used by a transaction. These fields are designed to provide detailed information on the amount and location of the CICS storage used by a transaction. The data fields provided include:

- Storage GETMAIN request count
- Storage high-water mark
- Storage occupancy measurement

for each CICS DSA (below and/or above the 16MB line) used by a transaction.

The user storage fields are described in detail in “DFHSTOR User Storage Fields” on page 170.

User Storage Occupancy

A storage occupancy count measures the area under the curve of user-task storage in use against elapsed time. The unit of measure is the “byte-unit”, where the “unit” is equal to 1024 microseconds, or 1.024 milliseconds. Where *ms* is milliseconds, a user task occupying, for example, 256 bytes for 125 milliseconds is measured as follows:

$$125 / 1.024 \text{ ms} = 122 \text{ units} * 256 = 31232 \text{ byte-units}$$

Note: All references to “Start Time” and “Stop Time” in the calculations below refer to the middle 4 bytes of each 8 byte start/stop time field. The start and stop time fields are standard S/390® STCK time values where bit 51 of the Start time or Stop time represents a unit of 16 microseconds.

To calculate the response time and convert into microsecond units:

$$\text{Response} = ((\text{Stop time} - \text{Start time}) * 16)$$

To calculate the number of 1024 microsecond “units”:

$$\text{Units} = (\text{Response} / 1024)$$

or

$$\text{Units} = ((\text{Stop time} - \text{Start time}) / 64)$$

To calculate the average user-task storage used from the storage occupancy count:

$$\text{Average user-task storage used} = (\text{Storage Occupancy} / \text{Units})$$

To calculate units per second:

$$\text{Units Per Second} = (1000000 / 1024) = 976.5625$$

To calculate the response time in seconds:

$$\text{Response} = (((\text{Stop time} - \text{Start time}) * 16) / 1000000)$$

During the life of a user task, CICS measures, calculates, and accumulates the storage occupancy at the following points:

- Before a storage GETMAIN request increases the current user-storage values
- Before a storage FREEMAIN request decreases the current user-storage values
- Just before a performance record is created for the user task.

Figure 55 on page 148 shows a pictorial representation of how the user storage occupancy measurement is calculated.

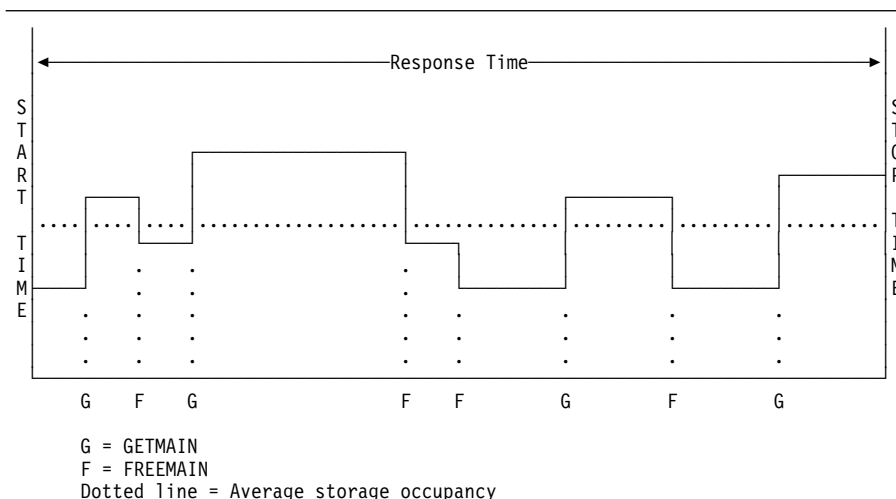


Figure 55. Transaction User Storage Occupancy

Shared Storage

The performance class data also provides a number of fields relating to the CICS shared storage used by a transaction. These fields are designed to provide detailed information on the amount and location of the CICS shared storage used by a transaction. The data fields provided include:

- Shared storage GETMAIN request count
- Number of bytes of shared storage GETMAINED
- Number of bytes of shared storage FREEMAINED.

The shared storage fields are described in detail in “DFHSTOR Shared Storage Fields” on page 171.

Program Storage

The level of program storage in use is incremented at each program LOAD, LINK, and XCTL event by the size (in bytes) of the referenced program, and is decremented at each program RELEASE or RETURN event.

Note: On a program XCTL event, the program storage currently in use is also decremented by the size of the program issuing the program XCTL because the program is no longer required by the task.

Figure 56 on page 149 shows the relationships between the “high-water mark” data fields that contain the maximum amounts of program storage in use by the user task. Field PCSTGHWM (owner: DFHSTOR, field id: 087) contains the maximum amount of program storage in use by the task both above *and* below the 16MB line. Fields PC31AHWM (owner: DFHSTOR, field id: 139) and PC24BHWM (owner: DFHSTOR, field id: 108) are subsets of PCSTGHWM, containing the maximum amounts of program storage in use above and below the 16MB line, respectively. Other program storage fields, which are also a subset of PCSTGHWM, contain the maximum amounts of program storage in use by the task in each of the CICS dynamic storage areas (DSAs).

Note: The totaled values of all the subsets in a superset may not necessarily equate to the value of the superset. For example, the value of PC31AHWM plus the value of PC24BHWM may not equal the value of PCSTGHWM. This is because

the peaks in the different types of program storage acquired by the user task do not necessarily occur simultaneously.

The program storage “high-water mark” fields are described in detail in “DFHSTOR Program Storage Fields” on page 172.

PCSTGHWM - high-water mark of program storage in all CICS DSAs

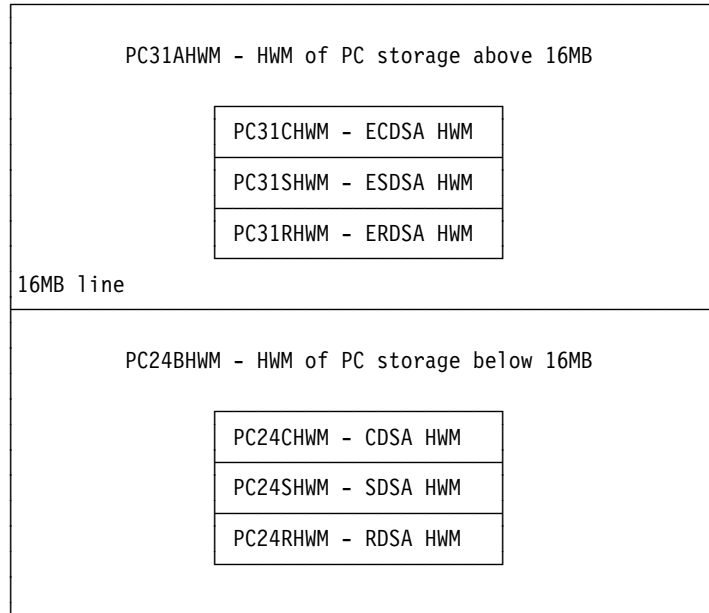


Figure 56. Relationships between the “high-water mark” program storage data fields

Correlating Performance Class Data

The performance class data provides several fields that can be used to correlate all the related performance class data records from a single or multiple CICS systems in order to monitor the total amount of resources used by a transaction. The performance class records can be correlated by:

- network unit-of-work id
 - DB2 Accounting correlation token
 - MQSeries
- transaction group id
- CICS BTS process id (root activity id).

The following sections describe the various ways in which the performance class records can be correlated.

Correlating by Network Unit-of-Work ID

The network unit-of-work id (owner: DFHTASK, field ids: 097 and 098) can be used to correlate the performance class data records from a single or multiple CICS systems.

This name is assigned at transaction attach time using either a netname derived from the terminal (when the task is attached to a local VTAM terminal), or the netname passed as part of an IRC (MRO) or ISC (APPC) attach header combined

Correlating Performance Class Data

with a STCK-derived token created by the originating system, or the network unit-of-work id passed as part of an IRC (MRO) or ISC (APPC) attach function management header (FMH).

Note: The network unit-of-work id, in a slightly different format, can also be used to correlate the CICS CMF performance class records with DB2 SMF 101 Class 2 accounting records. See page 151 for more details on use of the DB2 accounting correlation token.

For more information on the reporting provided by CICS PA to analyze the performance class data by network unit-of-work id, see the “Cross-System Work Report” on page 38 and “Cross-System Work Extract” on page 112.

Interpreting the Cross-System Work Report

The Cross-System Work Report correlates performance class data from a single or multiple CICS systems, as long as the performance data is part of the same network unit-of-work.

The Cross-System Work Report is particularly useful in understanding the type and flow of a CICS transaction across CICS systems, including:

- Transaction Routing
- Function Shipping
- Distributed Program Link (DPL)
- External Call Interface (ECI) over TCP/IP.

For more information on the Cross-System Work Report and Extract, see “Cross-System Work Report” on page 38 and “Cross-System Work Extract” on page 112.

The Workload Activity Report also correlates the performance records by network unit-of-work id and can be used to understand the type and flow of a CICS transaction across CICS systems and its relationship with the MVS Workload Manager (WLM).

For more information on the Workload Activity Report, see “Workload Activity Report” on page 60.

Whereas, the Transaction Group Report correlates the performance class data records from a single system, as long as the transactions are part of the same incoming work request (they have the same transaction group id).

The Transaction Group Report is particularly useful in understanding the relationship and flow of transactions that originate through the CICS Web Support (CWS), CICS Internet Inter-ORB protocol (IIOP), External Call Interface (ECI) over TCP/IP, or the 3270 bridge interface.

For more information on the Transaction Group Report, see “Transaction Group Report” on page 46.

With DB2 Accounting Correlation Token

The CICS performance class data records can also be correlated with the DB2 SMF 101 Class 2 accounting records. In order to provide the necessary accounting record granularity in the DB2 accounting records, you need to specify either ACCOUNTREC(TASK) or ACCOUNTREC(UOW) in the DB2 connection and DB2 entry resource definitions. Specifying ACCOUNTREC(TASK) ensures that there is a minimum of one DB2 accounting record for each task but there could be more depending on thread reuse. ACCOUNTREC(TASK) is recommended rather than ACCOUNTREC(UOW) as this provides better matching between CMF performance records and DB2 Accounting records.

For more information on the CICS DB2 connection and DB2 entry definition, see the *CICS DB2 Guide* and the *CICS Resource Definition Guide*.

For more information on DB2 accounting and monitoring, see the *CICS DB2 Guide*.

With MQSeries Accounting Correlation Token

With MQSeries V5.2 or later the CICS performance class data records can also now be correlated with the MQSeries SMF 116 accounting records.

For more information on MQSeries accounting, see the *MQSeries for OS/390 Setup Guide*.

Correlating by Transaction Group ID

The transaction group id (owner: DFHTASK, field id: 082) is assigned at transaction attach time and can be used to correlate the performance class records for the transactions that CICS executes for the same incoming work request (for example, the CWXN and CWBA transactions for CICS Web support requests).

This transaction group id relationship is particularly useful when applied to the requests that originate through the CICS Web Support (CWS), CICS IIOP, ECI over TCP/IP, or the 3270 bridge interface. The transaction origin can be determined from the transaction origin type in byte 4 of the transaction flags field (owner: DFHTASK, field id: 164) as described on page 179.

For more information on the report provided by CICS PA to analyze the performance class data by transaction group id, see the "Transaction Group Report" on page 46.

Correlating by CICS BTS Process ID (Root Activity ID)

The CICS Business Transaction Services (BTS) process id (owner: DFHCBTS, field id: 202), also known as the root activity id, can be used to correlate the performance class records for the transactions that CICS executes that form part of the same process id.

Note: Not all transactions that use CICS Business Transaction Services have a process id assigned at transaction attach. However, the CICS PA BTS report includes "all" the performance class records for transactions that have used any CICS BTS services regardless of whether they have been assigned a process id at transaction attach. In this case, whether or not the performance class records form part of the same process id is determined by comparing the transaction sequence number field (owner: DFHTASK, field id: 031).

Correlating Performance Class Data

For detailed information on the monitoring data provided for the CICS Business Transaction Services (BTS) support, see “DFHCBTS Performance Class Fields” on page 155.

See the “BTS Report” on page 55 for information on the report provided by CICS PA to analyze the transactions using CICS Business Transaction Services.

For more information on CICS Business Transaction Services (BTS), see the *CICS Business Transaction Services* manual.

CICS Web Support

The CICS Monitoring Facility provides extensive performance class monitoring data for the CICS Web Support (CWS). This data includes:

- Client IP Address
- EXEC CICS Web API requests
- EXEC CICS Document API requests
- CICS support for TCP/IP (socket domain) requests.

In CICS Transaction Server for z/OS Version 2 Release 1, the performance class monitoring data was significantly enhanced with the addition of a number of new data fields which provide more detailed information for those applications using the CICS Web support. These fields include:

- the TCP/IP service name and port number of the installed TCP/IP service resource definition from which the transaction was initiated
- EXEC CICS EXTRACT Web API request count
- EXEC CICS Web Browse API requests count
- EXEC CICS EXTRACT TCPIP and EXTRACT CERTIFICATE API request count

For detailed information on the monitoring data provided for the CICS Web support, see the DFHDOCH performance data on page 162, DFH SOCK on page 168, and DFHWEBB on page 193.

For information on the reports provided by CICS PA to analyze the performance class data by transaction group id, see the “Transaction Group Report” on page 46.

CICS PA has provided two sample Report Forms that you can use to tailor the Performance List Report (WEBLST Form) and the Performance Summary Report (WEBSUM Form) for detailed analysis of those transactions that are using the CICS Web support.

For more general information on the CICS Web support, see the *CICS Internet Guide*.

CICS TCP/IP Support

In CICS Transaction Server for z/OS Version 2, the performance class monitoring data has been enhanced with the addition of a number of new data fields which provide additional detailed information for those applications using the CICS Web Support (CWS), CICS IIOF, and the CICS ECI over TCP/IP support.

The performance class monitoring data provided includes the following:

- the TCP/IP service name and port number of the installed TCP/IP service resource definition from which the transaction was initiated
- the Client IP address in the interpreted format of *nnn.nnn.nnn.nnn*.
- Inbound and outbound socket I/O wait times
- Extract TCP/IP request counts
- Inbound and Outbound Socket request and character counts, – send, receive, and so on.

For detailed information on the data provided for the CICS support for TCP/IP, see the DFH SOCK performance data on page 168.

For more information on the reports provided by CICS PA to analyze the performance class data by transaction group id, see the “Transaction Group Report” on page 46.

CICS PA has provided two sample Report Forms that you can use to tailor the Performance List Report (TCPLST Form) and Performance Summary Report (TCPSUM Form) for analyzing the performance class data for the CICS support for TCP/IP.

For more general information, see the *CICS Internet Guide*, the *CICS External Interfaces Guide*, and *Communicating from CICS on System/390*.

Neither the 32-bit timer component of the clock nor its 24-bit period count are protected against wraparound. The timer capacity is about 18 hours, and the period count runs to modulo-16 777 216.

The eight reserved bits have the following significance:

Bits 0, 1, 2, and 3

Used for online control of the clock when it is running, and should always be zero on output.

Bits 4 and 7

Not used.

Bits 5 and 6

Used to indicate, when set to 1, that the clock has suffered at least one out-of-phase start (bit 5) or stop (bit 6).

Time stamp: A time stamp is an 8-byte copy of the output of an STCK instruction.

DFHAPPL Performance Class Fields

DFHAPPL owns the following performance class data fields. They are only available when application programs invoke the application naming event monitoring points. See the DFHMCT TYPE=INITIAL macro.

001 (Type-C, APPLNAME, 12 bytes)

The data written when the DFHAPPL.1 and DFHAPPL.2 application naming event monitoring points are invoked. The 12 byte APPLNAME field comprises:

- Transaction ID (DFHAPPL.1) in bytes 1 to 4.
- Program name (DFHAPPL.2) in bytes 5 to 12.

DFHCBTS Performance Class Fields

DFHCBTS owns the following performance class data fields:

200 (Type-C, PRCSNAME, 36 bytes)

The name of the CICS business transaction service (BTS) process of which the user task formed part.

201 (Type-C, PRCSTYPE, 8 bytes)

The process-type of the CICS BTS process of which the user task formed part.

202 (Type-C, PRCSID, 52 bytes)

The CICS-assigned identifier of the CICS BTS root activity that the user task implemented.

203 (Type-C, ACTVTYID, 52 bytes)

The CICS-assigned identifier of the CICS BTS activity that the user task implemented.

204 (Type-C, ACTVTYNM, 16 bytes)

The name of the CICS BTS activity that the user task implemented.

205 (Type-A, BARSYNCT, 4 bytes)

The number of CICS BTS run process or run activity requests issued by the user task in order to execute a child process or activity synchronously.

CMF Performance Class Data Fields

206 (Type-A, BARASYCT, 4 bytes)

The number of CICS BTS run process and run activity requests issued by the user task in order to execute a child process or activity asynchronously.

207 (Type-A, BALKPACT, 4 bytes)

The number of CICS BTS link process or link activity requests issued by the user task.

208 (Type-A, BADPROCT, 4 bytes)

The number of CICS BTS define process requests issued by the user task.

209 (Type-A, BADACTCT, 4 bytes)

The number of CICS BTS define activity requests issued by the user task.

210 (Type-A, BARSPACT, 4 bytes)

The number of CICS BTS reset process and reset activity requests issued by the user task.

211 (Type-A, BASUPACT, 4 bytes)

The number of CICS BTS suspend process and suspend activity requests issued by the user task.

212 (Type-A, BARMFACT, 4 bytes)

The number of CICS BTS resume process and resume activity requests issued by the user task.

213 (Type-A, BADCPACT, 4 bytes)

The number of CICS BTS delete activity, cancel process and cancel activity requests issued by the user task.

214 (Type-A, BAACQPCT, 4 bytes)

The number of CICS BTS acquire process and acquire activity requests issued by the user task.

215 (Type-A, BATOTPCT, 4 bytes)

The total number of CICS BTS process and activity requests issued by the user task.

216 (Type-A, BAPRDCCT, 4 bytes)

The number of CICS BTS delete, get, or put container requests for process data containers issued by the user task.

217 (Type-A, BAACDCCT, 4 bytes)

The number of CICS BTS delete, get, or put container requests for activity data containers issued by the user task.

218 (Type-A, BATOTCCT, 4 bytes)

The total number of CICS BTS process container and activity container requests issued by the user task.

219 (Type-A, BARATECT, 4 bytes)

The number of CICS BTS retrieve-reattach requests issued by the user task.

220 (Type-A, BADFIECT, 4 bytes)

The number of CICS BTS define-input event requests issued by the user task.

221 (Type-A, BATIAECT, 4 bytes)

The number of CICS BTS timer associated requests issued by the user task.

222 (Type-A, BATOTECT, 4 bytes)

The total number of CICS BTS event-related requests issued by the user task.

Table 4 (Page 1 of 2). EXEC CICS business transaction services (BTS) commands related to the BTS monitoring fields

EXEC CICS BTS command	Monitoring fields
ACQUIRE ACTIVITYID ACQUIRE PROCESS	BAACQPCT and BATOTPCT BAACQPCT and BATOTPCT
ADD SUBEVENT	BATOTECT
CANCEL ACTIVITY CANCEL ACQPROCESS CANCEL ACQPROCESS	BADCPACT and BATOTPCT BADCPACT and BATOTPCT BADCPACT and BATOTPCT
CHECK ACQPROCESS CHECK ACTIVITY CHECK TIMER	BATOTPCT BATOTPCT BATIAECT and BATOTECT
DEFINE ACTIVITY DEFINE COMPOSITE EVENT DEFINE INPUT EVENT DEFINE PROCESS DEFINE TIMER	BADACTCT and BATOTPCT BATOTECT BADFIECT and BATOTECT BADPROCT and BATOTPCT BATIAECT and BATOTECT
DELETE ACTIVITY DELETE CONTAINER ACTIVITY DELETE CONTAINER ACQACTIVITY DELETE CONTAINER PROCESS DELETE CONTAINER ACQPROCESS DELETE EVENT DELETE TIMER	BADCPACT and BATOTPCT BAACDCCT and BATOTCCT BAACDCCT and BATOTCCT BAPRDCCT and BATOTCCT BAPRDCCT and BATOTCCT BATOTECT BATIAECT and BATOTECT
FORCE TIMER	BATIAECT and BATOTECT
GET CONTAINER ACTIVITY GET CONTAINER ACQACTIVITY GET CONTAINER PROCESS GET CONTAINER ACQPROCESS	BAACDCCT and BATOTCCT BAACDCCT and BATOTCCT BAPRDCCT and BATOTCCT BAPRDCCT and BATOTCCT
LINK ACQPROCESS LINK ACTIVITY LINK ACQACTIVITY	BALKPACT and BATOTPCT BALKPACT and BATOTPCT BALKPACT and BATOTPCT
PUT CONTAINER ACTIVITY PUT CONTAINER ACQACTIVITY PUT CONTAINER PROCESS PUT CONTAINER ACQPROCESS	BAACDCCT and BATOTCCT BAACDCCT and BATOTCCT BAPRDCCT and BATOTCCT BAPRDCCT and BATOTCCT
REMOVE SUBEVENT	BATOTECT
RESET ACQPROCESS RESET ACTIVITY	BARSPACT and BATOTPCT BARSPACT and BATOTPCT
RESUME ACQACTIVITY RESUME ACQPROCESS RESUME ACTIVITY	BARMPACT and BATOTPCT BARMPACT and BATOTPCT BARMPACT and BATOTPCT
RETRIEVE REATTACH EVENT RETRIEVE SUBEVENT	BARATECT and BATOTECT BATOTECT
RUN ACTIVITY SYNCHRONOUS RUN ACQACTIVITY SYNCHRONOUS RUN ACQPROCESS SYNCHRONOUS	BARSYNCT and BATOTPCT BARSYNCT and BATOTPCT BARSYNCT and BATOTPCT

CMF Performance Class Data Fields

Table 4 (Page 2 of 2). EXEC CICS business transaction services (BTS) commands related to the BTS monitoring fields

EXEC CICS BTS command	Monitoring fields
RUN ACTIVITY ASYNCHRONOUS	BARASYCT and BATOTPCT
RUN ACQACTIVITY ASYNCHRONOUS	BARASYCT and BATOTPCT
RUN ACQPROCESS ASYNCHRONOUS	BARASYCT and BATOTPCT
SUSPEND ACQACTIVITY	BASUPACT and BATOTPCT
SUSPEND ACQPROCESS	BASUPACT and BATOTPCT
SUSPEND ACTIVITY	BASUPACT and BATOTPCT
TEST EVENT	BATOTECT

For more information on CICS BTS, see the *CICS Business Transaction Services* manual.

DFHCICS Performance Class Fields

DFHCICS owns the following performance class data fields:

005 (Type-T, START, 8 bytes)

The start time (in GMT) of the measurement period. This is either:

- the time at which the task was attached, or
- the time at which data recording was most recently restarted in support of a user event monitoring point (EMP) DELIVER option or the monitoring options MNCONverse, MNSYNCPpoint, or MNFREQuency.

Notes:

1. CICS PA will always convert the start time into local time before formatting and printing.
2. The transaction response time (or measurement period) can be calculated by subtracting the START time from the STOP time.

006 (Type-T, STOP, 8 bytes)

The finish time (in GMT) of the measurement period. This is either:

- the time at which the task was detached, or
- the time at which data recording was most recently completed for the transaction in support of a user event monitoring point (EMP) DELIVER option or the monitoring options MNCONverse, MNSYNCPpoint, or MNFREQuency.

Notes:

1. CICS PA will always convert the stop time into local time before formatting and printing.
2. The transaction response time (or measurement period) can be calculated by subtracting the START time from the STOP time.

025 (Type-A, CFCAPICT, 4 bytes)

The total number of CICS OO foundation class requests and Java API for CICS (JCICS) class requests issued by the user task. CICS does not distinguish between the OO foundation class and JCICS class requests.

089 (Type-C, USERID, 8 bytes)

User identification at task attach. This can also be a remote user identifier for a task created as the result of receiving an ATTACH request across an MRO or APPC link with attach-time security enabled.

103 (Type-S, EXWTTIME, 8 bytes)

The accumulated elapsed time for all exception conditions measured by the CMF exception class for the transaction. For more information, see “CMF Exception Class Data Fields” on page 195.

Note: This field will be updated when any of the exception conditions are encountered by the user task even when the exception class is inactive.

112 (Type-C, RTYPE, 4 bytes)

The performance record type (low-order byte-3). This field indicates the reason why a performance record has been output for the user task. It can be one of the following values:

- C** Record output for a terminal converse
- D** Record output for a user EMP DELIVER request
- F** Record output for a long-running transaction
- S** Record output for a syncpoint
- T** Record output for a task termination.

130 (Type-C, RSYSID, 4 bytes)

The Transaction Routing Sysid RSYSID field identifies the connection name (sysid) of the remote system to which the transaction was routed. If the transaction was not routed this field is null and the initial program name (field: PGMNAME, owner: DFHPROG, field id: 071) will identify the initial application program name invoked for the transaction. See Table 7 on page 167 for more details.

This field also identifies the connection name (sysid) of the remote system to which the transaction was routed when using the CRTE routing transaction. However, this field will be null for those CRTE transactions which establish or cancel the transaction routing session.

131 (Type-C, PERRECNT, 4 bytes)

The total number of performance class records written by the CICS Monitoring Facility (CMF) for this user task.

167 (Type-C, SRVCLASS, 8 bytes)

The MVS Workload Manager (WLM) service class for this transaction. This field is null if there are no transaction classification rules defined for CICS subsystems in the active MVS Workload Manager (WLM) service policy or the transaction was WLM-classified in another CICS region.

The transaction flags field, TRANFLAG (owner: DFHTASK, field id: 164) can be used to determine if this transaction was WLM-classified in another region.

See “Workload Activity Report” on page 60.

168 (Type-C, RPTCLASS, 8 bytes)

The MVS Workload Manager (WLM) report class for this transaction. This field is null if there are no transaction classification rules defined for CICS subsystems in the active MVS Workload Manager (WLM) service policy or the transaction was WLM-classified in another CICS region.

CMF Performance Class Data Fields

The transaction flags field, TRANFLAG (owner: DFHTASK, field id: 164) can be used to determine if this transaction was WLM-classified in another region.

See “Workload Activity Report” on page 60.

DFHDATA Performance Class Fields

DFHDATA owns the following performance class data fields:

179 (Type-A, IMSREQCT, 4 bytes)

The total number of IMS (DBCTL) requests issued by the user task.

180 (Type-A, DB2REQCT, 8 bytes)

The total number of DB2 EXEC SQL and Instrumentation Facility Interface (IFI) requests issued by the user task.

For more information on DB2 accounting and monitoring, see the *CICS DB2 Guide*.

186 (Type-S, IMSWAIT, 8 bytes)

The total elapsed time in which the user task waited for IMS (DBCTL) to service the IMS requests issued by the user task.

For more information, see “RMI Elapsed and Suspend Time” on page 144 and “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014 and is also a component of the RMI suspend time field, RMISUSP (owner: DFHTASK, field id: 171).

187 (Type-S, DB2RDYQW, 8 bytes)

The elapsed time in which the user task waited for a DB2 thread to become available.

For more general information on DB2 accounting and monitoring, see the *CICS DB2 Guide*.

For more information, see “RMI Elapsed and Suspend Time” on page 144 and “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (group name: DFHTASK, field id: 014 and is also a component of the RMI suspend time field, RMISUSP (owner: DFHTASK, field id: 171).

188 (Type-S, DB2CONWT, 8 bytes)

In CICS Transaction Server for z/OS Version 2.1 or earlier, this field is the elapsed time in which the user task waited for a CICS subtask (TCB) to become available.

In CICS Transaction Server for z/OS Version 2.2:

- When CICS is connected to DB2 Version 5 or earlier, and is therefore not exploiting the CICS open transaction environment, (OTE) this field is the elapsed time in which the user task waited for a CICS subtask (TCB) to become available.
- When CICS is connected to DB2 Version 6 or later, and so is using the CICS open transaction environment (OTE), this field is the elapsed time in which the user task waited for a DB2 connection to become available for use with the user tasks open TCB.

For more general information on DB2 accounting and monitoring, see the *CICS DB2 Guide*.

For more information, see “RMI Elapsed and Suspend Time” on page 144 and “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (group name: DFHTASK, field id: 014 and is also a component of the RMI suspend time field, RMISUSP (owner: DFHTASK, field id: 171).

For more general information on the open transaction environment (OTE), see the *CICS Application Programming Guide*.

189 (Type-S, DB2WAIT, 8 bytes)

In CICS Transaction Server for z/OS Version 2.1 or earlier, this field is the elapsed time in which the user task waited for DB2 to service the DB2 EXEC SQL and Instrumentation Facility Interface (IFI) requests issued by the user task.

In CICS Transaction Server for z/OS Version 2.2:

- When CICS is connected to DB2 Version 5 or earlier, and is therefore not exploiting the CICS open transaction environment (OTE), this field is the elapsed time in which the user task waited for DB2 to service the DB2 EXEC SQL and Instrumentation Facility Interface (IFI) requests issued by the user task.
- When CICS is connected to DB2 Version 6 or later, and so is using the CICS open transaction environment (OTE), this field does not apply and will be zero. This is because the CICS-DB2 attachment facility uses open TCBs as the thread TCBs rather than using specially created subtask TCBs and as a result any waits in DB2 that occur on a CICS L8 mode TCB will not be visible to the CICS dispatcher domain.

For more general information on DB2 accounting and monitoring, see the *CICS DB2 Guide*.

For more information, see “RMI Elapsed and Suspend Time” on page 144 and “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (group name: DFHTASK, field id: 014 and is also a component of the RMI suspend time field, RMISUSP (owner: DFHTASK, field id: 171).

DFHDEST Performance Class Fields

DFHDEST owns the following performance class data fields:

041 (Type-A, TDGETCT, 4 bytes)

The number of transient data GET requests issued by the user task.

042 (Type-A, TDPUTCT, 4 bytes)

The number of transient data PUT requests issued by the user task.

043 (Type-A, TDPURCT, 4 bytes)

The number of transient data PURGE requests issued by the user task.

091 (Type-A, TDTOTCT, 4 bytes)

The total number of transient data requests issued by the user task.

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101 (Type-S, TDIOWTT, 4 bytes)

The elapsed time in which the user task waited for VSAM I/O to the intrapartition transient data set, DFHINTRA. For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

DFHDOCH Performance Class Fields

DFHDOCH owns the following performance class data fields:

226 (Type-C, DHCRECT, 4 bytes)

The number of document handler Create document requests issued by the user task.

227 (Type-C, DHINSCT, 4 bytes)

The number of document handler Insert data or Insert bookmark document requests issued by the user task.

228 (Type-C, DHSETCT, 4 bytes)

The number of document handler Set requests issued by the user task.

229 (Type-C, DHRETCT, 4 bytes)

The number of document handler Retrieve requests issued by the user task.

230 (Type-C, DHTOTCT, 4 bytes)

The total number of document handler requests issued by the user task.

How the EXEC CICS document API commands correspond to the document handler domain monitoring fields is shown in Table 5.

Table 5. EXEC CICS document commands related to the document handler control monitoring fields

EXEC CICS DOCUMENT command	Monitoring fields
CREATE	DHCRECT and DHTOTCT
INSERT	DHINSCT and DHTOTCT
RETRIEVE	DHRETCT and DHTOTCT
SET	DHSETCT and DHTOTCT

Note: The number of "other" document handler requests can be calculated by subtracting the document handler requests DHCRECT, DHINSCT, DHSETCT, and DHRETCT from the total document handler request count, DHTOTCT. The "other" CICS internal document handler requests include Inquire document, Delete bookmark, Delete document, and Delete Data requests.

240 (Type-C, DHTOTDCL, 4 bytes)

The total length of all the documents created by the user task using the document handler EXEC CICS API requests.

Note: See the related performance data for DFH SOCK on page 168 and DFHWEBB on page 193.

For more information, see “CICS Web Support” on page 152 and the *CICS Internet Guide*.

DFHFEPI Performance Class Fields

DFHFEPI owns the following performance class data fields:

150 (Type-A, SZALLOCT, 4 bytes)

The number of FEPI conversations allocated by the user task. This number is incremented for each FEPI ALLOCATE POOL or FEPI CONVERSE POOL.

151 (Type-A, SZRCVCT, 4 bytes)

The number of FEPI RECEIVE requests issued by the user task. This number is also incremented for each FEPI CONVERSE request.

152 (Type-A, SZSENDCT, 4 bytes)

The number of FEPI SEND requests issued by the user task. This number is also incremented for each FEPI CONVERSE request.

153 (Type-A, SZSTRCT, 4 bytes)

The number of FEPI START requests issued by the user task.

154 (Type-A, SZCHROUT, 4 bytes)

The number of characters sent through FEPI by the user task.

155 (Type-A, SZCHRIN, 4 bytes)

The number of characters received through FEPI by the user task.

156 (Type-S, SZWAIT, 8 bytes)

The elapsed time in which the user task waited for FEPI services. For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

157 (Type-A, SZALLCTO, 4 bytes)

The number of times the user task timed out while waiting to allocate a conversation.

158 (Type-A, SZRCVTO, 4 bytes)

The number of times the user task timed out while waiting to receive data.

159 (Type-A, SZTOTCT, 4 bytes)

The total number of FEPI API and SPI requests issued by the user task.

For more information on FEPI, see the *CICS Front End Programming Interface User's Guide*.

DFHFILE Performance Class Fields

| For a break down by individual file of some of the DFHFILE information, you can
| request transaction resource monitoring. See “CMF Transaction Resource Class
| Data Fields” on page 202 for details.

DFHFILE owns the following performance class data fields:

036 (Type-A, FCGETCT, 4 bytes)

The number of file control GET requests issued by the user task.

037 (Type-A, FCPUTCT, 4 bytes)

The number of file control PUT requests issued by the user task.

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038 (Type-A, FCBRWCT, 4 bytes)

The number of file control BROWSE requests issued by the user task.

039 (Type-A, FCADDCT, 4 bytes)

The number of file control ADD requests issued by the user task.

040 (Type-A, FCDELCT, 4 bytes)

The number of file control DELETE requests issued by the user task.

063 (Type-S, FCIOWTT, 8 bytes)

The elapsed time in which the user task waited for non-RLS file I/O.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

070 (Type-A, FCAMCT, 4 bytes)

The number of times the user task invoked file access-method interfaces. This number excludes requests for file OPEN and CLOSE.

093 (Type-A, FCTOTCT, 4 bytes)

The total number of file control requests issued by the user task. This number *excludes* any request for OPEN, CLOSE, ENABLE or DISABLE of a file.

How the EXEC CICS file API commands correspond to the file control monitoring fields is shown in Table 6.

Table 6. EXEC CICS file commands related to the file control monitoring fields

EXEC CICS File Command	Monitoring Fields
READ	FCGETCT and FCTOTCT
READ UPDATE	FCGETCT and FCTOTCT
DELETE (after READ UPDATE)	FCDELCT and FCTOTCT
DELETE (with RIDFLD)	FCDELCT and FCTOTCT
REWRITE	FCPUTCT and FCTOTCT
WRITE	FCADDCT and FCTOTCT
STARTBR	FCTOTCT
READNEXT	FCBRWCT and FCTOTCT
READNEXT UPDATE	FCBRWCT and FCTOTCT
READPREV	FCBRWCT and FCTOTCT
READPREV UPDATE	FCBRWCT and FCTOTCT
ENDBR	FCTOTCT
RESETBR	FCTOTCT
UNLOCK	FCTOTCT

Note: The number of STARTBR, ENDBR, RESETBR and UNLOCK file control requests can be calculated by subtracting the file request counts FCGETCT, FCPUTCT, FCBRWCT, FCADDCT and FCDELCT from the total file control request count, FCTOTCT.

174 (Type-S, RLSWAIT, 8 bytes)

The elapsed time in which the user task waited for RLS file I/O.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

175 (Type-S, RLSCPUT, 8 bytes)

The RLS File Request CPU (SRB) time field (RLSCPUT) is the SRB CPU time this transaction spent processing RLS file requests. This field should be added to the transaction CPU time field (USRCPUT) when considering the measurement of the total CPU time consumed by a transaction.

However, this field cannot be considered a subset of any other single CMF field (including RLSWAIT). This is because the RLS file requests execute asynchronously under an MVS SRB which can be running in parallel with the requesting transaction. It is also possible for the SRB to complete its processing before the requesting transaction waits for the RLS file request to complete.

Note: This clock field could contain a CPU time of zero with a count of greater than zero. This is because the CMF timing granularity is measured in 16 microsecond units and the RLS file request(s) may complete in less than that time unit.

176 (Type-S, CFDTWAIT, 8 bytes)

The elapsed time in which the user task waited for a data table access request to the coupling facility data table server to complete.

For more information, see “Transaction Timing Fields” on page 137.

See the *CICS System Definition Guide* for more information on the CICS data servers.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

DFHJOUR Performance Class Fields

DFHJOUR owns the following performance class data fields:

010 (Type-S, JCLOWTT, 8 bytes)

The elapsed time in which the user task waited for journal (logstream) I/O.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

058 (Type-A, JNLWRTCT, 4 bytes)

The number of journal write requests issued by the user task.

172 (Type-A, LOGWRTCT, 4 bytes)

The number of CICS logstream write requests issued by the user task.

DFHMAPP Performance Class Fields

DFHMAPP owns the following performance class data fields:

050 (Type-A, BSMAPCT, 4 bytes)

The number of BMS RECEIVE MAP requests issued by the user task. This field corresponds to the number of RECEIVE MAP requests that did not incur a terminal I/O and the number of RECEIVE MAP FROM requests.

051 (Type-A, BMSINCT, 4 bytes)

The number of BMS RECEIVE MAP requests issued by the user task that did incur a terminal I/O.

052 (Type-A, BMSOUTCT, 4 bytes)

The number of BMS SEND MAP requests issued by the user task.

090 (Type-A, BMSTOTCT, 4 bytes)

The total number of BMS requests issued by the user task. This field is the sum of the BMS RECEIVE MAP, RECEIVE MAP FROM and SEND MAP requests as well as the number of BMS SEND TEXT and SEND CONTROL requests issued by the user task.

DFHPROG Performance Class Fields

DFHPROG owns the following performance class data fields:

055 (Type-A, PCLINKCT, 4 bytes)

The number of program LINK requests issued by the user task.

056 (Type-A, PCXCTLCT, 4 bytes)

The number of program XCTL requests issued by the user task.

057 (Type-A, PCLOADCT, 4 bytes)

The number of program LOAD requests issued by the user task.

071 (Type-C, PGMNAME, 8 bytes)

The name of the initial application program invoked at transaction attach.

For a remote transaction:

- If the CICS definition for the remote transaction does not specify a program name, this field contains blanks.
- If the CICS definition for the remote transaction specifies a program name, this field contains the name of the specified program.

Note: This program name is not necessarily the name of the program that is executed on the remote system.

For a dynamically-routed transaction, if the dynamic transaction routing program routes the transaction locally and specifies an alternate program name, this field contains the name of the alternate program.

For a distributed program link (DPL) mirror transaction, this field contains the initial program name specified in the distributed program link request. A transaction can be identified as a DPL mirror transaction using information provided in byte 1 of the transaction flags field (owner: DFHTASK, field id: 164).

For an ONC RPC or CICS Web support (CWS) alias transaction, this field contains the initial application program name invoked by the alias transaction. For example, the Web Terminal Transaction Application program, DFHWBTTA or

the Web Interface sample program, DFH\$WB1A. Transactions can be identified as an ONC RPC or WEB alias using the information provided in byte 1 of the transaction flags field (owner: DFHTASK, field id: 164).

For a CICS BTS transaction, this field contains the application program name defined in the CICS BTS process or activity that the task is executing.

For a CICS Socket (SO) domain transaction, this field contains the program name from the transaction identifier defined in the installed TCP/IP service resource definition which was attached to process the incoming work request.

For an Internet Inter-ORB Protocol (IIOP) transaction, this field contains the application program name defined for the transaction that was attached to process the incoming work request as determined from the installed Requestmodel template resource definition.

For an ECI over TCP/IP transaction, this field contains the name of the application program specified in the External Call Interface (ECI) request from the client application.

Byte 4 of the transaction flags field, TRANFLAG (owner: DFHTASK, field id: 164) can also be used to provide additional detail on the transaction's origin. See page 179 for more details on the transaction origin type.

Table 7 shows the transaction type values from byte 1 of the transaction flags field, TRANFLAG (owner: DFHTASK, field id: 164) and its relationship with the transaction routing sysid field, RSYSID (owner: DFHCICS, field id: 130) and the initial program name field, PGMNAME (owner: DFHPROG, field id: 071).

Table 7. Transaction routing sysid and initial program name relationships

TRANFLAG (Byte 1)	RSYSID	Program Name
X'00' - User Transaction	'xxxx'	N/A
X'00' - User Transaction	null	Initial Application Program
X'80' - System Transaction	N/A	Initial Application Program
X'40' - Mirror Transaction	N/A	Mirror Program
X'20' - DPL Mirror Transaction	N/A	Initial Application Program
X'10' - ONC RPC Alias Transaction	N/A	Initial Application Program
X'08' - WEB Alias Transaction	N/A	Initial Application Program
X'04' - 3270 Bridge Transaction	N/A	Initial Application Program
X'01' - CICS BTS Run Transaction	N/A	Initial Application Program

072 (Type-A, PCLURMCT, 4 bytes)

The number of program LINK URM (user-replaceable module) requests issued by the user task.

A user-replaceable module is a CICS-supplied program that is always invoked at a particular point in CICS processing as if it were part of the CICS code. You can modify the supplied program by including your own logic, or you can replace it with a version that you write yourself.

The CICS-supplied user-replaceable modules are:

- bridge exit program - DFH0CBRE, DFH0CBAE, DFHWBLT, or user specified
- CICS JVM interface program - DFHJVMAT

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- distributed dynamic routing program - DFHDSRP (or user specified)
- document template exit program - user specified on the DOCTEMPLATE resource definition
- dynamic routing program - DFHDYP (or user specified)
- Internet Inter-ORB Protocol (IIOP) inbound request security exit program - DFHXOPUS
- Java hot-pooling pre-call program - DFHJHPAT
- node error program - DFHNEP
- program autoinstall program - DFHPGAXX (or user specified)
- program error program - DFHPEP
- terminal autoinstall program(s) - DFHZATDX/DFHZATDY
- terminal error program - DFHTEP
- transaction restart program - DFHRTY
- CICS-DBCTL interface status program - DFHDBUEX
- CICS-DB2 dynamic plan exit program - DSNCEXT
- Enterprise JavaBeans® (EJB) Distinguished Name program - DFHEJDNx
- Enterprise JavaBeans (EJB) event program - DFHEJEP

For detailed information on the CICS user-replaceable modules, see the *CICS Customization Guide*.

073 (Type-A, PCDPLCT, 4 bytes)

The number of Distributed Program LINK (DPL) requests issued by the user task.

113 (Type-C, ABCODEO, 4 bytes)

If the transaction abends, this field contains the 4 character abend code of the original abend.

114 (Type-C, ABCODEC, 4 bytes)

If the transaction abends, this field contains the 4 character abend code of the current abend.

115 (Type-S, PCLOADTM, 8 bytes)

The total elapsed time in which the user task waited for program fetches from the DFHRPL program library. Only fetches for programs with installed program definitions or autoinstalled as a result of application program requests are included in this figure. Installed programs residing in the LPA are not included because they do not incur a physical fetch from a program library.

For more information, see “Program Load Time” on page 143.

DFH SOCK Performance Class Fields

DFH SOCK owns the following performance class data fields relating to the CICS (Socket Domain) support for TCP/IP:

241 (Type-S, SOIOWTT, 8 bytes)

The elapsed time in which the user task waited for inbound socket I/O. The outbound socket I/O wait time is measured in field id: 299.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

242 (Type-A, SOBYENCT, 4 bytes)

The number of bytes encrypted by the secure sockets layer (SSL) for the user task.

243 (Type-A, SOBYDECT, 4 bytes)

The number of bytes decrypted by the secure sockets layer (SSL) for the user task.

244 (Type-C, CLIPADDR, 16 bytes)

The Client IP Address in the interpreted format of *nnn.nnn.nnn.nnn*.

245 (Type-C, TCPSRVCE, 8 bytes)

The name of the installed TCP/IP service resource definition from which the transaction was initiated.

246 (Type-A, PORTNUM, 4 bytes)

The port number of the installed TCP/IP service resource definition from which the transaction was initiated.

289 (Type-A, SOEXTRCT, 4 bytes)

The number of EXTRACT TCPIP and EXTRACT CERTIFICATE requests issued by the user task.

290 (Type-A, SOCNPSCT, 4 bytes)

The number of non-persistent outbound socket create requests issued by the user task.

291 (Type-A, SOCPST, 4 bytes)

The number of persistent outbound socket create requests issued by the user task.

292 (Type-A, SONPSHWM, 4 bytes)

The peak number (high-water mark) of non-persistent outbound sockets owned by the user task.

293 (Type-A, SOPSHWM, 4 bytes)

The peak number (high-water mark) of persistent outbound sockets owned by the user task.

294 (Type-A, SORCVCT, 4 bytes)

The number of outbound socket RECEIVE requests issued by the user task.

295 (Type-A, SOCHRIN, 4 bytes)

The number of characters received by outbound socket RECEIVE requests issued by the user task.

296 (Type-A, SOSENDCT, 4 bytes)

The number of outbound socket SEND requests issued by the user task.

297 (Type-A, SOCHROUT, 4 bytes)

The number of characters sent by outbound socket SEND requests issued by the user task.

298 (Type-A, SOTOTCT, 4 bytes)

The total number of inbound and outbound socket requests issued by the user task.

299 (Type-S, SOIOWTT (OSOWAIT), 8 bytes)

The elapsed time in which the user task waited for outbound socket I/O. The inbound socket I/O wait time is measured in field id: 241.

For more information, see “Transaction Timing Fields” on page 137.

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Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

301 (Type-A, SOMSGIN1, 4 bytes)

The number of inbound socket RECEIVE requests issued by the user task.

302 (Type-A, SOCHRIN1, 4 bytes)

The number of characters received by inbound socket RECEIVE requests issued by the user task.

303 (Type-A, SOMSGOU1, 4 bytes)

The number of inbound socket SEND requests issued by the user task.

304 (Type-A, SOCHROU1, 4 bytes)

The number of characters sent by inbound socket SEND requests issued by the user task.

See “CICS TCP/IP Support” on page 153 for additional information and related performance data for DFHDOCH on page 162 and DFHWEBB on page 193.

For more information, see the *CICS Internet Guide* and the *CICS External Interfaces Guide*.

DFHSTOR Performance Class Fields

DFHSTOR owns the following performance class data fields:

- User Storage fields
- Shared Storage fields
- Program Storage fields.

DFHSTOR User Storage Fields

For additional information on the user storage fields, see “User Storage” on page 146.

033 (Type-A, SCUSRHWM, 4 bytes)

Maximum amount (high-water mark) of user-storage allocated to the user task below the 16MB line, in the user dynamic storage area (UDSA).

054 (Type-A, SCUGETCT, 4 bytes)

The number of user-storage GETMAIN requests issued by the user task for storage below the 16MB line, in the UDSA.

095 (Type-A, SCUSRSTG, 8 bytes)

The storage occupancy of the user task below the 16MB line, in the UDSA. This is a measure of the area under the curve of the storage in use against elapsed time. For more information, see “User Storage Occupancy” on page 147.

105 (Type-A, SCUGETCT, 4 bytes)

The number of user-storage GETMAIN requests issued by the user task for storage above the 16MB line, in the EUDSA.

106 (Type-A, SCUSRHWM, 4 bytes)

Maximum amount (high-water mark) of user-storage allocated to the user task above the 16MB line, in the user dynamic storage area (EUDSA).

107 (Type-A, SCUSRSTG, 8 bytes)

The storage occupancy of the user task above the 16MB line, in the EUDSA. This is a measure of the area under the curve of the storage in use against elapsed time. For more information, see “User Storage Occupancy” on page 147.

116 (Type-A, SC24CHWM, 4 bytes)

Maximum amount (high-water mark) of user-storage allocated to the user task below the 16MB line, in the CICS dynamic storage area (CDSA).

117 (Type-A, SCCGETCT, 4 bytes)

The number of user-storage GETMAIN requests issued by the user task for storage below the 16MB line, in the CDSA.

118 (Type-A, SC24COCC, 8 bytes)

The storage occupancy of the user task below the 16MB line, in the CDSA. This is a measure of the area under the curve of the storage in use against elapsed time. For more information, see “User Storage Occupancy” on page 147.

119 (Type-A, SC31CHWM, 4 bytes)

Maximum amount (high-water mark) of user-storage allocated to the user task above the 16MB line, in the CICS dynamic storage area (CDSA).

120 (Type-A, SCCGETCT, 4 bytes)

The number of user-storage GETMAIN requests issued by the user task for storage above the 16MB line, in the ECDSA.

121 (Type-A, SC31COCC, 8 bytes)

The storage occupancy of the user task above the 16MB line, in the ECDSA. This is a measure of the area under the curve of the storage in use against elapsed time. For more information, see “User Storage Occupancy” on page 147.

Table 8. User Storage Field ID Cross-Reference

	CDSA	UDSA	ECDSA	EUDSA
GETMAIN count	054	105	117	120
High-water mark	033	105	116	119
Occupancy	095	107	118	121

DFHSTOR Shared Storage Fields

For additional information on the shared storage fields, see “Shared Storage” on page 148.

144 (Type-A, SC24SGCT, 4 bytes)

The number of storage GETMAIN requests issued by the user task for shared storage below the 16MB line, in the CDSA or SDSA.

145 (Type-A, SC24GSHR, 4 bytes)

The number of bytes of shared storage GETMAINED by the user task below the 16MB line, in the CDSA or SDSA.

146 (Type-A, SC24FSHR, 4 bytes)

The number of bytes of shared storage FREEMAINED by the user task below the 16MB line, in the CDSA or SDSA.

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147 (Type-A, SC31SGCT, 4 bytes)

The number of storage GETMAIN requests issued by the user task for shared storage above the 16MB line, in the ECDSA or ESDSA.

148 (Type-A, SC31GSHR, 4 bytes)

The number of bytes of shared storage GETMAINED by the user task above the 16MB line, in the ECDSA or ESDSA.

149 (Type-A, SC31FSHR, 4 bytes)

The number of bytes of shared storage FREEMAINED by the user task above the 16MB line, in the CDSA or SDSA.

DFHSTOR Program Storage Fields

For additional information on the program storage fields, see "Program Storage" on page 148.

087 (Type-A, PCSTGHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task both *above* and *below* the 16MB line.

108 (Type-A, PC24BHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task below the 16MB line. This field is a subset of PCSTGHWM (field id: 087) that resides below the 16MB line.

122 (Type-A, PC31RHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task above the 16MB line, in the extended read-only dynamic storage area (ERDSA). This field is a subset of PC31AHWM (field id: 139) that resides above the 16MB line.

139 (Type-A, PC31AHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task above the 16MB line. This field is a subset of PCSTGHWM (field id: 087) that resides above the 16MB line.

142 (Type-A, PC31CHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task above the 16MB line, in the extended CICS dynamic storage area (ECDSA). This field is a subset of PC31AHWM (field id: 139) that resides in the ECDSA.

143 (Type-A, PC24CHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task below the 16MB line, in the CICS dynamic storage area (CDSA). This field is a subset of PC24BHWM (field id: 108) that resides in the CDSA.

160 (Type-A, PC24SHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task below the 16MB line, in the shared dynamic storage area (SDSA). This field is a subset of PC24BHWM (field id: 108) that resides in the SDSA.

161 (Type-A, PC31SHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task above the 16MB line, in the extended shared dynamic storage area (ESDSA). This field is a subset of PC31AHWM (field id: 139) that resides in the ESDSA.

162 (Type-A, PC24RHWM, 4 bytes)

The maximum amount (high-water mark) of program storage in use by the user task below the 16MB line, in the read-only dynamic storage area (RDSA). This field is a subset of PC24BHWM (field id: 108) that resides in the RDSA.

DFHSYNC Performance Class Fields

DFHSYNC owns the following performance class data fields relating to syncpoint activity:

060 (Type-A, SPSYNCCT, 4 bytes)

The total number of syncpoint requests issued by the user task. This also includes:

Notes:

1. the SYNCPOINT implicitly issued as part of the task-detach processing.
2. the SYNCPOINT issued at PSB termination for any DBCTL activity.

173 (Type-S, SYNCTIME, 8 bytes)

The elapsed time in which the user task was dispatched and/or suspended processing Syncpoint requests.

For more information, see “Syncpoint Elapsed Time” on page 144.

177 (Type-S, SRVSYWTT, 8 bytes)

The elapsed time in which the user task waited for completion of syncpoint or resynchronization processing using the coupling facility data table server to complete.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

196 (Type-S, SYNCDLY, 8 bytes)

The elapsed time in which the user task waited for a syncpoint request to be issued by its parent transaction. The user task was executing as a result of the parent transaction issuing a CICS Business Transaction Services (BTS) Run ACQPROCESS or Run Activity requests to execute a process or activity synchronously.

For more information on CICS BTS, see the *CICS Business Transaction Services* manual.

For more information, see “Syncpoint Elapsed Time” on page 144 and “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

199 (Type-S, OTSINDWT, 8 bytes)

The elapsed time in which the user task was dispatched and/or suspended indoubt whilst processing a syncpoint for an Object Transaction Service (OTS) Syncpoint request.

For more information, see “Syncpoint Elapsed Time” on page 144.

DFHTASK Performance Class Fields

DFHTASK owns the following performance class data fields:

001 (Type-C, TRAN, 4 bytes)

Transaction identification.

004 (Type-C, TTYPE, 4 bytes)

Type of transaction start (Start Code or Start Type):

- TO** The transaction was started (attached) by input of the transaction id from the terminal user.
- S** Attached by automatic transaction initiation (ATI) without data. The transaction was started (attached) by an application program using the EXEC CICS START TRANSID('xxxx') ... API command. CICS internal transactions such as CATR, CEJR, CESN, CQRY, CRPM, CRSQ, CSFU, CSGM, CXRE, and CWBG are just some examples of CICS transactions that use this start type.
- SD** Attached by automatic transaction initiation (ATI) with data. The transaction was started (attached) by an application program using the EXEC CICS START TRANSID('xxxx') FROM(yyyy) ... API command. CICS internal transactions such as CLS1 is an example of a transaction that uses this start type.
- QD** The transaction was started (attached) because the trigger level of an intrapartition transient data queue was reached. If the transaction is not associated with a terminal facility, the Transaction Facility Name (field: FCTYNAME, owner: DFHTASK, field id: 163) provides the name of the transient data queue id.
- U** The transaction was started (attached) by a CICS internal function generally as a result of some user request. CICS internal transactions such as CATA, CATD, CEJR, CESC, CEX2, CFOR, CFQR, CFQS, CFTL, CGRP, CIEP, CIOF, CIOR, CIRP, CITS, CJTR, CLQ1, CLQ2, CLS2, COTR, COVR, CPLT, CPMI, CRSY, CSFR, CSHQ, CSNC, CSNE, CSOL, CSSY, CSTE, CSZI, CWBA, and CWXN are just some examples of the CICS transactions that use this start type. In addition to CICS internal functions, transaction's that are being executed under the control of the CICS Execution Diagnostic Facility transaction, CEDF, are also started (attached) with this start type.
- TP** Attached from terminal (TCTTE) transaction id. The preset transaction was started (attached) by input from the terminal user or by the previous transaction using the EXEC CICS RETURN TRANSID('xxxx') IMMEDIATE ... API command. The transaction id can be preset either from the terminal definition, from using the CRTE routing transaction, or by the previous transaction's application program using the EXEC CICS RETURN TRANSID('xxxx') ... API command with or without the IMMEDIATE option specified. Some examples of CICS transactions which use this start type are: CESN (except when used as the initial good morning transaction), CRTE (when invoked on the routed system), and CSSF when invoked as part of a 'CRTE CANCEL' (the initial CRTE transaction which establishes the routing session uses the start type 'TO').
- SZ** Attached by the Front End Programming Interface (FEPI). The transaction was started (attached) as the 'receive program' by the Front End Programming Interface as a result of inbound data. In addition to inbound data arriving, the 'receive program' is also started (attached) if the time limit set by a FEPI START command expires, the session is lost, or any-

thing that causes a FEPI RECEIVE command to complete. See the *CICS Front End Programming Interface User's Guide* for more information on FEPI 'started tasks'.

007 (Type-S, USRDISPT, 8 bytes)

The total elapsed time during which the user task was dispatched by the CICS dispatcher domain on each CICS TCB under which the task executed. This can include the CICS dispatcher TCB modes QR, RO, CO, FO, SZ, RP, SL, SO, D2, H8, J8, L8, and S8.

008 (Type-S, USRCPUT, 8 bytes)

The total processor (CPU) time during which the user task was dispatched by the CICS dispatcher domain on each CICS TCB under which the task executed. This can include the CICS dispatcher TCB modes QR, RO, CO, FO, SZ, RP, SL, SO, D2, H8, J8, L8, and S8.

014 (Type-S, SUSPTIME, 8 bytes)

The total elapsed suspend (wait) time for which the user task was suspended by the CICS dispatcher domain. This includes:

- The task suspend (wait) time
- The elapsed time that the transaction waited for its first dispatch. This also includes any delay incurred because of the limits set for this transaction's transaction class (if any) or by the system parameter MXT being reached by this transaction.
- The elapsed time waiting for redispach after a suspended task has been resumed.

For more information, see "Transaction Suspend (Wait) Time" on page 139.

031 (Type-P, TRANNUM, 4 bytes)

The transaction identification number.

Note: The transaction number field is normally a 4-byte packed decimal number. However, some CICS system tasks are identified by special characters in this field as follows:

- III** for system initialization task(s)
- TCP** for the terminal control task

These special identifiers are placed in bytes 2 through 4. Byte 1 is blank (x'40') before the terminal control TCP identifier, and a null value (X'00') before the others.

059 (Type-A, ICPUINCT, 4 bytes)

The number of Interval Control START requests issued by the user task.

064 (Type-A, TASKFLAG, 4 bytes)

Task error flags, a string of 32 bits used for signaling unusual conditions occurring during the user task:

- Bit 0** Reserved.
- Bit 1** The CICS Monitoring Facility (CMF) detected an attempt to start a user clock that was already running, or to stop one that was not running.
- Bits 2-31** Reserved.

066 (Type-A, ICTOTCT, 4 bytes)

The total number of Interval Control Start, Cancel, Delay, and Retrieve requests issued by the user task.

Note: The number of interval control Cancel, Delay, and Retrieve requests can be calculated by subtracting the interval control request count ICPUIINCT from the total interval control request count, ICTOTCT.

082 (Type-C, TRNGRPID, 28 bytes)

The transaction group id is assigned at transaction attach time, and can be used to correlate the transactions that CICS executes for the same incoming work request (for example, the CWXN and CWBA transactions for Web requests).

This transaction group id relationship is particularly useful when applied to the requests that originate through the CICS Web Support (CWS), IIOP, ECI over TCP/IP, or the 3270 bridge interface, as indicated by the transaction origin in byte 4 of the transaction flags field (owner: DFHTASK, field id: 164). See page 179 for more details on the transaction origin type.

For more information, see “Correlating Performance Class Data” on page 149 and the “Transaction Group Report” on page 46.

097 (Type-C, NETUOWPX, 20 bytes)

The fully qualified name by which the originating system is known to the VTAM network. This name is assigned at attach time using either the netname derived from the terminal (when the task is attached to a local terminal), or the netname passed as part of an IRC (MRO) or ISC (APPC) attach header. At least three padding bytes (X'00') are present at the right end of the name.

If the originating terminal is VTAM across an ISC APPC or IRC link, the NETNAME is the *networkid.LUname*. If the terminal is non-VTAM, the NETNAME is *networkid.generic_APPLID*.

All originating information is passed as part of an ISC LUTYPE6.1 attach header has the same format as the non-VTAM terminal originators above.

When the originator is communicating over an external CICS interface (EXCI) session, the name is a concatenation of:

'DFHEXCIU'	.	MVS Id	Address Space Id (ASID)'
8 bytes	1 byte	4 bytes	4 bytes

derived from the originating system. That is, the name is a 17-byte LU name consisting of:

- An 8-byte eye-catcher set to 'DFHEXCIU'.
- A 1-byte field containing a period '.'.
- A 4-byte field containing the MVSID, in characters, under which the client program is running.
- A 4-byte field containing the address space id (ASID) in which the client program is running. This field contains the 4-character EBCDIC representation of the 2-byte hexadecimal address space id.

For more information on the external CICS interface (EXCI), see the *CICS External Interfaces Guide*.

Note: That it is possible for transactions that are attached without a terminal or session facility to be given the same network unit-of-work netname in the format of *networkid.generic_APPLID*.

For more information, see “Correlating Performance Class Data” on page 149 and the “Cross-System Work Report” on page 38.

098 (Type-C, NETUOWSX, 8 bytes)

The name by which the network unit-of-work id is known within the originating system. This name is assigned at transaction attach time using either a STCK-derived token created by the originating system, or the network unit-of-work id passed as part of an IRC (MRO) or ISC (APPC) attach function management header (FMH).

The first six bytes of this field are a binary value derived from the system clock of the originating system and which can wrap round at intervals of several months.

The last two bytes of this field are a syncpoint sequence count. This count may change during the life of the task as a result of syncpoint activity.

For CICS Business Transaction Services (BTS) transactions, the network unit-of-work id is also passed to a transaction that is invoked synchronously by an application program issuing either a CICS BTS run ACQPROCESS synchronous or run activity synchronous command.

Note: When using MRO or ISC, the NETUOWSX field can be combined with the NETUOWPX field (field id: 097) to uniquely identify a task across each CICS system. It must be combined with the NETUOWPX because the NETUOWSX field on its own is unique only to the originating CICS system.

For more information, see “Correlating Performance Class Data” on page 149 and “Cross-System Work Report” on page 38 .

102 (Type-S, DISPWTT, 8 bytes)

The elapsed time for which the user task waited for redispach by the CICS dispatcher domain. This is the aggregate of the wait times between each wait event completion and the user task being redispached by the CICS dispatcher domain.

Notes:

1. This field does not include the elapsed time spent waiting for the first dispatch.
2. This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

109 (Type-C, TRANPRI, 4 bytes)

The transaction priority of the task when monitoring of the task was initialized at transaction attach.

123 (Type-S, GNQDELAY, 8 bytes)

The elapsed time in which the user task waited for a CICS task control global enqueue.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

124 (Type-C, BRDGTRAN, 4 bytes)

For those transactions that are attached by the CICS 3270 Bridge interface, this field contains the name of the bridge listener transaction that invoked the transaction. A bridge transaction can be identified using byte 1 of the transaction flags field, TRANFLAG (owner: DFHTASK, field id: 164).

125 (Type-S, DSPDELAY, 8 bytes)

The elapsed time in which the user task waited for the first dispatch by the CICS dispatcher domain.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

126 (Type-S, TCLDELAY, 8 bytes)

The elapsed time in which the user task waited for first dispatch which was delayed because of the limits set for this transaction's transaction class. The name of the transaction class for this transaction can be found in the TCLSNAME field, (owner: DFHTASK, field id: 166).

For more information, see "Transaction Timing Fields" on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014) and the first dispatch delay time field, DSPDELAY (owner: DFHTASK, field id: 125).

127 (Type-S, MXTDELAY, 8 bytes)

The elapsed time in which the user task waited for first dispatch which was delayed because of the limits set by the MXT system parameter being reached.

For more information, see "Transaction Timing Fields" on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014) and the first dispatch delay time field, DSPDELAY (owner: DFHTASK, field id: 125).

128 (Type-S, LMDELAY, 8 bytes)

The elapsed time in which the user task waited to acquire a lock on a resource. A user task cannot explicitly acquire a lock on a resource, but many CICS modules lock resources on behalf of user tasks using the CICS lock manager (LM) domain.

For more information, see "Transaction Timing Fields" on page 137.

For more information about the CICS lock manager, see the *CICS Problem Determination Guide*.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

129 (Type-S, ENQDELAY, 8 bytes)

The elapsed time in which the user task waited for a CICS task control local enqueue. For more information, see "Transaction Timing Fields" on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

132 (Type-T, RMUOWID, 8 bytes)

The identifier of the local unit of work (unit of recovery) for this task. The local unit-of-recovery values are used to synchronize recovery operations amongst CICS systems and other resource managers, such as IMS (DBCCTL) and DB2.

163 (Type-C, FCTYNAME, 4 bytes)

Transaction facility name. This field is null if the transaction is not associated with a facility. The transaction facility type (if any) can be identified using byte 0 of the transaction flags field, TRANFLAG (owner: DFHTASK, field id: 164).

164 (Type-A, TRANFLAG, 8 bytes)

Transaction flags, a string of 64 bits used for signaling transaction definition and status information:

- Byte 0** Transaction facility identification. The field identifies the type of resource that is the transaction's principal facility and can have one of the following values:
 - Bit 0** Transaction facility name = none
 - Bit 1** Transaction facility name = terminal
 - Bit 2** Transaction facility name = surrogate
 - Bit 3** Transaction facility name = destination
 - Bit 4** Transaction facility name = 3270 bridge
 - Bit 5-7** Reserved
- Byte 1** Transaction identification information:
 - Bit 0** System transaction
 - Bit 1** Mirror transaction
 - Bit 2** Distributed Program Link (DPL) Mirror transaction
 - Bit 3** ONC RPC alias transaction
 - Bit 4** WEB alias transaction
 - Bit 5** 3270 Bridge transaction
 - Bit 6** Reserved
 - Bit 7** CICS BTS run transaction (ACQPROCESS or activity) synchronous
- Byte 2** MVS workload manager request (transaction) completion information:
 - Bit 0** Report the total response time (begin-to-end phase) for the completed work request (transaction)
 - Bit 1** Notify that the entire execution phase of the work request (transaction) is complete
 - Bit 2** Notify that a subset of the execution phase of the work request (transaction) is complete
 - Bit 3-7** Reserved
- Byte 3** Transaction definition information:
 - Bit 0** Taskdataloc = BELOW
 - Bit 1** Taskdatakey = CICS
 - Bit 2** Isolate = NO
 - Bit 3** Dynamic = YES
 - Bit 4-7** Reserved
- Byte 4** Transaction origin type:
 - X'01'** None
 - X'02'** Terminal
 - X'03'** Transient data
 - X'04'** Start
 - X'05'** Terminal start
 - X'06'** CICS Business Transaction Services (BTS) scheduler
 - X'07'** Transaction Manager domain (XM) run transaction
 - X'08'** 3270 Bridge
 - X'09'** Socket domain
 - X'0A'** CICS Web Support (CWS)

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	X'0B'	Internet Inter-ORB Protocol (IIOP)
	X'0C'	Resource Recovery Services (RRS)
	X'0D'	LU 6.1 session
	X'0E'	LU 6.2 (APPC) session
	X'0F'	MRO session
	X'10'	External Call Interface (ECI) session
	X'11'	II domain Request Receiver
	X'12'	Request stream (RZ) Instore Transport
Byte 5		Reserved
Byte 6		JVM status information:
	Bit 0	JVM marked unresettable
	Bit 1-7	Reserved
Byte 7		Recovery manager status information:
	Bit 0	Indoubt wait = no
	Bit 1	Indoubt action = commit
	Bit 2	Recovery manager - UOW resolved with indoubt action
	Bit 3	Recovery manager - Shunt
	Bit 4	Recovery manager - Unshunt
	Bit 5	Recovery manager - Indoubt failure
	Bit 6	Recovery manager - Resource owner failure
	Bit 7	Reserved

166 (Type-C, TCLSNAME, 8 bytes)

The transaction's transaction class name (TRANCLASS). If the transaction was delayed because of the limits set for the transaction class, the elapsed time that the transaction waited can be found in the TCLDELAY field, (owner: DFHTASK, field id: 126).

The transaction class name field is null if the transaction is not defined in a transaction class.

170 (Type-S, RMITIME, 8 bytes)

The total elapsed time the user task spent in the CICS Resource Manager Interface (RMI) for all the resource managers invoked by the user task, including DB2, IMS (DBCTL), MQSeries, CICS Sockets, and so on.

For information on the related fields for DB2 and IMS (DBCTL), see the DFHDATA performance data on page 160.

For more information, see "RMI Elapsed and Suspend Time" on page 144.

171 (Type-S, RMISUSP, 8 bytes)

The elapsed time during which the user task was suspended by the CICS dispatcher domain whilst in the CICS Resource Manager Interface (RMI).

For more information, see "RMI Elapsed and Suspend Time" on page 144 and "Transaction Timing Fields" on page 137.

For information on the related fields for DB2 and IMS (DBCTL), see the DFHDATA performance data on page 160.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

181 (Type-S, WTEXWAIT, 8 bytes)

The elapsed time the user task waited for one or more ECBs, passed to CICS by the user task using the EXEC CICS WAIT EXTERNAL ECBLIST() command, to be MVS POSTed. The user task can wait on one or more ECBs.

If it waits on more than one, the user task becomes dispatchable as soon as one of the ECBs is posted.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

182 (Type-S, WTCEWAIT, 8 bytes)

The elapsed time the user task waited for:

- One or more ECBs, passed to CICS by the user task using the EXEC CICS WAITCICS ECBLIST command, to be MVS POSTed. The user task can wait on one or more ECBs. If it waits on more than one, the user task becomes dispatchable as soon as one of the ECBs is posted.
- Completion of an event initiated by the same or by another task. The event would normally be the posting, at the expiration time, of a timer-event control area provided in response to an EXEC CICS POST command. The EXEC CICS WAIT EVENT command provides a method of directly giving up control to some other task until the event being waited on is completed.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

183 (Type-S, ICDELAY, 8 bytes)

The elapsed time that the user task waited as a result of issuing either:

- An interval control EXEC CICS DELAY command for a specified time interval, or
- An interval control EXEC CICS DELAY command for a specified time of day to expire, or
- An interval control EXEC CICS RETRIEVE command with the WAIT option specified.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

184 (Type-S, GVUPWAIT, 8 bytes)

The elapsed time in which the user task waited as a result of giving up control to another task. A user task can give up control in many ways. Some examples are application programs that use one or more of the following EXEC CICS API or SPI commands:

- Using the EXEC CICS SUSPEND command. This command causes the issuing task to relinquish control to another task of higher or equal dispatching priority. Control is returned to this task as soon as no other task of a higher or equal priority is ready to be dispatched.
- Using the EXEC CICS CHANGE TASK PRIORITY command. This command immediately changes the priority of the issuing task and causes the task to give up control in order for it to be dispatched at its new priority. The task is not redispached until tasks of higher or equal priority, and that are also dispatchable, have been dispatched.

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- Using the EXEC CICS DELAY command with INTERVAL(0). This command causes the issuing task to relinquish control to another task of higher or equal dispatching priority. Control is returned to this task as soon as no other task of a higher or equal priority is ready to be dispatched.
- Using the EXEC CICS POST command requesting notification that a specified time has expired. This command causes the issuing task to relinquish control to give CICS the opportunity to post the time-event control area.
- Using the CICS CICS PERFORM RESETTIME command to synchronize the CICS date and time with the MVS system date and time of day.
- Using the EXEC CICS START TRANSID command with the ATTACH option.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

190 (Type-C, RRMSURID, 16 bytes)

The RRMS/MVS Unit-of-Recovery Id (URID).

For more general information on the Recoverable Resource Management Services (RRMS), see the *CICS External Interfaces Guide*.

191 (Type-S, RRMSWAIT, 8 bytes)

The elapsed time in which the user task waited indoubt using the MVS resource recovery services (RRS) for transactional EXCI.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

192 (Type-S, RQRWAIT, 8 bytes)

The elapsed time during which the request receiver user task CIRR (or user specified transaction id) waited for any outstanding replies to be satisfied.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (group name: DFHTASK, field id: 014).

193 (Type-S, RQPWAIT, 8 bytes)

The elapsed time during which the request processor user task CIRP waited for any outstanding replies to be satisfied.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (group name: DFHTASK, field id: 014).

194 (Type-C, OTSTID, 128 bytes)

The OTS TID is the Object Transaction Service Transaction id. It can be used to correlate all the transactions that are part of the same Object Transaction.

195 (Type-S, RUNTRWTT, 8 bytes)

The elapsed time in which the user task waited for completion of a transaction that executed as a result of the user task issuing a CICS BTS run ACQPROCESS or run activity request to execute a process or activity synchronously.

For more information, see “Correlating Performance Class Data” on page 149 and “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

248 (Type-A, CHMODECT, 4 bytes)

The number of CICS change-TCB modes issued by or on behalf of the user task.

The number of CICS dispatcher domain change-TCB modes issued by or on behalf of the user task. Ideally the number of CICS dispatcher change-TCB modes should be kept to a minimum. See the section on the “Open Transaction Environment” on page 146 for additional information.

249 (Type-S, QRMODDLY, 8 bytes)

The elapsed time in which the user task waited for redispach on the CICS QR mode TCB. This is an aggregate of the wait times between each wait event completion and the user task being redispached by the CICS dispatcher domain on the QR mode TCB. See the section on the “Open Transaction Environment” on page 146 for additional information.

This field is a subset of the wait for redispach field, DISPWTT (owner: DFHTASK, field id: 102).

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

250 (Type-S, MAXOTDLY, 8 bytes)

The elapsed time in which the user task waited to obtain a CICS open mode TCB because the CICS system had reached the limit set by the system parameter, MAXOPENTCBS.

In CICS Transaction Server for z/OS Version 2.1 or earlier this applies to *all* open mode TCBs controlled by the CICS dispatcher domain.

In CICS Transaction Server for z/OS Version 2.2 this applies to L8 mode open TCBs *only*. L8 mode open TCBs are used by task-related user exits that are enabled with the OPENAPI option. This includes the CICS DB2 adaptor when CICS connects to DB2 Version 6 or later. See the section on the “Open Transaction Environment” on page 146 for more general information.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

251 (Type-A, TCBATTCT, 4 bytes)

The number of CICS dispatcher domain TCB attaches issued by or on behalf of the user task. See the section on the “Open Transaction Environment” on page 146 for additional information.

253 (Type-S, JVMTIME, 8 bytes)

The total elapsed time that the user task spent in the CICS Java Virtual Machine (JVM).

For more information, see “JVM Elapsed and Suspend Time” on page 145.

254 (Type-S, JVMSUSP, 8 bytes)

The elapsed time during which the user task was suspended by the CICS dispatcher domain while running in the CICS Java Virtual Machine (JVM).

For more information, see “JVM Elapsed and Suspend Time” on page 145 and “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

255 (Type-S, QRDISPT, 8 bytes)

The total elapsed time during which the user task was dispatched by the CICS dispatcher domain on the CICS QR mode TCB.

Note: This field is a component of the total task dispatch time field, USRDISPT (owner: DFHTASK, field id: 007).

256 (Type-S, QRCPUT, 8 bytes)

The total processor (CPU) time during which the user task was dispatched by the CICS dispatcher domain on the CICS QR mode TCB.

Note: This field is a component of the total task CPU time field, USRCPUT (owner: DFHTASK, field id: 008).

257 (Type-S, MSDISPT, 8 bytes)

The total elapsed time during which the user task was dispatched by the CICS dispatcher domain on each CICS TCB, mode RO, CO, FO, SZ, RP, SL, SO, and D2. Note that:

- Mode RO is used for opening and closing CICS data sets, loading programs, issuing RACF® calls, and so on.
- Mode CO is used for processes which can safely run in parallel with other CICS activity such as VSAM requests.
- Mode FO is used for opening and closing user data sets.
- Mode SZ is used only if FEPI is active.
- Mode RP is used only if ONC RPC support is active.
- Modes SL and SO are used only if TCPIP=YES is specified as a system initialization parameter. Mode SL is used by the CICS support for TCP/IP (TCP/IP Service) Listener system transaction CSOL.
- Mode D2 is used to terminate DB2 protected threads. The CICS-DB2 attachment facility long running system task, CEX2, associates each protected thread in turn to the CICS D2 mode TCB so that after two protected thread purge cycles it can call DB2 to terminate the thread. The protected thread purge cycle is defined in the PURGECYCLE parameter on the DB2CONN resource definition. The CICS D2 mode TCB is also used should a user issue the DSNB DISCONNECT planname command to preempt the purge cycle and cause protected threads for a planname to be terminated immediately.

Note: Mode D2 is *only* used in CICS Transaction Server for z/OS Version 2.2 when CICS is connected to DB2 Version 6 or later.

Note: This field is a component of the total task dispatch time field, USRDISPT (owner: DFHTASK, field id: 007).

258 (Type-S, MSCPUT, 8 bytes)

The total processor (CPU) time during which the user task was dispatched by the CICS dispatcher on each CICS TCB, mode RO, CO, FO, SZ, RP, SL, SO, and D2.

Note that:

- Mode RO is used for opening and closing CICS data sets, loading programs, issuing RACF calls, and so on.
- Mode CO is used for processes which can safely run in parallel with other CICS activity such as VSAM requests.
- Mode FO is used for opening and closing user data sets.
- Mode SZ is used only if FEPI is active.
- Mode RP is used only if ONC RPC support is active.
- Modes SL and SO are used only if TCPIP=YES is specified as a system initialization parameter. Mode SL is used by the CICS support for TCP/IP (TCP/IP Service) Listener system transaction CSOL.
- Mode D2 is used to terminate DB2 protected threads. The CICS-DB2 attachment facility long running system task, CEX2, associates each protected thread in turn to the CICS D2 mode TCB so that after two protected thread purge cycles it can call DB2 to terminate the thread. The protected thread purge cycle is defined in the PURGECYCLE parameter on the DB2CONN resource definition. The CICS D2 mode TCB is also used should a user issue the DSNB DISCONNECT 'planname' command to preempt the purge cycle and cause protected threads for a planname to be terminated immediately.

Note: Mode D2 is *only* used in CICS Transaction Server for z/OS Version 2.2 when CICS is connected to DB2 Version 6 or later.

Note: This field is a component of the total task CPU time field, USRCPUT (owner: DFHTASK, field id: 008).

259 (Type-S, L8CPUT, 8 bytes)

The processor (CPU) time during which the user task was dispatched by the CICS dispatcher domain on a CICS L8 mode TCB.

In CICS Transaction Server for z/OS Version 2.2, a transaction will be allocated and use a CICS L8 mode TCB when it invokes a task-related user exit program that has been enabled with the OPENAPI option. This includes the CICS DB2 adaptor when CICS connects to DB2 Version 6 or later. However, once a task has been allocated an L8 mode TCB, that same TCB will remain associated with the task until the transaction is detached.

For more information on the CICS open transaction environment (OTE), see the *CICS Application programming Guide*.

For more information on the DB2 accounting and monitoring, see the *CICS DB2 Guide*.

Note: This field is a component of the total task CPU time field, USRCPUT (owner: DFHTASK, field id: 008) and the task key 8 CPU time field, KY8CPUT (owner: DFHTASK, field id: 263). See the section on the “Open Transaction Environment” on page 146 for more information.

260 (Type-S, J8CPUT, 8 bytes)

The processor (CPU) time during which the user task was dispatched by the CICS dispatcher domain on a CICS J8 mode TCB. A transaction will be allocated and use a CICS J8 mode TCB each time the transaction invokes a CICS Java Virtual Machine (JVM) application program. However, once a task has been allocated a J8 mode TCB, that same TCB will remain associated with the task until the transaction is detached.

Note: This field is a component of the total task CPU time field, USRCPUT (owner: DFHTASK, field id: 008) and the task key 8 CPU time field, KY8CPUT (owner: DFHTASK, field id: 263).

261 (Type-S, S8CPUT, 8 bytes)

The processor (CPU) time during which the user task was dispatched by the CICS dispatcher domain on a CICS S8 mode TCB. A transaction will be allocated a CICS S8 mode TCB when it is using the secure sockets layer (SSL) during client certification negotiation. The S8 mode TCB will remain associated with the same task until the secure socket close which normally occurs during task detach processing.

Note: This field is a component of the total task CPU time field, USRCPUT (owner: DFHTASK, field id: 008) and the task key 8 CPU time field, KY8CPUT (owner: DFHTASK, field id: 263).

262 (Type-S, KY8DISPT, 8 bytes)

The total elapsed time during which the user task was dispatched by the CICS dispatcher domain on a CICS Key 8 mode TCB. A transaction will be allocated and dispatched on a:

- CICS H8 mode TCB when it invokes an HPJ-compiled Java application program that has been defined to use Java hot-pooling.
- CICS J8 mode TCB each time the transaction invokes a Java application program that has been defined with JVM(YES). However, once a task has been allocated a J8 mode TCB, that same TCB will remain associated with the task until the transaction is detached. See the section on the “Open Transaction Environment” on page 146 for more information.
- CICS L8 mode TCB when it invokes a task-related user exit program that has with the OPENAPI option.

In CICS Transaction Server for z/OS Version 2.2, this includes the CICS DB2 adaptor when CICS connects to DB2 Version 6 or later. However, once a task has been allocated an L8 mode TCB, that same TCB will remain associated with the task until the transaction is detached.

For more general information on the CICS open transaction environment (OTE), see the *CICS Application programming Guide*.

- CICS S8 mode TCB when it is using the secure sockets layer (SSL) during client certification negotiation. The S8 mode TCB will remain associated with the same task until the secure socket close which normally occurs during task detach processing.

Note: This field is a component of the total task dispatch time field, USRDISPT (owner: DFHTASK, field id: 007).

263 (Type-S, KY8CPUT, 8 bytes)

The total processor (CPU) time during which the user task was dispatched by the CICS dispatcher domain on a CICS Key 8 mode TCB. A transaction will be allocated and dispatched on a:

- CICS H8 mode TCB when it invokes an HPJ-compiled Java application program that has been defined to use Java hot-pooling.
- CICS J8 mode TCB each time the transaction invokes a Java application program that has been defined with JVM(YES). However, once a task has been allocated a J8 mode TCB, that same TCB will remain associated with

the task until the transaction is detached. See the section on the “Open Transaction Environment” on page 146 for more information.

- CICS L8 mode TCB when it invokes a task-related user exit program that has with the OPENAPI option.

In CICS Transaction Server for z/OS Version 2.2, this includes the CICS DB2 adaptor when CICS connects to DB2 Version 6 or later. However, once a task has been allocated an L8 mode TCB, that same TCB will remain associated with the task until the transaction is detached.

For more general information on the CICS open transaction environment (OTE), see the *CICS Application programming Guide*.

- CICS S8 mode TCB when it is using the secure sockets layer (SSL) during client certification negotiation. The S8 mode TCB will remain associated with the same task until the secure socket close which normally occurs during task detach processing.

Note: This field is a component of the total task CPU time field, USRCPUT (owner: DFHTASK, field id: 008).

269 (Type-S, RODISPT, 8 bytes)

The total elapsed time during which the user task was dispatched by the CICS dispatcher on the CICS RO mode TCB. The CICS RO mode TCB is used for opening and closing CICS data sets, loading programs, issuing RACF calls, and so on.

Note: This field is a component of the total task dispatch time field, USRDISPT (owner: DFHTASK, field id: 007) and the task miscellaneous TCB dispatch time field MSDISPT (owner: DFHTASK, field id: 257).

270 (Type-S, ROCPUT, 8 bytes)

The total processor (CPU) time during which the user task was dispatched by the CICS dispatcher on the CICS RO mode TCB. The CICS RO mode TCB is used for opening and closing CICS data sets, loading programs, issuing RACF calls, and so on.

Note: This field is a component of the total task CPU time field, USRCPUT (owner: DFHTASK, field id: 008) and the task miscellaneous TCB CPU time field MSCPUT (owner: DFHTASK, field id: 258).

273 (Type-S, JVMITIME, 8 bytes)

The elapsed time the user task spent initializing the CICS Java Virtual Machine (JVM) environment.

For more information, see “JVM Elapsed and Suspend Time” on page 145.

Note: This field is a component of the task JVM elapsed time field, JVMTIME (owner: DFHTASK, field id: 253).

275 (Type-S, JVMRTIME, 8 bytes)

The elapsed time the user task spent resetting and/or destroying the CICS Java Virtual Machine (JVM) environment. If the reset fails, the JVM is marked unresettable and the JVM is terminated.

For more information, see “JVM Elapsed and Suspend Time” on page 145.

Note: This field is a component of the task JVM elapsed time field, JVMTIME (owner: DFHTASK, field id: 253).

CMF Performance Class Data Fields

277 (Type-S, MAXJTDLY, 8 bytes)

The elapsed time during which the user task waited to obtain a CICS JVM TCB (J8 mode), because the CICS system had reached the limit set by the system parameter, MAXJVMTCBS. The J8 mode open TCBs are used exclusively by Java programs defined with JVM(YES).

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

278 (Type-S, MAXHTDLY, 8 bytes)

The elapsed time in which the user task waited to obtain a CICS Hot-Pooling TCB (H8 mode), because the CICS system had reached the limit set by the system parameter, MAXHPTCBS. The H8 mode open TCBs are used exclusively by HPJ-compiled Java programs defined with HOTPOOL(YES).

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

285 (Type-S, PTPWAIT, 8 bytes)

The elapsed time in which the user task waited for the 3270 bridge partner transaction to complete. For more information on the CICS 3270 Bridge, see the *CICS External Interfaces Guide*.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

DFHTEMP Performance Class Fields

DFHTEMP owns the following performance class data fields:

011 (Type-S, TSIOWTT, 8 bytes)

The elapsed time in which the user task waited for VSAM I/O to the auxiliary temporary storage data set, DFHTEMP.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

044 (Type-A, TSGETCT, 4 bytes)

The number of temporary storage READQ requests issued by the user task.

046 (Type-A, TSPUTACT, 4 bytes)

The number of temporary storage WRITEQ AUX requests issued by the user task.

047 (Type-A, TSPUTMCT, 4 bytes)

The number of temporary storage WRITEQ MAIN requests issued by the user task.

092 (Type-A, TSTOTCT, 4 bytes)

The total number of temporary storage DELETEQ, READQ, WRITEQ AUX and WRITEQ MAIN requests issued by the user task.

Note: The number of temporary storage DELETEQ requests can be calculated by subtracting the temporary storage request counts TSGETCT, TSPUTACT, and TSPUTMCT from the total temporary storage request count, TSTOTCT.

178 (Type-S, TSSHWAIT, 8 bytes)

The elapsed time in which the user task waited for an asynchronous shared temporary storage request to a temporary storage data server to complete.

For more information, see “Transaction Timing Fields” on page 137.

See the *CICS System Definition Guide* for more information on the CICS data servers.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

DFHTERM Performance Class Fields

DFHTERM owns the following performance class data fields:

002 (Type-C, TERM, 4 bytes)

Terminal or session identification. This field is null if the task is not associated with a terminal or session.

See the terminal information field, TERMINFO (owner: DFHTERM, field id: 165) for details on the type of terminal or session.

009 (Type-S, TCIOWTT, 8 bytes)

The elapsed time in which the user task waited for input from the terminal user, after issuing an EXEC CICS RECEIVE request.

For more information, see “Transaction Timing Fields” on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

034 (Type-A, TCMMSGIN1, 4 bytes)

The number of messages received from the task's principal terminal facility, including LUTYPE6.1 and LUTYPE6.2 (APPC) but not MRO (Inter-Region Communication).

035 (Type-A, TCMMSGOU1, 4 bytes)

The number of messages sent to the task's principal terminal facility, including LUTYPE6.1 and LUTYPE6.2 (APPC) but not MRO (Inter-Region Communication).

067 (Type-A, TCMMSGIN2, 4 bytes)

The number of messages received from the LUTYPE6.1 alternate terminal facilities allocated by the user task.

068 (Type-A, TCMMSGOU2, 4 bytes)

The number of messages sent to the LUTYPE6.1 alternate terminal facilities allocated by the user task.

069 (Type-A, TCALLOCT, 4 bytes)

The number of session ALLOCATE requests issued by the user task for MRO (Inter-Region Communication), LUTYPE6.1, LUTYPE6.2 (APPC) sessions.

083 (Type-A, TCCHRIN1, 4 bytes)

The number of characters received from the task's principal terminal facility, including LUTYPE6.1 and LUTYPE6.2 (APPC) but not MRO (Inter-Region Communication).

084 (Type-A, TCCHROU1, 4 bytes)

The number of characters sent to the task's principal terminal facility, including LUTYPE6.1 and LUTYPE6.2 (APPC) but not MRO (Inter-Region Communication).

085 (Type-A, TCCHRIN2, 4 bytes)

The number of characters received from the LUTYPE6.1 alternate terminal facilities allocated by the user task.

086 (Type-A, TCCHROU2, 4 bytes)

The number of characters sent to the LUTYPE6.1 alternate terminal facilities allocated by the user task.

100 (Type-S, IRIOWTT, 8 bytes)

The elapsed time in which the user task waited for control to return at this end of an MRO (Inter-Region Communication) connection.

For more information, see "Transaction Timing Fields" on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

111 (Type-C, LUNAME, 8 bytes)

The LUNAME field is either the VTAM netname (LUname) of the terminal id (if the Access Method for the terminal is VTAM) or the VTAM generic APPLID of the connection for the session id (for an EXCI connection this field will be blank). The transaction's terminal or session type can be identified from the Nature (byte 0) field within the terminal information TERMINFO field (owner: DFHTERM, field id: 165), see Table 9 on page 192 for details. This field is null if the transaction was not associated with a terminal or session facility.

133 (Type-S, LU61WTT, 8 bytes)

The elapsed time in which the user task waited for I/O on a LUTYPE6.1 connection or session. This time includes the waits for conversations across LUTYPE6.1 connections, but not the waits incurred due to LUTYPE6.1 syncpoint flows.

For more information, see "Transaction Timing Fields" on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

134 (Type-S, LU62WTT, 8 bytes)

The elapsed time in which the user task waited for I/O on a LUTYPE6.2 connection or session. This time includes the waits for conversations across LUTYPE6.2 (APPC) connections, but not the waits incurred due to LUTYPE6.2 (APPC) syncpoint flows.

For more information, see "Transaction Timing Fields" on page 137.

Note: This field is a component of the task suspend time field, SUSPTIME (owner: DFHTASK, field id: 014).

135 (Type-A, TCM62IN2, 4 bytes)

The number of messages received from the alternate facility allocated by the user task for LUTYPE6.2 (APPC) sessions.

136 (Type-A, TCM62OU2, 4 bytes)

The number of messages sent to the alternate facility allocated by the user task for LUTYPE6.2 (APPC) sessions.

137 (Type-A, TCC62IN2, 4 bytes)

The number of characters received from the alternate facility allocated by the user task for LUTYPE6.2 (APPC) sessions.

138 (Type-A, TCC62OU2, 4 bytes)

The number of characters sent to the alternate facility allocated by the user task for LUTYPE6.2 (APPC) sessions.

165 (Type-A, TERMINFO, 4 bytes)

Terminal or session information for this task's principal facility as identified in the TERM field (owner: DFHTERM, field id: 002). This field is null if the task is not associated with a terminal or session facility.

Byte 0 Identifies whether this task is associated with a terminal or session. This field can be set to one of the following values:

X'00'	None
X'01'	Terminal
X'02'	Session

Byte 1 If the principal facility for this task is a session (Byte 0 = X'02'), this field identifies the session type. This field can be set to one of the following values:

X'00'	None
X'01'	IRC
X'02'	IRC XM
X'03'	IRC XCF
X'04'	LU61
X'05'	LU62 Single
X'06'	LU62 Parallel

Byte 2 Identifies the access method defined for the terminal id or session id in the TERM field. This field can be set to one of the following values:

X'00'	None
X'01'	VTAM
X'02'	BTAM
X'03'	BSAM
X'04'	TCAM
X'05'	TCAMSNA
X'06'	BGAM
X'07'	CONSOLE

Byte 3 Identifies the terminal or session type for the terminal id or session id in the TERM field. See the RDO Typeterm definition in the *CICS Resource Definition Guide* for more information on the values in this field.

CMF Performance Class Data Fields

Table 9 on page 192 shows the contents and relationships of the terminal information field, TERMINFO (owner: DFHTERM, field id: 165) with the transaction facility name field, FCTYNAME (owner: DFHTASK, field id: 163), the terminal id field, TERM (owner: DFHTERM, field id: 002), the LUName field, LUNAME (owner: DFHTERM, field id: 111), and the terminal session connection name field, TERMCNNM (owner: DFHTERM, field id: 169).

Table 9. Terminal Information Cross-Reference

TRANFLAG (byte 0)	TERMINFO (byte 0)	TERMINFO (byte 1)	TERMINFO (byte 2)	FCTYNAME	TERM	LUNAME	TERMCNNM
None X'80'	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Terminal X'40'	Terminal X'01'	N/A	Access Method	Terminal id	Terminal id	LUName of the terminal if VTAM	N/A
Terminal X'40'	Session X'02'	Session type	Access Method	Session id	Session id	MRO - APPLID of the connection LU61 - APPLID of the connection LU62 - APPLID of the connection EXCI - Blank	IRC/ISC system entry name
Surrogate X'20'	Session X'02'	Session type	Access Method	Session id	Session id	MRO - APPLID of the connection LU61 - APPLID of the connection LU62 - APPLID of the connection EXCI - Blank	IRC/ISC system entry name
Destination X'10'	None X'00'	N/A	N/A	Destina- tion id	N/A	N/A	N/A
Bridge X'48'	Terminal X'01'	N/A	Access Method (VTAM)	Bridge Terminal id	Bridge Terminal id	Bridge Terminal id	N/A

Note: byte 0 of the transaction flags field, TRANFLAG (owner: DFHTASK, field id: 164) can be used to initially identify whether the transaction has a facility and what type of facility it is (such as terminal or transient data destination).

169 (Type-C, TERMCNNM, 4 bytes)

Terminal session connection name. If the terminal facility associated with this transaction is a session, this field is the name of the owning connection (sysid).

A terminal facility can be identified as a session using byte 0 of the terminal information field, see Table 9, (owner: DFHTERM, field id: 165). If the value of the terminal information field is X'02' the terminal facility is a session.

197 (Type-C, NETID, 8 bytes)

The network id field, NETID, is the network id portion of the Network Qualified Name (NQNAME) received from VTAM during bind or logon for CICS terminal resources using any VTAM LUALIAS (defined or dynamic). If the resource has not logged on or an NQNAME was not received then this field will be set to null.

198 (Type-C, RLUNAME, 8 bytes)

The Real LUName field, RLUNAME, is the VTAM netname (LUName) of the terminal id for CICS terminal resources using any VTAM LUALIAS (defined or dynamic). If the resource has not logged on or an NQNAME was not received, then this field will be set to null. Also, see the field, LUNAME (owner: DFHTERM, field id: 111).

DFHWEBB Performance Class Fields

DFHWEBB owns the following performance class data fields:

224 (Type-A, WBREADCT, 4 bytes)

The number of CICS Web support READ HTTPHEADER and FORMFIELD requests issued by the user task.

225 (Type-A, WBWRITCT, 4 bytes)

The number of CICS Web support WRITE HTTPHEADER requests issued by the user task.

231 (Type-A, WBRCVCT, 4 bytes)

The number of CICS Web support RECEIVE requests issued by the user task.

232 (Type-A, WBCHRIN, 4 bytes)

The number of characters received by the CICS Web support RECEIVE requests issued by the user task.

233 (Type-A, WBSENDCT, 4 bytes)

The number of CICS Web support SEND requests issued by the user task.

234 (Type-A, WBCHROUT, 4 bytes)

The number of characters sent by the CICS Web support SEND requests issued by the user task.

235 (Type-A, WBTOTCT, 4 bytes)

The total number of CICS Web support requests issued by the user task.

How the EXEC CICS Web API commands correspond to the CICS Web monitoring fields is shown in Table 10.

Table 10. EXEC CICS WEB commands related to the Web monitoring fields

EXEC CICS WEB command	Monitoring fields
ENDBROWSE	WBBRWCT and WBTOTCT
EXTRACT	WBEXTRCT and WBTOTCT
READ	WBREADCT and WBTOTCT
READNEXT	WBBRWCT and WBTOTCT
RECEIVE	WBRCVCT and WBTOTCT
RETRIEVE	WBTOTCT
SEND	WBSENDCT and WBTOTCT
STARTBROWSE	WBBRWCT and WBTOTCT
WRITE	WBWRITCT and WBTOTCT

Note: For CICS Transaction Server for OS/390, Version 1 Release 3, the number of "other" CICS Web support requests can be calculated by subtracting the CICS Web support requests WBBRWCT, WBEXTRCT, WBRCVCT and WBSENDCT from the total CICS Web support request count, WBTOTCT. This calculated "other" request count will include the CICS Web support requests such as START, BROWSE, READNEXT, HTTPHEADER/FORMFIELD, ENDBROWSE, EXTRACT, READ FORMFIELD, READ HTTPHEADER, RETRIEVE, WRITE HTTPHEADER, and so on.

CMF Performance Class Data Fields

236 (Type-A, WBREPRCT, 4 bytes)

The number of reads from the repository in shared temporary storage issued by the user task.

Note: These repository requests will also be included in the temporary storage request counts as defined in group DFHTEMP on page 188.

237 (Type-A, WBREPWCT, 4 bytes)

The number of writes to the repository in shared temporary storage issued by the user task.

Note: These repository requests will also be included in the temporary storage request counts as defined in group DFHTEMP on page 188.

238 (Type-A, WBEXTRCT, 4 bytes)

The number of CICS Web support EXTRACT requests issued by the user task. Also, see the field, SOEXTRCT (owner: DFH SOCK, field id: 289).

239 (Type-A, WBBRWCT, 4 bytes)

The number of CICS Web support BROWSE HTTPHEADER and FORMFIELD requests (STARTBROWSE, READNEXT, and ENDBROWSE) issued by the user task.

Note: See the related performance data for DFHDOCH on page 162 and DFH SOCK on page 168.

For more information, see “CICS Web Support” on page 152 and the *CICS Internet Guide*.

CMF Exception Class Data Fields

All of the exception class data fields that can be produced by the CICS Monitoring Facility (CMF) are described in this section.

Format of Exception Class Data Records

In contrast to performance class data records whose format is described in associated dictionary entries (see Figure 57 on page 154), exception class data records are not defined in the dictionary record. The exception class data records are fixed format as shown in Figure 58.

MNEXCDS	DSECT		
EXCMNTRN	DS	CL4	Transaction identification
EXCMNTER	DS	XL4	Terminal identification
EXCMNUSR	DS	CL8	User identification
EXCMNTST	DS	CL4	Transaction start type
EXCMNSTA	DS	XL8	Exception start time
EXCMNSTO	DS	XL8	Exception stop time
EXCMNTNO	DS	PL4	Transaction number
EXCMNTPR	DS	XL4	Transaction priority
	DS	CL4	Reserved
EXCMNLUN	DS	CL8	LUnicode
	DS	CL4	Reserved
EXCMNEXN	DS	XL4	Exception number
EXCMNRTY	DS	CL8	Exception resource type
EXCMNRID	DS	CL8	Exception resource ID
EXCMNTYP	DS	XL2	Exception type
EXCMNWT	EQU	X'0001'	Wait
EXCMNBWT	EQU	X'0002'	Buffer wait
EXCMNSWT	EQU	X'0003'	String wait
	DS	CL2	Reserved
EXCMNTCN	DS	CL8	Transaction class name
EXCMNSRV	DS	CL8	Service class name
EXCMNRPT	DS	CL8	Report class name
EXCMNRPX	DS	CL20	Network unit-of-work prefix
EXCMNNSX	DS	XL8	Network unit-of-work suffix
EXCMNTRF	DS	XL8	Transaction flags
EXCMNFCN	DS	CL4	Transaction facility name
EXCMNCPN	DS	CL8	Current program name
EXCMNBTR	DS	CL4	Bridge transaction ID
EXCMNURI	DS	XL16	RRMS/MVS unit of recovery ID
EXCMNRIL	DS	F	Exception resource ID length
EXCMNRIX	DS	XL256	Exception resource ID (extended)
EXCMNID	DS	CL8	Network ID
EXCMNRLU	DS	CL8	Real LUnicode

Figure 58. Record Format of the Exception Class Records

Exception Class Fields

The following field descriptions show the name of the exception class data field, the type, and the size. The data type may be one of the following:

- A** - a 32- or 64- bit count
- C** - a character string
- P** - a packed decimal
- T** - a time stamp

EXCMNTRN (Type-C, 4 bytes)

Transaction identification.

EXCMNTER (Type-C, 4 bytes)

Terminal or session identification. This field is null if the task is not associated with a terminal or session.

EXCMNUSR (Type-C, 8 bytes)

User identification at task attach. This can also be a remote user identifier for a task created as the result of receiving an ATTACH request across an MRO or APPC link with attach-time security enabled.

EXCMNTST (Type-C, 4 bytes)

Type of transaction start (Start Code or Start Type):

- TO** The transaction was started (attached) by input of the transaction id from the terminal user.
- S** Attached by automatic transaction initiation (ATI) without data. The transaction was started (attached) by an application program using the EXEC CICS START TRANSID('xxxx') ... API command. CICS internal transactions such as CATR, CEJR, CESN, CQRY, CRPM, CRSQ, CSFU, CSGM, CXRE, and CWBG are just some examples of CICS transactions that use this start type.
- SD** Attached by automatic transaction initiation (ATI) with data. The transaction was started (attached) by an application program using the EXEC CICS START TRANSID('xxxx') FROM(yyyy) ... API command. CICS internal transactions such as CLS1 is an example of a transaction that uses this start type.
- QD** The transaction was started (attached) because the trigger level of an intrapartition transient data queue was reached. If the transaction is not associated with a terminal facility, the Transaction Facility Name (field: FCTYNAME, owner: DFHTASK, field id: 163) provides the name of the transient data queue id.
- U** The transaction was started (attached) by a CICS internal function generally as a result of some user request. CICS internal transactions such as CATA, CATD, CEJR, CESC, CEX2, CFOR, CFQR, CFQS, CFTL, CGRP, CIEP, CIOF, CIOR, CIRP, CITS, CJTR, CLQ1, CLQ2, CLS2, COTR, COVR, CPLT, CPMI, CRSY, CSFR, CSHQ, CSNC, CSNE, CSOL, CSSY, CSTE, CSZI, CWBA, and CWXN are just some examples of the CICS transactions that use this start type. In addition to CICS internal functions, transaction's that are being executed under the control of the CICS Execution Diagnostic Facility transaction, CEDF, are also started (attached) with this start type.
- TP** Attached from terminal (TCTTE) transaction id. The preset transaction was started (attached) by input from the terminal user or by the previous transaction using the EXEC CICS RETURN TRANSID('xxxx') IMMEDIATE ... API command. The transaction id can be preset either from the terminal definition, from using the CRTE routing transaction, or by the previous transaction's application program using the EXEC CICS RETURN TRANSID('xxxx') ... API command with or without the IMMEDIATE option specified. Some examples of CICS transactions which use this start type are: CESN (except when used as the initial good morning transaction), CRTE (when invoked on the routed system), and CSSF when invoked as part of a 'CRTE CANCEL' (the initial CRTE transaction which establishes the routing session uses the start type 'TO').

SZ Attached by the Front End Programming Interface (FEPI). The transaction was started (attached) as the 'receive program' by the Front End Programming Interface as a result of inbound data. In addition to inbound data arriving, the 'receive program' is also started (attached) if the time limit set by a FEPI START command expires, the session is lost, or anything that causes a FEPI RECEIVE command to complete. See the *CICS Front End Programming Interface User's Guide* for more information on FEPI 'started tasks'.

EXCMNSTA (Type-T, 8 bytes)

Start time of the exception.

EXCMNSTO (Type-T, 8 bytes)

Finish time of the exception.

Note: The performance class exception wait time field, EXWTTIME (owner: DFHCICS, field id: 103), is a calculation based on subtracting the start time of the exception (EXCMNSTA) from the finish time of the exception (EXCMNSTO).

EXCMNTNO (Type-P, 4 bytes)

The transaction identification number.

Note: The transaction number field is normally a 4-byte packed decimal number. However, some CICS system tasks are identified by special characters in this field, as follows:

III for system initialization task(s)
TCP for the terminal control task

These special identifiers are placed in bytes 2 through 4. Byte 1 is blank (x'40') before the terminal control TCP identifier, and a null value (X'00') before the others.

EXCMNTPR (Type-A, 4 bytes)

The transaction priority of the task when monitoring of the task was initialized at transaction attach.

EXCMNLUN (Type-C, 8 bytes)

The LUNAME field is either the VTAM netname (LUNAME) of the terminal id (if the Access Method for the terminal is VTAM) or the VTAM generic APPLID of the connection for the session id (for an EXCI connection this field will be blank). The transaction's terminal or session type can be identified from the Nature (byte 0) field within the terminal information TERMINFO field (owner: DFHTERM, field id: 165). This field is null if the transaction was not associated with a terminal or session facility.

EXCMNEXN (Type-A, 4 bytes)

The exception sequence number for this task.

EXCMNRTY (Type-C, 8 bytes)

The exception resource type. For more information, see Table 11 on page 201.

EXCMNRID (Type-C, 8 bytes)

The exception resource identification. For more information, see Table 11 on page 201.

EXCMNTYP (Type-A, 2 bytes)

The exception type. This field can be set to one of the following values:

X'0001'	Exception due to a wait (EXCMNWT)
X'0002'	Exception due to a buffer wait (EXCMNBWT)
X'0003'	Exception due to a string wait (EXCMNSWT)

For more information on the exception types, see Table 11 on page 201.

EXCMNTCN (Type-C, 8 bytes)

The transaction's transaction class name (TRANCLASS). This field is null if the transaction is not defined in a transaction class.

EXCMNSRV (Type-C, 8 bytes)

The MVS Workload Manager (WLM) service class for this transaction. This field is null if there are no transaction classification rules defined for CICS subsystems in the active MVS Workload Manager (WLM) service policy or the transaction was WLM-classified in another CICS region.

EXCMNRPT (Type-C, 8 bytes)

The MVS Workload Manager (WLM) report class for this transaction. This field is null if there are no transaction classification rules defined for CICS subsystems in the active MVS Workload Manager (WLM) service policy or the transaction was WLM-classified in another CICS region.

EXCMNRPX (Type-C, 20 bytes)

The fully qualified name by which the originating system is known to the VTAM network. This name is assigned at attach time using either the netname derived from the TCT (when the task is attached to a local terminal), or the netname passed as part of an ISC APPC or IRC MRO attach header. At least three padding bytes (X'00') are present at the right end of the name.

If the originating terminal is VTAM across an ISC APPC or IRC MRO link, the NETNAME is the *networkid.LUname*. If the terminal is non-VTAM, the NETNAME is *networkid.generic_APPLID*.

All originating information is passed as part of an ISC LUTYPE6.1 attach header has the same format as the non-VTAM terminal originators above.

When the originator is communicating over an external CICS interface (EXCI) session, the name is a concatenation of:

'DFHEXCIU'	|	.	|	MVS Id	|	Address Space Id (ASID)'
8 bytes	|	1 byte	|	4 bytes	|	4 bytes

derived from the originating system. That is, the name is a 17-byte LU name consisting of:

- An 8-byte eye-catcher set to 'DFHEXCIU'.
- A 1-byte field containing a period '.'.
- A 4-byte field containing the MVSID, in characters, under which the client program is running.
- A 4-byte field containing the address space id (ASID) in which the client program is running. This field contains the 4-character EBCDIC representation of the 2-byte hexadecimal address space id.

For more information on the external CICS interface (EXCI), see the *CICS External Interfaces Guide*.

EXCMNNSX (Type-C, 8 bytes)

The name by which the network unit-of-work id is known within the originating system. This name is assigned at transaction attach time using either a STCK-derived token created by the originating system, or the network unit-of-work id passed as part of an IRC (MRO) or ISC (APPC) attach function management header (FMH).

The first six bytes of this field are a binary value derived from the system clock of the originating system and which can wrap round at intervals of several months.

The last two bytes of this field are a syncpoint sequence count. This count may change during the life of the task as a result of syncpoint activity.

For CICS BTS transactions, the network unit-of-work id is also passed to a transaction that is invoked synchronously by an application program issuing either a CICS BTS run ACQPROCESS synchronous or run activity synchronous command.

Note: When using MRO or ISC, the NETUOWSX field can be combined with the NETUOWPX field (field id: 097) to uniquely identify a task across each CICS system. It must be combined with the NETUOWPX because the NETUOWSX field on its own is unique only to the originating CICS system.

EXCMNTRF (Type-A, 8 bytes)

Transaction flags, a string of 64 bits used for signaling transaction definition and status information:

- Byte 0** Transaction facility identification:
 - Bit 0** Transaction facility name = none
 - Bit 1** Transaction facility name = terminal
 - Bit 2** Transaction facility name = surrogate
 - Bit 3** Transaction facility name = destination
 - Bit 4** Transaction facility name = 3270 bridge
 - Bit 5-7** Reserved
- Byte 1** Transaction identification information:
 - Bit 0** System transaction
 - Bit 1** Mirror transaction
 - Bit 2** DPL Mirror transaction
 - Bit 4** ONC RPC alias transaction
 - Bit 4** WEB alias transaction
 - Bit 5** 3270 Bridge transaction
 - Bit 6** Reserved
 - Bit 7** CICS BTS run transaction (ACQPROCESS or activity) synchronous
- Byte 2** MVS workload manager request (transaction) completion information:
 - Bit 0** Report the total response time (begin-to-end phase) for the completed work request (transaction)
 - Bit 1** Notify that the entire execution phase of the work request (transaction) is complete
 - Bit 2** Notify that a subset of the execution phase of the work request (transaction) is complete
 - Bit 3-7** Reserved

CMF Exception Class Data Fields

Byte 3	Transaction definition information: Bit 0 Taskdataloc = BELOW Bit 1 Taskdatakey = CICS Bit 2 Isolate = NO Bit 3 Dynamic = YES Bit 4-7 Reserved
Byte 4	Transaction origin type (See page 179 for details)
Byte 5	Reserved
Byte 6	JVM status information: Bit 0 JVM marked unresettable Bit 1-7 Reserved
Byte 7	Recovery manager information: Bit 0 Indoubt wait = no Bit 1 Indoubt action = commit Bit 2 Recovery manager - UOW resolved with indoubt action Bit 3 Recovery manager - Shunt Bit 4 Recovery manager - Unshunt Bit 5 Recovery manager - Indoubt failure Bit 6 Recovery manager - Resource owner failure Bit 7 Reserved

EXCMNFCN (Type-C, 4 bytes)

Transaction facility name. This field is null if the transaction is not associated with a facility. The transaction facility type (if any) can be identified using byte 0 of the transaction flags field, TRANFLAG (owner: DFHTASK, field id: 164).

EXCMNCPN (Type-C, 8 bytes)

The name of the application program that was currently executing when the resource shortage condition occurred as identified by the exception record.

EXCMNBTR (Type-C, 4 bytes)

3270 Bridge listener transaction identification.

EXCMNURI (Type-C, 16 bytes)

RRMS/MVS unit-of-recovery ID (URID).

For more general information on the Recoverable Resource Management Services (RRMS), see the *CICS External Interfaces Guide*.

EXCMNRIL (Type-A, 4 bytes)

The length of the resource name in the exception resource identification field, EXCMNRIX.

EXCMNRIX (Type-C, 256 bytes)

The exception resource identification (extended).

EXCMNNID (Type-C, 8 bytes)

The network id field, NETID, is the network id portion of the Network Qualified Name (NQNAME) received from VTAM during bind or logon for CICS terminal resources using any VTAM LUALIAS (defined or dynamic). If the resource has not logged on or an NQNAME was not received, then this field will be set to null.

EXCMNRLU (Type-C, 8 bytes)

The Real LUname (EXCMNRLU) field is the VTAM netname (LUname) of the terminal ID for CICS terminal resources using any VTAM LUALIAS (defined or

dynamic). If the resource has not logged on or an NQNAME was not received, then this field will be set to null. Also, see the field, EXCMNLUN.

Table 11 shows the values and relationships of the exception type (EXCMNTYP), resource type (EXCMNRTY), and resource identification (EXCMNRID) fields.

Table 11. Relationships between the Exception Type, Resource Type, and Resource Identification

EXCMNTYP Exception type	EXCMNRTY Resource type	EXCMNRID Resource id	Exception description
EXCMNWT	CFDTLRSW	poolname	Wait for a CF data table locking request slot.
EXCMNWT	CFDTPPOOL	poolname	Wait for a CF data table non-locking request slot.
EXCMNWT	STORAGE	CDSA	Wait for CDSA storage
EXCMNWT	STORAGE	ECDSA	Wait for ECDSA storage
EXCMNWT	STORAGE	UDSA	Wait for UDSA storage
EXCMNWT	STORAGE	EUDSA	Wait for EUDSA storage
EXCMNWT	STORAGE	SDSA	Wait for SDSA storage
EXCMNWT	STORAGE	ESDSA	Wait for ESDSA storage
EXCMNWT	STORAGE	RDSA	Wait for RDSA storage
EXCMNWT	STORAGE	ERDSA	Wait for ERDSA storage
EXCMNWT	TEMPSTOR	TS Qname	Wait for temporary storage
EXCMNBWT	LSRPOOL	filename	Wait for a buffer associated with an LSRPOOL
EXCMNBWT	TEMPSTOR	TS Qname	Wait for a buffer associated with DFHTEMP
EXCMNSWT	FILE	filename	Wait for a string associated with a file
EXCMNSWT	LSRPOOL	filename	Wait for a string associated with an LSRPOOL
EXCMNSWT	TEMPSTOR	TS Qname	Wait for a string associated with DFHTEMP

Note: The extended resource id field, EXCMNRIX, should be used for analyzing the exception records for the TEMPSTOR exception resource types because the temporary storage queue names are now 16-bytes in length.

CMF Transaction Resource Class Data Fields

The transaction resource class data fields produced by the CICS Monitoring Facility (CMF) are described in this section.

Transaction resource class records are produced at termination of the transaction for which the data is being collected. These records are variable length, depending on the number of resources for which data is being collected. For example, one transaction might access only 1 file, another 5, and so on. Each extra file for which data is being collected adds 96 bytes to the minimum record length, which is 256 bytes for only one file. The maximum number of files for which you can collect transaction resource data is 64.

Format of Transaction Resource Class Data Records

In contrast to performance class data records whose format is described in associated dictionary entries (see Figure 57 on page 154), transaction resource class data records are not defined in the dictionary record. The transaction resource class data records are fixed format as shown in Figure 59.

DFHMNRDS	DSECT	,	Transaction resource monitoring record
MNR_LENGTH	DS	H	Length of resource data
MNR_ID_EQUATE	EQU	79	Monitoring domain id mask
MNR_ID	DC	AL2(MNR_ID_EQUATE)	Monitoring domain id
MNR_VERSION	EQU	X'01'	DSECT version mask
MNR_DSECT_VERS	DS	CL1	DSECT version number
	DS	CL3	Reserved
*			
MNR_HEADER	DS	0XL32	Header Data
MNR_HDRLEN	DS	H	Length of header data
	DS	XL2	Reserved
	DS	XL8	Reserved
MNR_TRN	DS	H	Number of record triplets
	DS	XL2	Reserved
MNR_ISO	DS	XL4	Offset to ID data
MNR_ISL	DS	XL2	Length of ID entry
MNR_ISN	DS	XL2	Number of ID entries
MNR_FSO	DS	XL4	Offset to File data
MNR_FSL	DS	XL2	Length of File entry
MNR_FSN	DS	XL2	Number of File entries
MNR_HDR_LENGTH	EQU	*-MNR_HEADER	Header data length
SPACE	,		
MNR_ID_DATA	DSECT		Identification Data Entry
MNR_ID_TRANID	DS	CL4	Transaction id
MNR_ID_TERMID	DS	CL4	Terminal id
MNR_ID_USERID	DS	CL8	User id
MNR_ID_STYPE	DS	CL4	Transaction Start type
MNR_ID_START	DS	XL8	Transaction Start time
MNR_ID_STOP	DS	XL8	Transaction Stop time
MNR_ID_TASKNO	DS	XL4	Transaction Sequence Number
MNR_ID_LUNAME	DS	CL8	VTAM Luname
MNR_ID_PGMNAME	DS	CL8	First program name
MNR_ID_UOW_PX	DS	XL20	Network Unit-of-Work Prefix
MNR_ID_UOW_SX	DS	XL8	Network Unit-of-Work Suffix

Figure 59 (Part 1 of 2). Record Format of the Transaction Resource Class Records

CMF Transaction Resource Class Data Fields

|	MNR_ID_RSYSID	DS	CL4	Remote sysid routed to
|	MNR_ID_TRN_FLAGS	DS	XL8	Transaction flags
|	MNR_ID_FCTYNAME	DS	CL4	Transaction Facility name
|	MNR_ID_RTYPE	DS	CL4	Resource Record Type
|	MNR_ID_TERMINFO	DS	0XL4	Terminal Information
|	MNR_ID_NATURE	DS	XL1	Nature
|	MNR_ID_NATURE_NOTAPPLIC	EQU	X'00'	Not applic
|	MNR_ID_NATURE_TERMINAL	EQU	X'01'	Terminal
|	MNR_ID_NATURE_SESSION	EQU	X'02'	Session
|	MNR_ID_SESSTYPE	DS	XL1	Session Type
|	MNR_ID_SESSTYPE_NOTAPPLIC	EQU	X'00'	Not applic
|	MNR_ID_SESSTYPE_IRC	EQU	X'01'	IRC
|	MNR_ID_SESSTYPE_IRC_XM	EQU	X'02'	IRC XM
|	MNR_ID_SESSTYPE_IRC_XCF	EQU	X'03'	IRC XCF
|	MNR_ID_SESSTYPE_LU61	EQU	X'04'	LU61
|	MNR_ID_SESSTYPE_LU62_SING	EQU	X'05'	LU62 SINGLE
|	MNR_ID_SESSTYPE_LU62_PARA	EQU	X'06'	LU62 PARALLEL
|	MNR_ID_ACMETH	DS	XL1	Access method
|	MNR_ID_ACMETH_NOTAPPLIC	EQU	X'00'	Not applic
|	MNR_ID_ACMETH_VTAM	EQU	X'01'	VTAM
|	MNR_ID_ACMETH_BTAM	EQU	X'02'	BTAM
|	MNR_ID_ACMETH_BSAM	EQU	X'03'	BSAM
|	MNR_ID_ACMETH_TCAM	EQU	X'04'	TCAM
|	MNR_ID_ACMETH_TCAMSNA	EQU	X'05'	TCAMSNA
|	MNR_ID_ACMETH_BGAM	EQU	X'06'	BGAM
|	MNR_ID_ACMETH_CONSOLE	EQU	X'07'	CONSOLE
|	MNR_ID_DEVCODE	DS	XL1	Device type code
|	*			See TYPETERM RDO attribute
|	MNR_ID_TERMCNMM	DS	CL4	Terminal Connection name
|	MNR_ID_RES_FLAGS	DS	0XL4	Resource flags
|	MNR_ID_RES_FLAG1	DS	XL1	Resource flag 1
|	MNR_FILE_LIMIT_EXCEEDED	EQU	X'80'	Resource File limit exceeded
|		DS	XL3	Reserved
|		DS	XL8	Reserved
|		DS	XL8	Reserved
|		DS	XL8	Reserved
|	MNR_ID_LENGTH	EQU	*-MNR_ID_DATA	Identification entry data length
|	SPACE			,
|	MNR_FILE_ENTRY	DSECT		File Entry
|	MNR_FILE_NAME	DS	CL8	File name
|	MNR_FILE_GET	DS	XL8	File Get time/count
|	MNR_FILE_PUT	DS	XL8	File Put time/count
|	MNR_FILE_BRWSE	DS	XL8	File Browse time/count
|	MNR_FILE_ADD	DS	XL8	File Add time/count
|	MNR_FILE_DEL	DS	XL8	File Delete time/count
|	MNR_FILE_TOTAL	DS	XL8	File Total time/count
|	MNR_FILE_AM_RQ	DS	XL4	File Access Method request count
|		DS	XL4	Reserved
|	MNR_FILE_IO_WT	DS	XL8	File I/O wait time
|	MNR_RLS_FILE_IO_WT	DS	XL8	RLS File I/O wait time
|	MNR_CFDI_IO_WT	DS	XL8	CFDI I/O wait time
|		DS	XL8	Reserved
|	MNR_FILE_LEN	EQU	*-MNR_FILE_ENTRY	File entry data length

Figure 59 (Part 2 of 2). Record Format of the Transaction Resource Class Records

Transaction Resource Class Fields

For information about transaction File usage in performance class monitoring data, see “DFHFILE Performance Class Fields” on page 163.

Task Identification Fields

This section describes the transaction header fields in a transaction monitoring resource record.

MNR_ID_TRANID (Type-C, 4 bytes)

Transaction identifier.

MNR_ID_TERMID (Type-C, 4 bytes)

Terminal identifier. This field is null if the task is not associated with a terminal or session.

MNR_ID_USERID (Type-C, 4 bytes)

User identification at task creation. This can also be the remote user identifier for a task created as the result of receiving an ATTACH request across an MRO or APPC link with attach-time security enabled.

MNR_ID_SYTPE (Type-C, 4 bytes)

Transaction start type. The high-order byte (0 and 1) can have one of the following values:

- TO** Attached from terminal input
- S** Attached by automatic transaction initiation (ATI) without data
- SD** Attached by automatic transaction initiation (ATI) with data
- QD** Attached by transient data trigger level
- U** Attached by user request
- TP** Attached from terminal TCTTE transaction ID
- SZ** Attached by Front End Programming Interface (FEPI)

MNR_ID_START (Type-T, 8 bytes)

Start time of the transaction.

MNR_ID_STOP (Type-T, 8 bytes)

Stop time of the transaction.

MNR_ID_TASKNO (Type-A, 4 bytes)

The transaction identification number (the task number allocated to the transaction at task attach).

MNR_ID_LUNAME (Type-C, 8 bytes)

VTAM logical unit name (if available) of the terminal associated with this transaction. If the task is executing in an application-owning or file-owning region, the LUNAME is the generic applid of the originating connection for MRO, LUTYPE6.1, and LUTYPE6.2 (APPC). The LUNAME is blank if the originating connection is an external CICS interface (EXCI).

MNR_ID_PGMNAME (Type-C, 8 bytes)

The name of the first program invoked at attach-time. For more information, see the performance class data field PGMNAME (owner: DFHPROG, field id: 071).

MNR_ID_UOW_PX (Type-C, 20 bytes)

This field contains the same information as the performance class data field NETUOWPX (owner: DFHTASK, field id: 097).

MNR_ID_UOW_SX (Type-C, 8 bytes)

This field contains the same information as the performance class data field NETUOWSX (owner: DFHTASK, field id: 098).

MNR_ID_TRN_FLAGS (Type-A, 8 bytes)

Transaction flags, a string of 64 bits used for signaling transaction definition and status information. For details, see the performance class data field TRANFLAG (owner: DFHTASK, field id: 164).

MNR_ID_RSYSID (Type-C, 4 bytes)

The name (system ID) of the remote system to which this transaction was routed, either statically or dynamically. For more information, see the performance class data field RSYSID (owner: DFHCICS, field id: 130).

MNR_ID_FCTYNAME (Type-C, 4 bytes)

Transaction facility name. This field is null if the transaction is not associated with a facility. You can identify the transaction facility type (if any) using byte 0 of the transaction flags (MNR_ID_TRN_FLAGS) field. For details, see the performance class data field FCTYNAME (owner: DFHTASK, field id: 163).

MNR_ID_RTYPE (Type-C, 4 bytes)

Transaction resource monitoring record type (low-order byte-3). Currently this can have only one value, T, indicating a record output for task termination. For more information about record types, see the performance class data field RTYPE (owner: DFHCICS, field id: 112).

TERMINFO (Type-A, 4 bytes)

Terminal or session information for the task principal facility. For more information about terminal information, see the performance class data field TERMINFO (owner: DFHTERM, field id: 165).

MNR_ID_TERMCNNM (Type-C, 4 bytes)

Terminal session connection name. If the terminal facility associated with this transaction is a session, this field is the name of the owning connection (system ID). For more information, see the performance class data field TERMCNNM (owner: DFHTERM, field id: 169).

MNR_ID_RES_FLAGS (Type-A, 4 bytes)

Resource flags, a string of 32 bits used for signaling resource status information.

Byte 0 Resource status information:

Bit 0 Maximum number of files to be monitored (defined in the MCT) has been exceeded by the transaction (X'80')

Bits 1-7 Reserved

Bytes 1-3 Reserved.

File Entry Fields

This section describes the fields in each file entry in a transaction resource monitoring record.

MNR_FILE_NAME (Type-C, 8 bytes)

The CICS 8-character name of the file to which the following data fields refer.

MNR_FILE_GET (Type-S, 8 bytes)

The elapsed time that the user task waited for completion of GET requests issued by the user task for this file. The count part of this field (the low order

24 bits) contains the number of GET requests issued against the file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

MNR_FILE_PUT (Type-S, 8 bytes)

The elapsed time that the user task waited for completion of PUT requests issued by the user task for this file. The count part of this field (the low order 24 bits) contains the number of PUT requests issued against the file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

MNR_FILE_BRWSE (Type-S, 8 bytes)

The elapsed time that the user task waited for completion of BROWSE requests issued by the user task for this file. The count part of this field (the low order 24 bits) contains the number of BROWSE requests issued against the file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

MNR_FILE_ADD (Type-S, 8 bytes)

The elapsed time that the user task waited for completion of ADD requests issued by the user task for this file. The count part of this field (the low order 24 bits) contains the number of ADD requests issued against the file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

MNR_FILE_DEL (Type-S, 8 bytes)

The elapsed time that the user task waited for completion of DELETE requests issued by the user task for this file. The count part of this field (the low order 24 bits) contains the number of DELETE requests issued against the file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

MNR_FILE_TOTAL (Type-S, 8 bytes)

The total elapsed time that the user task waited for completion of all requests issued by the user task for this file. The count part of this field (the low order 24 bits) contains the number of all requests issued against the file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

MNR_FILE_AM_RQ (Type-A, 4 bytes)

Number of times the user task invoked file access-method interfaces. See also the performance class data field FCAMCT (owner: DFHFILE, field id: 070).

MNR_FILE_IO_WT (Type-S, 8 bytes)

The total I/O wait time on this file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

MNR_RLS_FILE_IO_WT (Type-S, 8 bytes)

Elapsed time in which the user task waited for RLS file I/O on this file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

MNR_CFDT_IO_WT (Type-S, 8 bytes)

Elapsed time in which the user task waited for a data table access request to the coupling facility data table server to complete for this file. For more information, see “Transaction Response Time” on page 138 and “Clocks and Time Stamps” on page 154.

Appendix A. Cross-Reference by CMF Field ID

The following cross-reference chart relates the CICS Monitoring Facility (CMF) Field IDs for performance class data with the corresponding CICS PA field names and CICS versions to which they apply. The CICS PA Field is the name used in Report Forms (FIELD operand) and Selection Criteria (SELECT operand). The Column Heading is that used to identify the field in CICS PA reports and extract data sets.

The chart is ordered by CICS CMF Field ID.

CICS CMF Field ID	CICS PA Field	Column Heading	CICS Version	410	510	520	530	610	620	Description
CICSPA A001	TOTRECS	TOTRECS	TOTRECS	X	X	X	X	X	X	Cross-System Total record count
CICSPA A002	APPLRECS	APPLRECS	APPLRECS	X	X	X	X	X	X	Cross-System Application records
CICSPA A003	TRANROUT	TRANROUT	TRANROUT	X	X	X	X	X	X	Cross-System Transaction Routing records
CICSPA A004	FUNCSHIP	FUNCSHIP	FUNCSHIP	X	X	X	X	X	X	Cross-System Function Shipping records
CICSPA A005	DPLRECS	DPLRECS	DPLRECS	X	X	X	X	X	X	Cross-System DPL records
CICSPA A901	RESP	RESPONSE	Response	X	X	X	X	X	X	Transaction response time
CICSPA X902	TASKCNT	TASKCNT	Tasks	X	X	X	X	X	X	Total Task count
CICSPA C903	APPLID	APPLID	APPLID	X	X	X	X	X	X	CICS Generic APPLID
CICSPA C904	MVSID	MVSID	MVS ID	X	X	X	X	X	X	MVS SMF ID
CICSPA C905	JOBNAME	JOBNAME	Jobname	X	X	X	X	X	X	Job Name
CICSPA A906	COMMWAIT	COMMWAIT	CommWait	X	X	X	X	X	X	Communications wait time
CICSPA A907	IOWAIT	IOWAIT	IO Wait	X	X	X	X	X	X	Total I/O wait time
CICSPA A908	IRESP	IRESP	IResp	X	X	X	X	X	X	Transaction internal response time
CICSPA C909	RELEASE	RELEASE	Rls	X	X	X	X	X	X	CICS release
CICSPA S910	JVMTIME	JVMTIME	JVM Meth	-	-	-	-	X	X	JVM Method time
CICSPA S911	RMIOOTHER	RMIOOTHER	RMIOther	X	X	X	X	X	X	Resource Manager Interface (RMI) other time
CICSPA S912	UOWID	UOWID	UOW ID	X	X	X	X	X	X	Network unit-of-work ID
CICSPA S913	UOWSEQ	UOWSEQ	UOW SeqNo	X	X	X	X	X	X	Network unit-of-work Sequence Number
CICSPA C916	FILENAME	FILENAME	File	-	-	-	X	-	X	File name
DFHAPPL C001	APPLNAME	APPLPROG	Program	-	-	-	X	-	X	Application naming Program name
DFHAPPL C001	APPLNAME	APPLTRAN	Tran	-	-	-	X	-	X	Application naming Transaction ID
DFHCBTS C200	PRCSNAME	PRCSNAME	BTS Proc	-	-	-	X	X	X	BTS Process name
DFHCBTS C201	PRCSTYPE	PRCSTYPE	BTS PTyp	-	-	-	X	X	X	BTS Process type
DFHCBTS C202	PRCSID		BTS Root	-	-	-	X	X	X	BTS Root Activity identifier
DFHCBTS C203	ACTVTYID		BTSActID	-	-	-	X	X	X	BTS Activity identifier
DFHCBTS C204	ACTVTYNM	ACTVTYNM	BTSActNm	-	-	-	X	X	X	BTS Activity name
DFHCBTS A205	BARSYNCT	BARSYNCT	BTS Sync	-	-	-	X	X	X	BTS synchronous Process/Activity count
DFHCBTS A206	BARASYCT	BARASYCT	BTS Asyn	-	-	-	X	X	X	BTS asynchronous Process/Activity count
DFHCBTS A207	BALKPACT	BALKPACT	BTS Link	-	-	-	X	X	X	BTS Link Process/Activity count
DFHCBTS A208	BADPROCT	BADPROCT	BTS DefP	-	-	-	X	X	X	BTS Define Process requests
DFHCBTS A209	BADACTCT	BADACTCT	BTS DefA	-	-	-	X	X	X	BTS Define Activity requests
DFHCBTS A210	BARSPACT	BARSPACT	BTSReset	-	-	-	X	X	X	BTS Reset Process/Activity requests
DFHCBTS A211	BASUPACT	BASUPACT	BTS Susp	-	-	-	X	X	X	BTS Suspend Process/Activity requests
DFHCBTS A212	BARMPACT	BARMPACT	BTSResum	-	-	-	X	X	X	BTS Resume Process/Activity requests
DFHCBTS A213	BADCPACT	BADCPACT	BTSCancel	-	-	-	X	X	X	BTS Cancel Process/Activity requests
DFHCBTS A214	BAACQPCT	BAACQPCT	BTSAcqui	-	-	-	X	X	X	BTS Acquire Process/Activity requests
DFHCBTS A215	BATOTPCT	BATOTPCT	BTSTotal	-	-	-	X	X	X	BTS Total Process/Activity requests

Figure 60 (Part 1 of 7). Cross-Reference - Ordered by CMF Field ID

Cross-Reference by CMF Field ID

CICS CMF Field ID	CICS PA Field	Column Heading	CICS Version	CICS Version						Description
				410	510	520	530	610	620	
DFHCBTS A216	BAPRDCCT	BAPRDCCT	BTSPDCRq	-	-	-	X	X	X	BTS Process Data Containers requests
DFHCBTS A217	BAACDCCT	BAACDCCT	BTSADCRq	-	-	-	X	X	X	BTS Activity Data Containers requests
DFHCBTS A218	BATOTCCT	BATOTCCT	BTSTDCRq	-	-	-	X	X	X	BTS Process/Activity Data Container requests
DFHCBTS A219	BARATECT	BARATECT	BTSRtvEv	-	-	-	X	X	X	BTS Retrieve-Reattach Event requests
DFHCBTS A220	BADFIECT	BADFIECT	BTSDefEv	-	-	-	X	X	X	BTS Define-Input Event requests
DFHCBTS A221	BATIAECT	BATIAECT	BTSTimEv	-	-	-	X	X	X	BTS TIMER Event requests
DFHCBTS A222	BATOTECT	BATOTECT	BTSTotEv	-	-	-	X	X	X	BTS Event-related requests

DFHCICS T005	START	START	Start	X	X	X	X	X	X	Task start time
DFHCICS T006	STOP	STOP	Stop	X	X	X	X	X	X	Task stop time
DFHCICS A025	CFCAPICT	CFCAPI	CFC1sAPI	-	-	-	X	X	X	00 Foundation Class requests
DFHCICS C089	USERID	USERID	Userid	X	X	X	X	X	X	User ID
DFHCICS S103	EXWTTIME	EXWAIT	Exc Wait	X	X	X	X	X	X	Exception Conditions wait time
DFHCICS C112	RTYPE	RTYPE	RTyp	X	X	X	X	X	X	Performance record type
DFHCICS C130	RSYSID	RSYSID	RSID	X	X	X	X	X	X	Remote System ID
DFHCICS A131	PERRECNT	RECCOUNT	RecCount	X	X	X	X	X	X	Task Performance record count
DFHCICS C167	SRVCLASS	SRVCLASS	WLMsrvc1	-	X	X	X	X	X	WLM Service Class
DFHCICS C168	RPTCLASS	RPTCLASS	WLMRptC1	-	X	X	X	X	X	WLM Report Class

DFHDATA A179	IMSREQCT	IMSREQCT	IMS Reqs	-	-	-	X	X	X	IMS (DBCTL) requests
DFHDATA A180	DB2REQCT	DB2REQCT	DB2 Reqs	-	-	-	X	X	X	DB2 requests
DFHDATA S186	IMSWAIT	IMSWAIT	IMS Wait	-	-	-	X	X	X	IMS (DBCTL) wait time
DFHDATA S187	DB2RDYQW	DB2RDYQW	DB2ThdWt	-	-	-	X	X	X	DB2 Thread wait time
DFHDATA S188	DB2CONWT	DB2CONWT	DB2ConWt	-	-	-	X	X	X	DB2 Connection wait time
DFHDATA S189	DB2WAIT	DB2WAIT	DB2SQLWt	-	-	-	X	X	X	DB2 SQL/IFI wait time

DFHDEST A041	TDGETCT	TDGET	TDGET	X	X	X	X	X	X	Transient data GET requests
DFHDEST A042	TDPUTCT	TDPUT	TDPUT	X	X	X	X	X	X	Transient data PUT requests
DFHDEST A043	TDPURCT	TDPURGE	TDPURGE	X	X	X	X	X	X	Transient data PURGE requests
DFHDEST A091	TDTOTCT	TDTOTAL	TD Total	X	X	X	X	X	X	Transient data Total requests
DFHDEST S101	TDIOWTT	TDWAIT	TD Wait	X	X	X	X	X	X	VSAM transient data I/O wait time

DFHDOCH A226	DHCRECT	DHCREATE	DHCREATE	-	-	-	X	X	X	Document Handler CREATE requests
DFHDOCH A227	DHINSCT	DHINSERT	DHINSERT	-	-	-	X	X	X	Document Handler INSERT requests
DFHDOCH A228	DHSETCT	DHSET	DHSET	-	-	-	X	X	X	Document Handler SET requests
DFHDOCH A229	DHRETCT	DHRETRVE	DHRETRVE	-	-	-	X	X	X	Document Handler RETRIEVE requests
DFHDOCH A230	DHTOTCT	DHTOTAL	DH Total	-	-	-	X	X	X	Document Handler Total requests
DFHDOCH A240	DHTOTDCL	DHTOTDCL	DHDocLen	-	-	-	X	X	X	Total length of all documents created

DFHFEPI A150	SZALLOCT	SZALLOC	SZALLOC	X	X	X	X	X	X	Conversations allocated count
DFHFEPI A151	SZRCVCT	SZRCV	SZRCV	X	X	X	X	X	X	FEPI RECEIVE requests
DFHFEPI A152	SZSENDCT	SZSEND	SZSEND	X	X	X	X	X	X	FEPI SEND requests
DFHFEPI A153	SZSTRCT	SZSTART	SZSTART	X	X	X	X	X	X	FEPI START requests
DFHFEPI A154	SZCHROUT	SZCHROUT	SZChrOut	X	X	X	X	X	X	FEPI characters sent count
DFHFEPI A155	SZCHRIN	SZCHRIN	SZChrIn	X	X	X	X	X	X	FEPI characters received count
DFHFEPI S156	SZWAIT	SZWAIT	SZ Wait	X	X	X	X	X	X	FEPI services wait time
DFHFEPI A157	SZALLCTO	SZALLCTO	SZAllocTO	X	X	X	X	X	X	Allocate conversation time-out count
DFHFEPI A158	SZRCVTO	SZRCVTO	SZRecvTO	X	X	X	X	X	X	Receive Data time-out count
DFHFEPI A159	SZTOTCT	SZTOTAL	SZ Total	X	X	X	X	X	X	FEPI API and SPI requests

Figure 60 (Part 2 of 7). Cross-Reference - Ordered by CMF Field ID

CICS CMF Field ID	CICS PA Field	Column Heading	CICS Version	CICS Version						Description
				410	510	520	530	610	620	
DFHFILE A036	FCGETCT	FCGET	FCGET	X	X	X	X	X	X	File GET requests
DFHFILE A037	FCPUTCT	FCPUT	FCPUT	X	X	X	X	X	X	File PUT requests
DFHFILE A038	FCBRWCT	FCBROWSE	FCBROWSE	X	X	X	X	X	X	File Browse requests
DFHFILE A039	FCADDCT	FCADD	FCADD	X	X	X	X	X	X	File ADD requests
DFHFILE A040	FCDELCT	FCDELETE	FCDELETE	X	X	X	X	X	X	File DELETE requests
DFHFILE S063	FCIOWTT	FCWAIT	FC Wait	X	X	X	X	X	X	File I/O wait time
DFHFILE A070	FCAMCT	FCAMCT	FCAMrq	X	X	X	X	X	X	File access-method requests
DFHFILE A093	FCTOTCT	FCTOTAL	FC Total	X	X	X	X	X	X	File Control requests
DFHFILE S174	RLSWAIT	RLSWAIT	RLS Wait	-	X	X	X	X	X	RLS File I/O wait time
DFHFILE S175	RLSCPUT	RLSCPU	RLS CPU	-	X	X	X	X	X	RLS File Request CPU (SRB) time
DFHFILE S176	CFDTWAIT	CFDTWAIT	CFDTWait	-	-	-	X	X	X	CF Data Table access requests wait time
DFHJOUR S010	JCIOWTT	JCWAIT	JC Wait	X	X	X	X	X	X	Journal I/O wait time
DFHJOUR A058	JNLWRTCT	JNLWRITE	JnlWrite	X	X	X	X	X	X	Journal write requests
DFHJOUR A172	LOGWRTCT	LOGWRITE	LogWrite	-	X	X	X	X	X	Log Stream write requests
DFHMAPP A050	BMSMAPCT	BMSMAP	BMSMAP	X	X	X	X	X	X	BMS MAP requests
DFHMAPP A051	BMSINCT	BMSIN	BMSIN	X	X	X	X	X	X	BMS IN requests
DFHMAPP A052	BMSOUTCT	BMSOUT	BMSOUT	X	X	X	X	X	X	BMS OUT requests
DFHMAPP A090	BMSTOTCT	BMSTOTAL	BMSTotal	X	X	X	X	X	X	BMS Total requests
DFHPRG A055	PCLINKCT	PCLINK	PCLINK	X	X	X	X	X	X	Program LINK requests
DFHPRG A056	PCXCTLCT	PCXCTL	PCXCTL	X	X	X	X	X	X	Program XCTL requests
DFHPRG A057	PCLOADCT	PCLOAD	PCLOAD	X	X	X	X	X	X	Program LOAD requests
DFHPRG C071	PGMNAME	PROGRAM	Program	X	X	X	X	X	X	Program name
DFHPRG A072	PCLURMCT	PCLURM	PCLNKURM	-	-	X	X	X	X	Program LINK URM requests
DFHPRG A073	PCDPLCT	PCDPL	PCDPLINK	-	-	-	X	X	X	Distributed Program Link (DPL) requests
DFHPRG C113	ABCODEO	ABCODEO	ABor	X	X	X	X	X	X	Original ABEND Code
DFHPRG C114	ABCODEC	ABCODEC	ABcu	X	X	X	X	X	X	Current ABEND Code
DFHPRG S115	PCLOADTM	PCLOADTM	PCLOADWt	X	X	X	X	X	X	Program Library wait time
DFH SOCK S241	SOIOWTT	SOWAIT	SocketWait	-	-	-	X	X	X	Inbound Socket I/O wait time
DFH SOCK A242	SOBYENCT	SOBYENCT	SocketEcry	-	-	-	X	X	X	Secure Socket bytes encrypted count
DFH SOCK A243	SOBYDECT	SOBYDECT	SocketDcry	-	-	-	X	X	X	Secure Socket bytes decrypted count
DFH SOCK C244	CLIPADDR	CLIENTIP	ClientIP	-	-	-	X	X	X	Client IP address
DFH SOCK C245	TCPSRVCE	TCPSRVCE	TCPIPSrv	-	-	-	-	X	X	TCP/IP Service Name
DFH SOCK A246	PORTNUM	PORT	PORT	-	-	-	-	X	X	TCP/IP Port Number
DFH SOCK A289	SOEXTRCT	SOEXTRCT	SOEXTRAC	-	-	-	-	X	X	EXTRACT TCP/IP and CERTIFICATE requests
DFH SOCK A290	SOCNPSCT	SOCNPSCT	SOCNPSRq	-	-	-	-	X	X	Create Non-Persistent Outbound Socket requests
DFH SOCK A291	SOCPSCT	SOCPSCT	SOCPSReq	-	-	-	-	X	X	Create Persistent Outbound Socket requests
DFH SOCK A292	SONPSHWM	SONPSHWM	SONPSHWM	-	-	-	-	X	X	Non-Persistent Outbound Socket HWM
DFH SOCK A293	SOPSHWM	SOPSHWM	SOPSHWM	-	-	-	-	X	X	Persistent Outbound Socket HWM
DFH SOCK A294	SORCVCT	SORCV	SO Recv	-	-	-	-	X	X	Outbound Sockets RECEIVE requests
DFH SOCK A295	SOCHRIN	SOCHRIN	SOChrIn	-	-	-	-	X	X	Outbound Sockets characters received count
DFH SOCK A296	SOSENDCT	SOSEND	SO SEND	-	-	-	-	X	X	Outbound Sockets SEND requests
DFH SOCK A297	SOCHROUT	SOCHROUT	SOChrOut	-	-	-	-	X	X	Outbound Sockets characters sent count
DFH SOCK A298	SOTOTCT	SOTOTAL	SOTotal	-	-	-	-	X	X	Socket Total requests
DFH SOCK S299	SOIOWTT	OSOWAIT	OSO Wait	-	-	-	-	X	X	Outbound Socket I/O Wait Time
DFH SOCK A301	SOMSGIN1	SOMSGIN1	SOMsgIn1	-	-	-	-	-	X	Inbound Sockets RECEIVE requests
DFH SOCK A302	SOCHRIN1	SOCHRIN1	SOChrIn1	-	-	-	-	-	X	Inbound Sockets characters received count
DFH SOCK A303	SOMSGOU1	SOMSGOU1	SOMsgOu1	-	-	-	-	-	X	Inbound Sockets SEND requests
DFH SOCK A304	SOCHROU1	SOCHROU1	SOChrOu1	-	-	-	-	-	X	Inbound Sockets characters sent count

Figure 60 (Part 3 of 7). Cross-Reference - Ordered by CMF Field ID

Cross-Reference by CMF Field ID

CICS CMF Field ID	CICS PA Field	Column Heading	CICS Version						Description	
			410	510	520	530	610	620		
DFHSTOR A033	SCUSRHWM	SC24UHWM	SC24UHWM	X	X	X	X	X	X	UDSA HWM below 16MB
DFHSTOR A054	SCUGETCT	SC24UGET	SC24UGet	X	X	X	X	X	X	UDSA GETMAINS below 16MB
DFHSTOR A087	PCSTGHWM	PCSTGHWM	PCStgHWM	X	X	X	X	X	X	Program Storage HWM above and below 16MB
DFHSTOR A095	SCUSRSTG	SC24UOCC	SC24UOcc	X	X	X	X	X	X	UDSA Storage Occupancy below 16MB
DFHSTOR A105	SCUGETCT	SC31UGET	SC31UGet	X	X	X	X	X	X	EUDSA GETMAINS above 16MB
DFHSTOR A106	SCUSRHWM	SC31UHWM	SC31UHWM	X	X	X	X	X	X	EUDSA HWM above 16MB
DFHSTOR A107	SCUCRSTG	SC31UOCC	SC31UOcc	X	X	X	X	X	X	EUDSA Storage Occupancy above 16MB
DFHSTOR A108	PC24BHWM	PC24BHWM	PC24bHWM	X	X	X	X	X	X	Program Storage HWM below 16MB
DFHSTOR A116	SC24CHWM	SC24CHWM	SC24CHWM	X	X	X	X	X	X	CDSA HWM below 16MB
DFHSTOR A117	SCCGETCT	SC24CGET	SC24CGet	X	X	X	X	X	X	CDSA GETMAINS below 16MB
DFHSTOR A118	SC24COCC	SC24COCC	SC24COcc	X	X	X	X	X	X	CDSA Storage Occupancy below 16MB
DFHSTOR A119	SC31CHWM	SC31CHWM	SC31CHWM	X	X	X	X	X	X	ECDSA HWM above 16MB
DFHSTOR A120	SCCGETCT	SC31CGET	SC31CGet	X	X	X	X	X	X	ECDSA GETMAINS above 16MB
DFHSTOR A121	SC31COCC	SC31COCC	SC31COcc	X	X	X	X	X	X	ECDSA Storage Occupancy above 16MB
DFHSTOR A122	PC31RHWM	PC31RHWM	PC31RHWM	X	X	X	X	X	X	Program Storage (ERDSA) HWM above 16MB
DFHSTOR A139	PC31AHWM	PC31AHWM	PC31aHWM	X	X	X	X	X	X	Program Storage HWM above 16MB
DFHSTOR A142	PC31CHWM	PC31CHWM	PC31CHWM	X	X	X	X	X	X	Program Storage (ECDSA) HWM above 16MB
DFHSTOR A143	PC24CHWM	PC24CHWM	PC24CHWM	X	X	X	X	X	X	Program Storage (CDSA) HWM below 16MB
DFHSTOR A144	SC24SGCT	SC24SGET	SC24SGet	-	X	X	X	X	X	CDSA/SDSA GETMAINS below 16MB
DFHSTOR A145	SC24GSHR	SC24GSHR	SC24GShr	-	X	X	X	X	X	CDSA/SDSA storage GETMAINED below 16MB
DFHSTOR A146	SC24FSHR	SC24FSHR	SC24FShr	-	X	X	X	X	X	CDSA/SDSA storage FREEMAINED below 16MB
DFHSTOR A147	SC31SGCT	SC31SGET	SC31SGet	-	X	X	X	X	X	ECDSA/ESDSA GETMAINS above 16MB
DFHSTOR A148	SC31GSHR	SC31GSHR	SC31GShr	-	X	X	X	X	X	ECDSA/ESDSA storage GETMAINED above 16MB
DFHSTOR A149	SC31FSHR	SC31FSHR	SC31FShr	-	X	X	X	X	X	ECDSA/ESDSA storage FREEMAINED above 16MB
DFHSTOR A160	PC24SHWM	PC24SHWM	PC24SHWM	X	X	X	X	X	X	Program Storage (SDSA) HWM below 16MB
DFHSTOR A161	PC31SHWM	PC31SHWM	PC31SHWM	X	X	X	X	X	X	Program Storage (ESDSA) HWM above 16MB
DFHSTOR A162	PC24RHWM	PC24RHWM	PC24RHWM	X	X	X	X	X	X	Program Storage (RDSA) HWM below 16MB
DFHSYNC A060	SPSYNCCT	SYNCPT	SYNCPT	X	X	X	X	X	X	SYNCPOINT requests
DFHSYNC S173	SYNCTIME	SYNCTIME	SYNCTIME	-	X	X	X	X	X	SYNCPOINT processing time
DFHSYNC S177	SRVSYWTT	CFDTSYNC	CFDTSync	-	-	-	X	X	X	CF Data Table syncpoint wait time
DFHSYNC S196	SYNCDLY	SYNCDLY	SYNCDly	-	-	-	X	X	X	SYNCPOINT parent request wait time
DFHSYNC S199	OTSINDWT	OTSINDWT	OTSIndwt	-	-	-	-	-	X	OTS Indoubt Wait time
DFHTASK C001	TRAN	TRAN	Tran	X	X	X	X	X	X	Transaction identifier
DFHTASK C004	T	STYPE	SC	X	X	X	X	X	X	Transaction start type
DFHTASK S007	USRDISPT	DISPATCH	Dispatch	X	X	X	X	X	X	Dispatch time
DFHTASK S008	USRCPUT	CPU	User CPU	X	X	X	X	X	X	CPU time
DFHTASK S014	SUSPTIME	SUSPEND	Suspend	X	X	X	X	X	X	Suspend time
DFHTASK P031	TRANNUM	TASKNO	TaskNo	X	X	X	X	X	X	Transaction identification number
DFHTASK A059	ICPUINCT	ICSTART	ICSTART	X	X	X	X	X	X	Interval Control START or INITIATE requests
DFHTASK A064	TASKFLAG	ERRFLAGS	Err Flag	X	X	X	X	X	X	Task error flags
DFHTASK C064	TASKFLAG		Err Flag	X	X	X	X	X	X	Task error flags
DFHTASK A066	ICTOTCT	ICTOTAL	IC Total	-	-	X	X	X	X	Interval Control requests
DFHTASK C082	TRNGRPID		Group ID	-	-	-	X	X	X	Transaction Group ID
DFHTASK C097	NETUOWPX	NETNAME	NET Name	X	X	X	X	X	X	Originating System VTAM network name
DFHTASK C098	NETUOWSX		NETUOWID	X	X	X	X	X	X	Network Unit-of-Work ID
DFHTASK S102	DISPWTT	DISPWAIT	DispWait	X	X	X	X	X	X	Redispatch wait time
DFHTASK A109	TRANPRI	TRANPRTY	Prtty	X	X	X	X	X	X	Transaction priority

Figure 60 (Part 4 of 7). Cross-Reference - Ordered by CMF Field ID

CICS CMF Field ID	CICS PA Field	Column Heading	CICS Version						Description	
			410	510	520	530	610	620		
DFHTASK S123	GNQDELAY	GNQDELAY	GNQDelay	-	-	-	X	X	X	Global Enqueue wait time
DFHTASK C124	BRDGTRAN	BRDGTRAN	Brdg	-	-	X	X	X	X	Bridge Listener Transaction ID
DFHTASK S125	DSPDELAY	DSPDELAY	Disp1Dly	X	X	X	X	X	X	First dispatch wait time
DFHTASK S126	TCLDELAY	TCLDELAY	TCLDelay	X	X	X	X	X	X	First dispatch TCLSNAME wait time
DFHTASK S127	MXTDELAY	MXTDELAY	MXTDelay	X	X	X	X	X	X	First dispatch MXT wait time
DFHTASK S128	LMDELAY	LOCKDLAY	LM Delay	-	-	X	X	X	X	Lock Manager (LM) wait time
DFHTASK S129	ENQDELAY	ENQDELAY	ENQDelay	X	X	X	X	X	X	Local Enqueue wait time
DFHTASK C132	RMUOWID		RM UOWID	-	X	X	X	X	X	Recovery UOW ID
DFHTASK A163	FCTYNAME	FCTY	Fcty	-	X	X	X	X	X	Transaction Facility name
DFHTASK A164	TRANFLAG	FCTYTYPE	FctyType	-	X	X	X	X	X	Transaction Facility type
DFHTASK A164	TRANFLAG	ORIGIN	Origin	-	X	X	X	X	X	Transaction origin type
DFHTASK A164	TRANFLAG	TRANFLAG	TranFlag	-	X	X	X	X	X	Transaction flags
DFHTASK A164	TRANFLAG	TRANTYPE	TranType	-	X	X	X	X	X	Transaction type
DFHTASK C166	TCLSNAME	TCLASSNM	TCLSName	X	X	X	X	X	X	Transaction Class name
DFHTASK S170	RMITIME	RMITIME	RMI Elap	X	X	X	X	X	X	Resource Manager Interface (RMI) elapsed time
DFHTASK S171	RMISUSP	RMISUSP	RMI Susp	X	X	X	X	X	X	Resource Manager Interface (RMI) suspend time
DFHTASK S181	WTEXWAIT	WAITEXT	Ext Wait	-	-	X	X	X	X	External ECB wait time
DFHTASK S182	WTCEWAIT	WAITCICS	CICSWait	-	-	X	X	X	X	CICS ECB wait time
DFHTASK S183	ICDELAY	ICDELAY	IC Delay	-	-	X	X	X	X	Interval Control (IC) wait time
DFHTASK S184	GVUPWAIT	GIVEUPWT	GiveUpWt	-	-	X	X	X	X	Give up control wait time
DFHTASK C190	RRMSURID		RRMSURID	-	-	-	X	X	X	RRMS/MVS unit-of-recovery ID (URID)
DFHTASK S191	RRMSWAIT	RRMSWAIT	RRMSWait	-	-	-	X	X	X	Resource Recovery Services indoubt wait time
DFHTASK S192	RQRWAIT	RQRWAIT	RQR Wait	-	-	-	-	X	X	Request Receiver Wait Time
DFHTASK S193	RQPWAIT	RQPWAIT	RQP Wait	-	-	-	-	X	X	Request Processor Wait Time
DFHTASK C194	OTSTID		OTSTID	-	-	-	-	X	X	Object Transaction Service (OTS) transaction id
DFHTASK S195	RUNTRWTT	RUNTRWTT	BTSRunWt	-	-	-	X	X	X	BTS run Process/Activity wait time
DFHTASK A248	CHMODECT	CHMODECT	ChngMode	-	-	-	X	X	X	Change-TCB modes requests
DFHTASK S249	QRMODDLY	QRMODDLY	QRModDly	-	-	-	X	X	X	CICS QR TCB redispach wait time
DFHTASK S250	MXTOTDLY	MAXOTDLY	MaxOTDly	-	-	-	X	X	X	MAXOPENTCBS wait time
DFHTASK A251	TCBATTCT	TCBATTCT	TCBAtach	-	-	-	X	X	X	TCBs attached count
DFHTASK S253	JVMTIME	JVMTIME	JVM Elap	-	-	-	X	X	X	JVM elapsed time
DFHTASK S254	JVMSUSP	JVMSUSP	JVM Susp	-	-	-	X	X	X	JVM suspend time
DFHTASK S255	QRDISPT	QRDISPT	QR Disp	-	-	-	X	X	X	CICS QR TCB dispatch time
DFHTASK S256	QRCPUT	QRCPUT	QR CPU	-	-	-	X	X	X	CICS QR TCB CPU time
DFHTASK S257	MSDISPT	MSDISPT	MS Disp	-	-	-	X	X	X	CICS TCBs dispatch time
DFHTASK S258	MSCPUT	MSCPUT	MS CPU	-	-	-	X	X	X	CICS TCBs CPU time
DFHTASK S259	L8CPUT	L8CPU	L8 CPU	-	-	-	X	X	X	CICS L8 TCB dispatch time
DFHTASK S260	J8CPUT	J8CPU	J8 CPU	-	-	-	X	X	X	CICS J8 TCB CPU time
DFHTASK S261	S8CPUT	S8CPU	S8 CPU	-	-	-	X	X	X	CICS S8 TCB CPU time
DFHTASK S262	KY8DISPT	KY8DISPT	KY8 Disp	-	-	-	-	X	X	CICS Key 8 TCB dispatch time
DFHTASK S263	KY8CPUT	KY8CPU	KY8 CPU	-	-	-	-	X	X	CICS Key 8 TCB CPU time
DFHTASK S269	RODISPT	RODISPT	RO Disp	-	-	-	-	X	X	CICS RO TCB dispatch time
DFHTASK S270	ROCPUT	ROCPU	RO CPU	-	-	-	-	X	X	CICS RO TCB CPU time
DFHTASK S273	JVMITIME	JVMITIME	JVMITime	-	-	-	-	X	X	JVM initialize elapsed time
DFHTASK S275	JVMRTIME	JVMRTIME	JVMRTime	-	-	-	-	X	X	JVM reset elapsed time
DFHTASK S277	MAXJTDLY	MAXJTDLY	MaxJTDly	-	-	-	-	-	X	Maximum JVM TCB delay time
DFHTASK S278	MAXHTDLY	MAXHTDLY	MaxHTDly	-	-	-	-	-	X	Maximum Hot-Pooling TCB delay time
DFHTASK S285	PTPWAIT	PTPWAIT	PTP Wait	-	-	-	-	-	X	3270 Bridge Partner wait time

Figure 60 (Part 5 of 7). Cross-Reference - Ordered by CMF Field ID

Cross-Reference by CMF Field ID

CICS CMF Field ID	CICS PA Field	Column Heading	CICS Version						Description	
			410	510	520	530	610	620		
DFHTEMP S011	TSIOWTT	TSWAIT	TS Wait	X	X	X	X	X	X	VSAM TS I/O wait time
DFHTEMP A044	TSGETCT	TSGET	TSGET	X	X	X	X	X	X	Temporary Storage GET requests
DFHTEMP A046	TSPUTACT	TSPUTAUX	TSPUTAux	X	X	X	X	X	X	Auxiliary TS PUT requests
DFHTEMP A047	TSPUTMCT	TSPUTMCT	TSPUTMai	X	X	X	X	X	X	Main TS PUT requests
DFHTEMP A092	TSTOTCT	TSTOTAL	TS Total	X	X	X	X	X	X	TS Total requests
DFHTEMP S178	TSSHWAIT	TSSHWAIT	TSShWait	-	-	X	X	X	X	Asynchronous Shared TS wait time
DFHTERM C002	TERM	TERM	Term	X	X	X	X	X	X	Terminal ID
DFHTERM S009	TCIOWTT	TCWAIT	TC Wait	X	X	X	X	X	X	Terminal wait for input time
DFHTERM A034	TCMSGIN1	TCMSGIN1	MsgIn1	X	X	X	X	X	X	Messages received count
DFHTERM A035	TCMSGOU1	TCMSGOU1	MsgOut1	X	X	X	X	X	X	Messages sent count
DFHTERM A067	TCMSGIN2	TCMSGIN2	MsgIn2	X	X	X	X	X	X	Messages received from LU6.1
DFHTERM A068	TCMSGOU2	TCMSGOU2	MsgOut2	X	X	X	X	X	X	Messages sent to LU6.1
DFHTERM A069	TCALLOCT	TCALLOC	TCALLOC	X	X	X	X	X	X	TCTTE ALLOCATE requests
DFHTERM A083	TCCHRIN1	TCCHRIN1	CharIn1	X	X	X	X	X	X	Terminal characters received count
DFHTERM A084	TCCHROU1	TCCHROU1	CharOut1	X	X	X	X	X	X	Terminal characters sent count
DFHTERM A085	TCCHRIN2	TCCHRIN2	CharIn2	X	X	X	X	X	X	LU6.1 characters received count
DFHTERM A086	TCCHROU2	TCCHROU2	CharOut2	X	X	X	X	X	X	LU6.1 characters sent count
DFHTERM S100	IRIOWTT	IRWAIT	IR Wait	X	X	X	X	X	X	MRO link wait time
DFHTERM C111	LUNAME	LUNAME	LUName	X	X	X	X	X	X	VTAM logical unit name
DFHTERM S133	LU61WTT	LU61WAIT	LU61Wait	X	X	X	X	X	X	LU6.1 wait time
DFHTERM S134	LU62WTT	LU62WAIT	LU62Wait	X	X	X	X	X	X	LU6.2 wait time
DFHTERM A135	TCM62IN2	TCM62IN2	TCM62In2	X	X	X	X	X	X	LU6.2 messages received count
DFHTERM A136	TCM62OU2	TCM62OU2	TCM62Ou2	X	X	X	X	X	X	LU6.2 messages sent count
DFHTERM A137	TCC62IN2	TCC62IN2	TCC62In2	X	X	X	X	X	X	LU6.2 characters received count
DFHTERM A138	TCC62OU2	TCC62OU2	TCC62Ou2	X	X	X	X	X	X	LU6.2 characters sent count
DFHTERM A165	TERMINFO	ACCMETH	Acc Meth	-	X	X	X	X	X	Terminal Access Method
DFHTERM A165	TERMINFO	NATURE	Nature	-	X	X	X	X	X	Transaction's principal facility
DFHTERM A165	TERMINFO	SESTYPE	SessType	-	X	X	X	X	X	Terminal session type
DFHTERM A165	TERMINFO	TERMCODE	DevT	-	X	X	X	X	X	Terminal Device Type
DFHTERM A165	TERMINFO	TERMINFO	TermInfo	-	X	X	X	X	X	Terminal information
DFHTERM C169	TERMCNNM	TERMCNNM	ConnName	-	X	X	X	X	X	Terminal session Connection name
DFHTERM C197	NETID	NETID	NET ID	-	-	-	-	X	X	VTAM LUALIAS Network ID
DFHTERM C198	RLUNAME	RLUNAME	RLUNAME	-	-	-	-	X	X	VTAM LUALIAS Logical Unit name
DFHWEBB A224	WBREADCT	WBREAD	WB READ	-	-	-	-	X	X	Web READ requests
DFHWEBB A225	WBWRITCT	WBWRITE	WB WRITE	-	-	-	-	X	X	Web WRITE requests
DFHWEBB A231	WBRCVCT	WBRCV	WBRCV	-	-	-	X	X	X	Web RECEIVE requests
DFHWEBB A232	WBCHRIN	WBCHRIN	WBChrIn	-	-	-	X	X	X	Web characters received count
DFHWEBB A233	WBSENDCT	WBSEND	WBSEND	-	-	-	X	X	X	Web SEND requests
DFHWEBB A234	WBCHROUT	WBCHROUT	WBChrOut	-	-	-	X	X	X	Web characters sent count
DFHWEBB A235	WBTOTWCT	WBTOTAL	WB Total	-	-	-	X	X	X	Web Total requests
DFHWEBB A236	WBREPRCT	WBREPRCT	WBRepoRd	-	-	-	X	X	X	Shared TS Repository read requests
DFHWEBB A237	WBREPWCT	WBREPWCT	WBRepoWr	-	-	-	X	X	X	Shared TS Repository write requests
DFHWEBB A238	WBEXTRCT	WBEXTRCT	WBEXTRAC	-	-	-	-	X	X	Web EXTRACT requests
DFHWEBB A239	WBBRWCT	WBBROWSE	WBBROWSE	-	-	-	-	X	X	Web Browse requests
DBCTL C001	PSBNAME	PSBNAME	PSB Name	X	X	X	X	X	X	PSB Name
DBCTL A002	POOLWAIT	POOLWAIT	PoolWait	X	X	X	X	X	X	Elapsed wait time for Pool Space
DBCTL A003	INTCWAIT	INTCWAIT	IntCWait	X	X	X	X	X	X	Elapsed wait time for Intent Conflict
DBCTL A004	SCHTELAP	SCHTELAP	SchTElap	X	X	X	X	X	X	Elapsed time for Schedule Process
DBCTL A005	DBIOELAP	DBIOELAP	DBIOElap	X	X	X	X	X	X	Elapsed time for Database I/O
DBCTL A006	PILOCKEL	PILOCKEL	PILockEl	X	X	X	X	X	X	Elapsed time for PI Locking

Figure 60 (Part 6 of 7). Cross-Reference - Ordered by CMF Field ID

CICS CMF Field ID	CICS PA Field	Column Heading	CICS Version							Description
			410	510	520	530	610	620		
DBCTL A007	DBIOCALL	DBIOCALL	DBIOCall	X	X	X	X	X	X	Number of Database I/Os
DBCTL A008	GUCALL	GUCALL	GUcall	X	X	X	X	X	X	Number of Database GU calls issued
DBCTL A009	GNCALL	GNCALL	GNcall	X	X	X	X	X	X	Number of Database GN calls issued
DBCTL A010	GNPCALL	GNPCALL	GNPcall	X	X	X	X	X	X	Number of Database GNP calls issued
DBCTL A011	GHUCALL	GHUCALL	GHUcall	X	X	X	X	X	X	Number of Database GHU calls issued
DBCTL A012	GHNCALL	GHNCALL	GHNcall	X	X	X	X	X	X	Number of Database GHN calls issued
DBCTL A013	GHNPCALL	GHNPCALL	GHNPCall	X	X	X	X	X	X	Number of Database GHNP calls issued
DBCTL A014	ISRTCALL	ISRTCALL	ISRTcall	X	X	X	X	X	X	Number of Database ISRT calls issued
DBCTL A015	DLETCALL	DLETCALL	DLETcall	X	X	X	X	X	X	Number of Database DLET calls issued
DBCTL A016	REPLCALL	REPLCALL	REPLcall	X	X	X	X	X	X	Number of Database REPL calls issued
DBCTL A017	DLICALLS	DLICALLS	DLIcalls	X	X	X	X	X	X	Total DL/I Database calls
DBCTL A018	TESTENQS	TESTENQS	TestENQs	X	X	X	X	X	X	Number of Test Enqueues
DBCTL A019	TESTENQW	TESTENQW	TestENQW	X	X	X	X	X	X	Number of waits on Test Enqueues
DBCTL A020	TESTDEQS	TESTDEQS	TestDEQs	X	X	X	X	X	X	Number of Test Dequeues
DBCTL A021	UPDTENQS	UPDTENQS	UpdtENQs	X	X	X	X	X	X	Number of Update Enqueues
DBCTL A022	UPDTENQW	UPDTENQW	UpdtENQW	X	X	X	X	X	X	Number of waits on Update Enqueues
DBCTL A023	UPDTDEQS	UPDTDEQS	UpdtDEQs	X	X	X	X	X	X	Number of Update Dequeues
DBCTL A024	EXCLENQS	EXCLENQS	ExcLENQs	X	X	X	X	X	X	Number of Exclusive Enqueues
DBCTL A025	EXCLENQW	EXCLENQW	ExcLENQW	X	X	X	X	X	X	Number of waits on Exclusive Enqueues
DBCTL A026	EXCLDEQS	EXCLDEQS	ExcLDEQs	X	X	X	X	X	X	Number of Exclusive Dequeues
DBCTL A027	DEDBCALL	DEDBCALL	DEDBcall	X	X	X	X	X	X	Number of DEDB calls
DBCTL A028	DEDBRDOP	DEDBRDOP	DEDBRdOp	X	X	X	X	X	X	Number of DEDB read operations
DBCTL A029	OVFLBFRU	OVFLBFRU	OvflBfrU	X	X	X	X	X	X	Number of Overflow Buffers used
DBCTL A030	UOWCONTS	UOWCONTS	UOWConts	X	X	X	X	X	X	Number of UOW Contentions
DBCTL A031	DEDBBFRW	DEDBBFRW	DEDBBfrW	X	X	X	X	X	X	Number of waits for DEDB buffers
DBCTL A032	THREDCPU	THREDCPU	ThredCPU	X	X	X	X	X	X	Thread TCB CPU time

Figure 60 (Part 7 of 7). Cross-Reference - Ordered by CMF Field ID

Notes:

1. Only some of the fields can be specified in Selection Criteria (SELECT operand).
2. The fields with no CICS PA Field name cannot be specified in Report Forms (FIELD operand), typically because they are very long fields or unprintable fields like UOWs and flags.
3. DBCTL fields can only be specified if the MCT contains the DBCTL EMP defined in SDFHSAMP member DFH\$MCTD.
4. Some special fields, such as APPLID and RESPONSE, are not defined in the CMF Dictionary and are given an owner of 'CICSPA'. They are either derived from the fixed section of the CMF record (for example, APPLID), or calculated from two or more other CMF fields (for example, RESPONSE). The FILENAME field is only available when CMF transaction resource class data is being collected.
5. The DFHAPPL fields are only available when application programs invoke the application naming event monitoring points.

Appendix B. Cross-Reference by CICS PA Field Name

The following cross-reference chart relates the CICS PA names for CICS Monitoring Facility (CMF) performance class data fields to the corresponding CMF Field IDs and the CICS versions to which they apply. The CICS PA Field is the name used in Report Forms (FIELD operand) and Selection Criteria (SELECT operand). The Column Heading is that used to identify the field in CICS PA reports and extract data sets.

The chart is ordered by CICS PA Field Name.

CICS PA Field	Column Heading	CICS CMF Field ID	CICS Version						Description	
			410	510	520	530	610	620		
ABCODEC	ABcu	DFHPRPG C114	ABCODEC	X	X	X	X	X	X	Current ABEND Code
ABCODEO	ABor	DFHPRPG C113	ABCODEO	X	X	X	X	X	X	Original ABEND Code
ACCMETH	Acc Meth	DFHTERM A165	TERMINFO	-	X	X	X	X	X	Terminal Access Method
ACTVTYNM	BTSActNm	DFHCBTS C204	ACTVTYNM	-	-	-	X	X	X	BTS Activity name
APPLID	APPLID	CICSPA C903	APPLID	X	X	X	X	X	X	CICS Generic APPLID
APPLPROG	Program	DFHAPPL C001	APPLNAME	-	-	-	X	-	X	Application naming Program name
APPLRECS	APPLRECS	CICSPA A002	APPLRECS	X	X	X	X	X	X	Cross-System Application records
APPLTRAN	Tran	DFHAPPL C001	APPLNAME	-	-	-	X	-	X	Application naming Transaction ID
BAADCCT	BTSADCRq	DFHCBTS A217	BAADCCT	-	-	-	X	X	X	BTS Activity Data Containers requests
BAACQPCT	BTSAcqui	DFHCBTS A214	BAACQPCT	-	-	-	X	X	X	BTS Acquire Process/Activity requests
BADACTCT	BTS DefA	DFHCBTS A209	BADACTCT	-	-	-	X	X	X	BTS Define Activity requests
BADCPACT	BTSCancel	DFHCBTS A213	BADCPACT	-	-	-	X	X	X	BTS Cancel Process/Activity requests
BADFIECT	BTSDefEv	DFHCBTS A220	BADFIECT	-	-	-	X	X	X	BTS Define-Input Event requests
BADPROCT	BTS DefP	DFHCBTS A208	BADPROCT	-	-	-	X	X	X	BTS Define Process requests
BALKPACT	BTS Link	DFHCBTS A207	BALKPACT	-	-	-	X	X	X	BTS Link Process/Activity count
BAPRDCCT	BTSPDCRq	DFHCBTS A216	BAPRDCCT	-	-	-	X	X	X	BTS Process Data Containers requests
BARASYCT	BTS Asyn	DFHCBTS A206	BARASYCT	-	-	-	X	X	X	BTS asynchronous Process/Activity count
BARATECT	BTSRtvEv	DFHCBTS A219	BARATECT	-	-	-	X	X	X	BTS Retrieve-Reattach Event requests
BARMPACT	BTSResum	DFHCBTS A212	BARMPACT	-	-	-	X	X	X	BTS Resume Process/Activity requests
BARSPACT	BTSReset	DFHCBTS A210	BARSPACT	-	-	-	X	X	X	BTS Reset Process/Activity requests
BARSYNCT	BTS Sync	DFHCBTS A205	BARSYNCT	-	-	-	X	X	X	BTS synchronous Process/Activity count
BASUPACT	BTS Susp	DFHCBTS A211	BASUPACT	-	-	-	X	X	X	BTS Suspend Process/Activity requests
BATIAECT	BTSTimEv	DFHCBTS A221	BATIAECT	-	-	-	X	X	X	BTS TIMER Event requests
BATOTCCT	BTSTDCRq	DFHCBTS A218	BATOTCCT	-	-	-	X	X	X	BTS Process/Activity Data Container requests
BATOTECT	BTStotEv	DFHCBTS A222	BATOTECT	-	-	-	X	X	X	BTS Event-related requests
BATOTPCT	BTSTotal	DFHCBTS A215	BATOTPCT	-	-	-	X	X	X	BTS Total Process/Activity requests
BMSIN	BMSIN	DFHMAPP A051	BMSINCT	X	X	X	X	X	X	BMS IN requests
BMSMAP	BMSMAP	DFHMAPP A050	BMSMAPCT	X	X	X	X	X	X	BMS MAP requests
BMSOUT	BMSOUT	DFHMAPP A052	BMSOUTCT	X	X	X	X	X	X	BMS OUT requests
BMSTOTAL	BMSTotal	DFHMAPP A090	BMSTOTCT	X	X	X	X	X	X	BMS Total requests
BRDGTRAN	Brdg	DFHTASK C124	BRDGTRAN	-	-	X	X	X	X	Bridge Listener Transaction ID
CFCAPI	CFC1sAPI	DFHCICS A025	CFCAPICT	-	-	-	X	X	X	00 Foundation Class requests
CFDTSYNC	CFDTSync	DFHSYNC S177	SRVSYWTT	-	-	-	X	X	X	CF Data Table syncpoint wait time
CFDTWAIT	CFDTWait	DFHFILE S176	CFDTWAIT	-	-	-	X	X	X	CF Data Table access requests wait time
CHMODECT	ChngMode	DFHTASK A248	CHMODECT	-	-	-	X	X	X	Change-TCB modes requests
CLIENTIP	ClientIP	DFH SOCK C244	CLIPADDR	-	-	-	X	X	X	Client IP address
COMMWAIT	CommWait	CICSPA A906	COMMWAIT	X	X	X	X	X	X	Communications wait time
CPU	User CPU	DFHTASK S008	USRCPUT	X	X	X	X	X	X	CPU time
DBIOCALL	DBIOCall	DBCTL A007	DBIOCALL	X	X	X	X	X	X	Number of Database I/Os
DBIOELAP	DBIOElap	DBCTL A005	DBIOELAP	X	X	X	X	X	X	Elapsed time for Database I/O
DB2CONWT	DB2ConWt	DFHDATA S188	DB2CONWT	-	-	-	X	X	X	DB2 Connection wait time
DB2RDYQW	DB2ThdWt	DFHDATA S187	DB2RDYQW	-	-	-	X	X	X	DB2 Thread wait time

Figure 61 (Part 1 of 6). Cross-Reference - Ordered by CICS PA Field Name

Cross-Reference by CICS PA Field Name

CICS PA Field	Column Heading	CICS CMF Field ID	CICS Version	CICS Version						Description
				410	510	520	530	610	620	
DB2REQCT	DB2 Reqs	DFHDATA A180	DB2REQCT	-	-	-	X	X	X	DB2 requests
DB2WAIT	DB2SQLWt	DFHDATA S189	DB2WAIT	-	-	-	X	X	X	DB2 SQL/IFI wait time
DEDBBFRW	DEDBBfrW	DBCTL A031	DEDBBFRW	X	X	X	X	X	X	Number of waits for DEDB buffers
DEDBCALL	DEDBcall	DBCTL A027	DEDBCALL	X	X	X	X	X	X	Number of DEDB calls
DEDBRDOP	DEDBrdOp	DBCTL A028	DEDBRDOP	X	X	X	X	X	X	Number of DEDB read operations
DHCREATE	DHCREATE	DFHDOCH A226	DHCRECT	-	-	-	X	X	X	Document Handler CREATE requests
DHINSERT	DHINSERT	DFHDOCH A227	DHINSCT	-	-	-	X	X	X	Document Handler INSERT requests
DHRETRVE	DHRETRVE	DFHDOCH A229	DHRETCT	-	-	-	X	X	X	Document Handler RETRIEVE requests
DHSET	DHSET	DFHDOCH A228	DHSETCT	-	-	-	X	X	X	Document Handler SET requests
DHTOTAL	DH Total	DFHDOCH A230	DHTOTCT	-	-	-	X	X	X	Document Handler Total requests
DHTOTDCL	DHDocLen	DFHDOCH A240	DHTOTDCL	-	-	-	X	X	X	Total length of all documents created
DISPATCH	Dispatch	DFHTASK S007	USRDISPT	X	X	X	X	X	X	Dispatch time
DISPWAIT	DispWait	DFHTASK S102	DISPWTT	X	X	X	X	X	X	Redispatch wait time
DLETCALL	DLETcall	DBCTL A015	DLETCALL	X	X	X	X	X	X	Number of Database DLET calls issued
DLICALLS	DLIcalls	DBCTL A017	DLICALLS	X	X	X	X	X	X	Total DL/I Database calls
DPLRECS	DPLRECS	CICSPA A005	DPLRECS	X	X	X	X	X	X	Cross-System DPL records
DSPDELAY	Disp1Dly	DFHTASK S125	DSPDELAY	X	X	X	X	X	X	First dispatch wait time
ENQDELAY	ENQDelay	DFHTASK S129	ENQDELAY	X	X	X	X	X	X	Local Enqueue wait time
ERRFLAGS	Err Flag	DFHTASK A064	TASKFLAG	X	X	X	X	X	X	Task error flags
EXCLDEQS	Exc1DEQs	DBCTL A026	EXCLDEQS	X	X	X	X	X	X	Number of Exclusive Dequeues
EXCLENQS	Exc1ENQs	DBCTL A024	EXCLENQS	X	X	X	X	X	X	Number of Exclusive Enqueues
EXCLENQW	Exc1ENQW	DBCTL A025	EXCLENQW	X	X	X	X	X	X	Number of waits on Exclusive Enqueues
EXWAIT	Exc Wait	DFHCICS S103	EXWTTIME	X	X	X	X	X	X	Exception Conditions wait time
FCADD	FCADD	DFHFILE A039	FCADDCT	X	X	X	X	X	X	File ADD requests
FCAMCT	FCAMRq	DFHFILE A070	FCAMCT	X	X	X	X	X	X	File access-method requests
FCBROWSE	FCBROWSE	DFHFILE A038	FCBRWCT	X	X	X	X	X	X	File Browse requests
FCDELETE	FCDELETE	DFHFILE A040	FCDELCT	X	X	X	X	X	X	File DELETE requests
FCGET	FCGET	DFHFILE A036	FCGETCT	X	X	X	X	X	X	File GET requests
FCPUT	FCPUT	DFHFILE A037	FCPUTCT	X	X	X	X	X	X	File PUT requests
FCTOTAL	FC Total	DFHFILE A093	FCTOTCT	X	X	X	X	X	X	File Control requests
FCTY	Fcty	DFHTASK C163	FCTYNAME	-	X	X	X	X	X	Transaction Facility name
FCTYTYPE	FctyType	DFHTASK A164	TRANFLAG	-	X	X	X	X	X	Transaction Facility type
FCWAIT	FC Wait	DFHFILE S063	FCIOWTT	X	X	X	X	X	X	File I/O wait time
FILENAME	File	CICSPA C916	FILENAME	-	-	-	X	-	X	File name
FUNCSHIP	FUNCSHIP	CICSPA A004	FUNCSHIP	X	X	X	X	X	X	Cross-System Function Shipping records
GHNCALL	GHNcall	DBCTL A012	GHNCALL	X	X	X	X	X	X	Number of Database GHN calls issued
GHNPCALL	GHNpCall	DBCTL A013	GHNPCALL	X	X	X	X	X	X	Number of Database GHNP calls issued
GHUCALL	GHUcall	DBCTL A011	GHUCALL	X	X	X	X	X	X	Number of Database GHU calls issued
GIVEUPWT	GiveUpWt	DFHTASK S184	GVUPWAIT	-	-	X	X	X	X	Give up control wait time
GNCALL	GNcall	DBCTL A009	GNCALL	X	X	X	X	X	X	Number of Database GN calls issued
GNPCALL	GNPcall	DBCTL A010	GNPCALL	X	X	X	X	X	X	Number of Database GNP calls issued
GNQDELAY	GNQDelay	DFHTASK S123	GNQDELAY	-	-	-	X	X	X	Global Enqueue wait time
GUCALL	GUcall	DBCTL A008	GUCALL	X	X	X	X	X	X	Number of Database GU calls issued
ICDELAY	IC Delay	DFHTASK S183	ICDELAY	-	-	X	X	X	X	Interval Control (IC) wait time
ICSTART	ICSTART	DFHTASK A059	ICPUINCT	X	X	X	X	X	X	Interval Control START or INITIATE requests
ICTOTAL	IC Total	DFHTASK A066	ICTOTCT	-	-	X	X	X	X	Interval Control requests
IMSREQCT	IMS Reqs	DFHDATA A179	IMSREQCT	-	-	-	X	X	X	IMS (DBCTL) requests
IMSWAIT	IMS Wait	DFHDATA S186	IMSWAIT	-	-	-	X	X	X	IMS (DBCTL) wait time
INTCWAIT	IntcWait	DBCTL A003	INTCWAIT	X	X	X	X	X	X	Elapsed wait time for Intent Conflict
IOWAIT	IO Wait	CICSPA A907	IOWAIT	X	X	X	X	X	X	Total I/O wait time
IRESP	IResp	CICSPA A908	IRESP	X	X	X	X	X	X	Transaction internal response time
IRWAIT	IR Wait	DFHTERM S100	IRIOWTT	X	X	X	X	X	X	MRO link wait time
ISRTCALL	ISRTcall	DBCTL A014	ISRTCALL	X	X	X	X	X	X	Number of Database ISRT calls issued
JCWAIT	JC Wait	DFHJOUR S010	JCIOWTT	X	X	X	X	X	X	Journal I/O wait time
JNLWRITE	JnlWrite	DFHJOUR A058	JNLWRTCT	X	X	X	X	X	X	Journal write requests

Figure 61 (Part 2 of 6). Cross-Reference - Ordered by CICS PA Field Name

Cross-Reference by CICS PA Field Name

CICS PA Field	Column Heading	CICS CMF Field ID	CICS Version						Description	
			410	510	520	530	610	620		
JOBNAME	Jobname	CICSPA C905	JOBNAME	X	X	X	X	X	X	Job Name
JVMITIME	JVMITime	DFHTASK S273	JVMITIME	-	-	-	-	X	X	JVM initialize elapsed time
JVMMTIME	JVM Meth	CICSPA S910	JVMMTIME	-	-	-	-	X	X	JVM Method time
JVMRTIME	JVMRTIME	DFHTASK S275	JVMRTIME	-	-	-	-	X	X	JVM reset elapsed time
JVMSUSP	JVM Susp	DFHTASK S254	JVMSUSP	-	-	-	X	X	X	JVM suspend time
JVMTIME	JVM Elap	DFHTASK S253	JVMTIME	-	-	-	X	X	X	JVM elapsed time
J8CPU	J8 CPU	DFHTASK S260	J8CPUT	-	-	-	X	X	X	CICS J8 TCB CPU time
KY8CPU	KY8 CPU	DFHTASK S263	KY8CPUT	-	-	-	-	X	X	CICS Key 8 TCB CPU time
KY8DISPT	KY8 Disp	DFHTASK S262	KY8DISPT	-	-	-	-	X	X	CICS Key 8 TCB dispatch time
LOCKDLAY	LM Delay	DFHTASK S128	LMDELAY	-	-	X	X	X	X	Lock Manager (LM) wait time
LOGWRITE	LogWrite	DFHJOUR A172	LOGWRTCT	-	X	X	X	X	X	Log Stream write requests
LUNAME	LUName	DFHTERM C111	LUNAME	X	X	X	X	X	X	VTAM logical unit name
LU61WAIT	LU61Wait	DFHTERM S133	LU61WTT	X	X	X	X	X	X	LU6.1 wait time
LU62WAIT	LU62Wait	DFHTERM S134	LU62WTT	X	X	X	X	X	X	LU6.2 wait time
L8CPU	L8 CPU	DFHTASK S259	L8CPUT	-	-	-	X	X	X	CICS L8 TCB dispatch time
MAXHTDLY	MaxHTDly	DFHTASK S278	MAXHTDLY	-	-	-	-	-	X	Maximum Hot-Pooling TCB delay time
MAXJTDLY	MaxJTDly	DFHTASK S277	MAXJTDLY	-	-	-	-	-	X	Maximum JVM TCB delay time
MAXOTDLY	MaxOTDly	DFHTASK S250	MXTOTDLY	-	-	-	X	X	X	MAXOPENTCBS wait time
MSCPU	MS CPU	DFHTASK S258	MSCPUT	-	-	-	X	X	X	CICS TCBS CPU time
MSDISPT	MS Disp	DFHTASK S257	MSDISPT	-	-	-	X	X	X	CICS TCBS dispatch time
MVSID	MVS ID	CICSPA C904	MVSID	X	X	X	X	X	X	MVS SMF ID
MXTDELAY	MXTDelay	DFHTASK S127	MXTDELAY	X	X	X	X	X	X	First dispatch MXT wait time
NATURE	Nature	DFHTERM A165	TERMINFO	-	X	X	X	X	X	Transaction's principal facility
NETID	NET ID	DFHTERM C197	NETID	-	-	-	-	X	X	VTAM LUALIAS Network ID
NETNAME	NET Name	DFHTASK C097	NETUOWPX	X	X	X	X	X	X	Originating System VTAM network name
ORIGIN	Origin	DFHTASK A164	TRANFLAG	-	X	X	X	X	X	Transaction origin type
OSOWAIT	OSO Wait	DFH SOCK S299	S00IOWTT	-	-	-	-	X	X	Outbound Socket I/O Wait Time
OTSINDWT	OTSIndWt	DFHSYNC S199	OTSINDWT	-	-	-	-	-	X	OTS Indoubt Wait time
OVFLBFRU	OvflBfrU	DBCTL A029	OVFLBFRU	X	X	X	X	X	X	Number of Overflow Buffers used
PCDPL	PCDPLINK	DFHPRG A073	PCDPLCT	-	-	-	X	X	X	Distributed Program Link (DPL) requests
PCLINK	PCLINK	DFHPRG A055	PCLINKCT	X	X	X	X	X	X	Program LINK requests
PCLOAD	PCLOAD	DFHPRG A057	PCLOADCT	X	X	X	X	X	X	Program LOAD requests
PCLOADTM	PCLOADWt	DFHPRG S115	PCLOADTM	X	X	X	X	X	X	Program Library wait time
PCLURM	PCLNKURM	DFHPRG A072	PCLURMCT	-	-	X	X	X	X	Program LINK URM requests
PCSTGHWM	PCStGHWM	DFHSTOR A087	PCSTGHWM	X	X	X	X	X	X	Program Storage HWM above and below 16MB
PCXCTL	PCXCTL	DFHPRG A056	PCXCTLCT	X	X	X	X	X	X	Program XCTL requests
PC24BHW	PC24BHW	DFHSTOR A108	PC24BHW	X	X	X	X	X	X	Program Storage HWM below 16MB
PC24CHWM	PC24CHWM	DFHSTOR A143	PC24CHWM	X	X	X	X	X	X	Program Storage (CDSA) HWM below 16MB
PC24RHWM	PC24RHWM	DFHSTOR A162	PC24RHWM	X	X	X	X	X	X	Program Storage (RDSA) HWM below 16MB
PC24SHWM	PC24SHWM	DFHSTOR A160	PC24SHWM	X	X	X	X	X	X	Program Storage (SDSA) HWM below 16MB
PC31AHWM	PC31aHWM	DFHSTOR A139	PC31AHWM	X	X	X	X	X	X	Program Storage HWM above 16MB
PC31CHWM	PC31CHWM	DFHSTOR A142	PC31CHWM	X	X	X	X	X	X	Program Storage (ECDSA) HWM above 16MB
PC31RHWM	PC31RHWM	DFHSTOR A122	PC31RHWM	X	X	X	X	X	X	Program Storage (ERDSA) HWM above 16MB
PC31SHWM	PC31SHWM	DFHSTOR A161	PC31SHWM	X	X	X	X	X	X	Program Storage (ESDSA) HWM above 16MB
PILOCKEL	PILockEl	DBCTL A006	PILOCKEL	X	X	X	X	X	X	Elapsed time for PI Locking
POOLWAIT	PoolWait	DBCTL A002	POOLWAIT	X	X	X	X	X	X	Elapsed wait time for Pool Space
PORT	PORT	DFH SOCK A246	PORTNUM	-	-	-	-	X	X	TCP/IP Port Number
PRCSNAME	BTS Proc	DFHCBTS C200	PRCSNAME	-	-	-	X	X	X	BTS Process name
PRCSTYPE	BTS PTyp	DFHCBTS C201	PRCSTYPE	-	-	-	X	X	X	BTS Process type
PROGRAM	Program	DFHPRG C071	PGMNAME	X	X	X	X	X	X	Program name
PSBNAME	PSB Name	DBCTL C001	PSBNAME	X	X	X	X	X	X	PSB Name
PTPWAIT	PTP Wait	DFHTASK S285	PTPWAIT	-	-	-	-	-	X	3270 Bridge Partner wait time
QRCPU	QR CPU	DFHTASK S256	QRCPUT	-	-	-	X	X	X	CICS QR TCB CPU time
QRDISPT	QR Disp	DFHTASK S255	QRDISPT	-	-	-	X	X	X	CICS QR TCB dispatch time
QRMODDLY	QRModDly	DFHTASK S249	QRMODDLY	-	-	-	X	X	X	CICS QR TCB redispach wait time

Figure 61 (Part 3 of 6). Cross-Reference - Ordered by CICS PA Field Name

Cross-Reference by CICS PA Field Name

CICS PA Field	Column Heading	CICS CMF Field ID	CICS Version						Description	
			410	510	520	530	610	620		
RECCOUNT	RecCount	DFHCICS A131	PERRECNT	X	X	X	X	X	X	Task Performance record count
RELEASE	RLs	CICSPA C909	RELEASE	X	X	X	X	X	X	CICS release
REPLCALL	REPLcall	DBCTL A016	REPLCALL	X	X	X	X	X	X	Number of Database REPL calls issued
RESPONSE	Response	CICSPA A901	RESP	X	X	X	X	X	X	Transaction response time
RLSCPU	RLS CPU	DFHFILE S175	RLSCPUT	-	X	X	X	X	X	RLS File Request CPU (SRB) time
RLSWAIT	RLS Wait	DFHFILE S174	RLSWAIT	-	X	X	X	X	X	RLS File I/O wait time
RLUNAME	RLUNAME	DFHTERM C198	RLUNAME	-	-	-	-	X	X	VTAM LUALIAS Logical Unit name
RMIOther	RMIOther	CICSPA S911	RMIOther	X	X	X	X	X	X	Resource Manager Interface (RMI) other time
RMISUSP	RMI Susp	DFHTASK S171	RMISUSP	X	X	X	X	X	X	Resource Manager Interface (RMI) suspend time
RMITIME	RMI Elap	DFHTASK S170	RMITIME	X	X	X	X	X	X	Resource Manager Interface (RMI) elapsed time
ROCPU	RO CPU	DFHTASK S270	ROCPUT	-	-	-	-	-	X	CICS RO TCB CPU time
RODISPT	RO Disp	DFHTASK S269	RODISPT	-	-	-	-	-	X	CICS RO TCB dispatch time
RPTCLASS	WLMRptCl	DFHCICS C168	RPTCLASS	-	X	X	X	X	X	WLM Report Class
RQPWAIT	RQP Wait	DFHTASK S193	RQPWAIT	-	-	-	-	X	X	Request Processor Wait Time
RQRWAIT	RQR Wait	DFHTASK S192	RQRWAIT	-	-	-	-	X	X	Request Receiver Wait Time
RRMSWAIT	RRMSWait	DFHTASK S191	RRMSWAIT	-	-	-	X	X	X	Resource Recovery Services indoubt wait time
RSYSID	RSID	DFHCICS C130	RSYSID	X	X	X	X	X	X	Remote System ID
RTYPE	RType	DFHCICS C112	RTYPE	X	X	X	X	X	X	Performance record type
RUNTRWTT	BTSRunWt	DFHTASK S195	RUNTRWTT	-	-	-	X	X	X	BTS run Process/Activity wait time
SCHTELAP	SchTElap	DBCTL A004	SCHTELAP	X	X	X	X	X	X	Elapsed time for Schedule Process
SC24CGET	SC24CGet	DFHSTOR A117	SCCGETCT	X	X	X	X	X	X	CDSA GETMAINS below 16MB
SC24CHWM	SC24CHWM	DFHSTOR A116	SC24CHWM	X	X	X	X	X	X	CDSA HWM below 16MB
SC24COCC	SC24COcc	DFHSTOR A118	SC24COCC	X	X	X	X	X	X	CDSA Storage Occupancy below 16MB
SC24FSHR	SC24FShr	DFHSTOR A146	SC24FSHR	-	X	X	X	X	X	CDSA/SDSA storage FREEMAINED below 16MB
SC24GSHR	SC24GShr	DFHSTOR A145	SC24GSHR	-	X	X	X	X	X	CDSA/SDSA storage GETMAINED below 16MB
SC24SGET	SC24SGet	DFHSTOR A144	SC24SGCT	-	X	X	X	X	X	CDSA/SDSA GETMAINS below 16MB
SC24UGET	SC24UGet	DFHSTOR A054	SCUGETCT	X	X	X	X	X	X	UDSA GETMAINS below 16MB
SC24UHWM	SC24UHWM	DFHSTOR A033	SCUSRHWM	X	X	X	X	X	X	UDSA HWM below 16MB
SC24UOCC	SC24UOcc	DFHSTOR A095	SCUSRSTG	X	X	X	X	X	X	UDSA Storage Occupancy below 16MB
SC31CGET	SC31CGet	DFHSTOR A120	SCCGETCT	X	X	X	X	X	X	ECDSA GETMAINS above 16MB
SC31CHWM	SC31CHWM	DFHSTOR A119	SC31CHWM	X	X	X	X	X	X	ECDSA HWM above 16MB
SC31COCC	SC31COcc	DFHSTOR A121	SC31COCC	X	X	X	X	X	X	ECDSA Storage Occupancy above 16MB
SC31FSHR	SC31FShr	DFHSTOR A148	SC31FSHR	-	X	X	X	X	X	ECDSA/ESDSA storage FREEMAINED above 16MB
SC31GSHR	SC31GShr	DFHSTOR A149	SC31GSHR	-	X	X	X	X	X	ECDSA/ESDSA storage GETMAINED above 16MB
SC31SGET	SC31SGet	DFHSTOR A147	SC31SGCT	-	X	X	X	X	X	ECDSA/ESDSA GETMAINS above 16MB
SC31UGET	SC31UGet	DFHSTOR A105	SCUGETCT	X	X	X	X	X	X	EUDSA GETMAINS above 16MB
SC31UHWM	SC31UHWM	DFHSTOR A106	SCUSRHWM	X	X	X	X	X	X	EUDSA HWM above 16MB
SC31UOCC	SC31UOcc	DFHSTOR A107	SCUCRSTG	X	X	X	X	X	X	EUDSA Storage Occupancy above 16MB
SESSTYPE	SessType	DFHTERM A165	TERMINFO	-	X	X	X	X	X	Terminal session type
SOBYDECT	SockDcry	DFH SOCK A243	SOBYDECT	-	-	-	X	X	X	Secure Socket bytes decrypted count
SOBYENCT	SockEcry	DFH SOCK A242	SOBYENCT	-	-	-	X	X	X	Secure Socket bytes encrypted count
SOCHRIN	SOChrIn	DFH SOCK A295	SOCHRIN	-	-	-	-	X	X	Outbound Sockets characters received count
SOCHRIN1	SOChrIn1	DFH SOCK A302	SOCHRIN1	-	-	-	-	-	X	Inbound Sockets characters received count
SOCHROUT	SOChrOut	DFH SOCK A297	SOCHROUT	-	-	-	-	X	X	Outbound Sockets characters sent count
SOCHROU1	SOChrOu1	DFH SOCK A304	SOCHROU1	-	-	-	-	-	X	Inbound Sockets characters sent count
SOCNPST	SOCNPSRq	DFH SOCK A290	SOCNPST	-	-	-	-	X	X	Create Non-Persistent Outbound Socket requests
SOCPSCT	SOCPSReq	DFH SOCK A291	SOCPSCT	-	-	-	-	X	X	Create Persistent Outbound Socket requests
SOEXTRCT	SOEXTRAC	DFH SOCK A289	SOEXTRCT	-	-	-	-	X	X	EXTRACT TCP/IP and CERTIFICATE requests
SOMSGIN1	SOMsgIn1	DFH SOCK A301	SOMSGIN1	-	-	-	-	-	X	Inbound Sockets RECEIVE requests
SOMSGOU1	SOMsgOu1	DFH SOCK A303	SOMSGOU1	-	-	-	-	-	X	Inbound Sockets SEND requests
SONPSHWM	SONPSHWM	DFH SOCK A292	SONPSHWM	-	-	-	-	X	X	Non-Persistent Outbound Socket HWM
SOPSHWM	SOPSHWM	DFH SOCK A293	SOPSHWM	-	-	-	-	X	X	Persistent Outbound Socket HWM
SORCV	SO Recv	DFH SOCK A294	SORCVCT	-	-	-	-	X	X	Outbound Sockets RECEIVE requests
SOSEND	SO SEND	DFH SOCK A296	SOSENDCT	-	-	-	-	X	X	Outbound Sockets SEND requests
SOTOTAL	SOTotal	DFH SOCK A298	SOTOTCT	-	-	-	-	X	X	Socket Total requests
SOWAIT	SockWait	DFH SOCK S241	SOIOWTT	-	-	-	X	X	X	Inbound Socket I/O wait time

Figure 61 (Part 4 of 6). Cross-Reference - Ordered by CICS PA Field Name

Cross-Reference by CICS PA Field Name

CICS PA Field	Column Heading	CICS CMF Field ID	CICS Version						Description	
			410	510	520	530	610	620		
SRVCLASS	WLMsrvc1	DFHCICS C167	SRVCLASS	-	X	X	X	X	X	WLM Service Class
START	Start	DFHCICS T005	START	X	X	X	X	X	X	Task start time
STOP	Stop	DFHCICS T006	STOP	X	X	X	X	X	X	Task stop time
STYPE	SC	DFHTASK C004	T	X	X	X	X	X	X	Transaction start type
SUSPEND	Suspend	DFHTASK S014	SUSPTIME	X	X	X	X	X	X	Suspend time
SYNCDLY	SYNC Dly	DFHSYNC S196	SYNCDLY	-	-	-	X	X	X	SYNCPPOINT parent request wait time
SYNCPT	SYNCPT	DFHSYNC A060	SPSYNCCT	X	X	X	X	X	X	SYNCPPOINT requests
SYNCTIME	SYNCProc	DFHSYNC S173	SYNCTIME	-	X	X	X	X	X	SYNCPPOINT processing time
SZALLCTO	SZAllocTO	DFHFPEI A157	SZALLCTO	X	X	X	X	X	X	Allocate conversation time-out count
SZALLOC	SZALLOC	DFHFPEI A150	SZALLOCT	X	X	X	X	X	X	Conversations allocated count
SZCHRIN	SZChrIn	DFHFPEI A155	SZCHRIN	X	X	X	X	X	X	FEPI characters received count
SZCHROUT	SZChrOut	DFHFPEI A154	SZCHROUT	X	X	X	X	X	X	FEPI characters sent count
SZRCV	SZRCV	DFHFPEI A151	SZRCVCT	X	X	X	X	X	X	FEPI RECEIVE requests
SZRCVTO	SZRecvTO	DFHFPEI A158	SZRCVTO	X	X	X	X	X	X	Receive Data time-out count
SZSEND	ZSEND	DFHFPEI A152	SZSENDCT	X	X	X	X	X	X	FEPI SEND requests
SZSTART	SZSTART	DFHFPEI A153	SZSTRTCT	X	X	X	X	X	X	FEPI START requests
SZTOTAL	SZ Total	DFHFPEI A159	SZTOTCT	X	X	X	X	X	X	FEPI API and SPI requests
SZWAIT	SZ Wait	DFHFPEI A156	SZWAIT	X	X	X	X	X	X	FEPI services wait time
S8CPU	S8 CPU	DFHTASK S261	S8CPUT	-	-	-	X	X	X	CICS S8 TCB CPU time
TASKCNT	Tasks	CICSPA X902	TASKCNT	X	X	X	X	X	X	Total Task count
TASKNO	TaskNo	DFHTASK P031	TRANNUM	X	X	X	X	X	X	Transaction identification number
TCALLOC	TCALLOC	DFHTERM A069	TCALLOCT	X	X	X	X	X	X	TCTTE ALLOCATE requests
TCBATTCT	TCBAtach	DFHTASK A251	TCBATTCT	-	-	-	X	X	X	TCBs attached count
TCCHRIN1	CharIn1	DFHTERM A083	TCCHRIN1	X	X	X	X	X	X	Terminal characters received count
TCCHRIN2	CharIn2	DFHTERM A085	TCCHRIN2	X	X	X	X	X	X	LU6.1 characters received count
TCCHROU1	CharOut1	DFHTERM A084	TCCHROU1	X	X	X	X	X	X	Terminal characters sent count
TCCHROU2	CharOut2	DFHTERM A086	TCCHROU2	X	X	X	X	X	X	LU6.1 characters sent count
TCC62IN2	TCC62In2	DFHTERM A137	TCC62IN2	X	X	X	X	X	X	LU6.2 characters received count
TCC62OU2	TCC62Ou2	DFHTERM A138	TCC62OU2	X	X	X	X	X	X	LU6.2 characters sent count
TCLASSNM	TCLSName	DFHTASK C166	TCLSNAME	X	X	X	X	X	X	Transaction Class name
TCLDELAY	TCLDelay	DFHTASK S126	TCLDELAY	X	X	X	X	X	X	First dispatch TCLSNAME wait time
TCMSGIN1	MsgIn1	DFHTERM A034	TCMSGIN1	X	X	X	X	X	X	Messages received count
TCMSGIN2	MsgIn2	DFHTERM A067	TCMSGIN2	X	X	X	X	X	X	Messages received from LU6.1
TCMSGOU1	MsgOut1	DFHTERM A035	TCMSGOU1	X	X	X	X	X	X	Messages sent count
TCMSGOU2	MsgOut2	DFHTERM A068	TCMSGOU2	X	X	X	X	X	X	Messages sent to LU6.1
TCM62IN2	TCM62In2	DFHTERM A135	TCM62IN2	X	X	X	X	X	X	LU6.2 messages received count
TCM62OU2	TCM62Ou2	DFHTERM A136	TCM62OU2	X	X	X	X	X	X	LU6.2 messages sent count
TCPSRVCE	TCIPSRv	DFH SOCK C245	TCPSRVCE	-	-	-	-	X	X	TCP/IP Service Name
TCWAIT	TC Wait	DFHTERM S009	TCIOWTT	X	X	X	X	X	X	Terminal wait for input time
TDGET	TDGET	DFHDEST A041	TDGETCT	X	X	X	X	X	X	Transient data GET requests
TDPURGE	TDPURGE	DFHDEST A043	TDPURCT	X	X	X	X	X	X	Transient data PURGE requests
TDPUT	TDPUT	DFHDEST A042	TDPUTCT	X	X	X	X	X	X	Transient data PUT requests
TDTOTAL	TD Total	DFHDEST A091	TDTOTCT	X	X	X	X	X	X	Transient data Total requests
TDWAIT	TD Wait	DFHDEST S101	TDIOWTT	X	X	X	X	X	X	VSAM transient data I/O wait time
TERM	Term	DFHTERM C002	TERM	X	X	X	X	X	X	Terminal ID
TERMCNNM	ConnName	DFHTERM C169	TERMCNNM	-	X	X	X	X	X	Terminal session Connection name
TERMCODE	DevT	DFHTERM A165	TERMINFO	-	X	X	X	X	X	Terminal Device Type
TERMINFO	TermInfo	DFHTERM A165	TERMINFO	-	X	X	X	X	X	Terminal information
TESTDEQS	TestDEQs	DBCTL A020	TESTDEQS	X	X	X	X	X	X	Number of Test Dequeues
TESTENQS	TestENQs	DBCTL A018	TESTENQS	X	X	X	X	X	X	Number of Test Enqueues
TESTENQW	TestENQW	DBCTL A019	TESTENQW	X	X	X	X	X	X	Number of waits on Test Enqueues
THREDCPU	ThredCPU	DBCTL A032	THREDCPU	X	X	X	X	X	X	Thread TCB CPU time
TOTRECS	TOTRECS	CICSPA A001	TOTRECS	X	X	X	X	X	X	Cross-System Total record count
TRAN	Tran	DFHTASK C001	TRAN	X	X	X	X	X	X	Transaction identifier
TRANFLAG	TranFlag	DFHTASK A164	TRANFLAG	-	X	X	X	X	X	Transaction flags

Figure 61 (Part 5 of 6). Cross-Reference - Ordered by CICS PA Field Name

CICS PA Field	Column Heading	CICS CMF Field ID	CICS Version							Description
			410	510	520	530	610	620		
TRANPRTY	Prty	DFHTASK A109	TRANPRI	X	X	X	X	X	X	Transaction priority
TRANROUT	TRANROUT	CICSPA A003	TRANROUT	X	X	X	X	X	X	Cross-System Transaction Routing records
TRANATYPE	TranType	DFHTASK A164	TRANFLAG	-	X	X	X	X	X	Transaction type
TSGET	TSGET	DFHTEMP A044	TSGETCT	X	X	X	X	X	X	Temporary Storage GET requests
TSPUTAUX	TSPUTAux	DFHTEMP A046	TSPUTACT	X	X	X	X	X	X	Auxiliary TS PUT requests
TSPUTMCT	TSPUTMai	DFHTEMP A047	TSPUTMCT	X	X	X	X	X	X	Main TS PUT requests
TSSHWAIT	TSShWait	DFHTEMP S178	TSSHWAIT	-	-	X	X	X	X	Asynchronous Shared TS wait time
TSTOTAL	TS Total	DFHTEMP A092	TSTOTCT	X	X	X	X	X	X	TS Total requests
TSWAIT	TS Wait	DFHTEMP S011	TSIOWTT	X	X	X	X	X	X	VSAM TS I/O wait time
UOWCONTS	UOWConts	DBCTL A030	UOWCONTS	X	X	X	X	X	X	Number of UOW Contentions
UOWID	UOW ID	CICSPA C912	UOWID	X	X	X	X	X	X	Network unit-of-work ID
UOWSEQ	UOW SeqNo	CICSPA C913	UOWSEQ	X	X	X	X	X	X	Network unit-of-work Sequence Number
UPDTDEQS	UpdtDEQs	DBCTL A023	UPDTDEQS	X	X	X	X	X	X	Number of Update Dequeues
UPDTENQS	UpdtENQs	DBCTL A021	UPDTENQS	X	X	X	X	X	X	Number of Update Enqueues
UPDTENQW	UpdtENQW	DBCTL A022	UPDTENQW	X	X	X	X	X	X	Number of waits on Update Enqueues
USERID	Userid	DFHCICS C089	USERID	X	X	X	X	X	X	User ID
WAITCICS	CICSWait	DFHTASK S182	WTCEWAIT	-	-	X	X	X	X	CICS ECB wait time
WAITEXT	Ext Wait	DFHTASK S181	WTXWAIT	-	-	X	X	X	X	External ECB wait time
WBBROWSE	WBBROWSE	DFHWEBB A239	WBBRWCT	-	-	-	-	X	X	Web Browse requests
WBCHRIN	WBChrIn	DFHWEBB A232	WBCHRIN	-	-	-	X	X	X	Web characters received count
WBCHROUT	WBChrOut	DFHWEBB A234	WBCHROUT	-	-	-	X	X	X	Web characters sent count
WBEXTRCT	WBEXTRAC	DFHWEBB A238	WBEXTRCT	-	-	-	-	X	X	Web EXTRACT requests
WBRCV	WBRCV	DFHWEBB A231	WBRCVCT	-	-	-	X	X	X	Web RECEIVE requests
WBREAD	WB READ	DFHWEBB A224	WBREADCT	-	-	-	-	X	X	Web READ requests
WBREPRCT	WBRepoRd	DFHWEBB A236	WBREPRCT	-	-	-	X	X	X	Shared TS Repository read requests
WBREPWCT	WBRepoWr	DFHWEBB A237	WBREPWCT	-	-	-	X	X	X	Shared TS Repository write requests
WSEND	WSEND	DFHWEBB A233	WSENDCT	-	-	-	X	X	X	Web SEND requests
WBTOTAL	WB Total	DFHWEBB A235	WBTOTWCT	-	-	-	X	X	X	Web Total requests
WBWRITE	WB WRITE	DFHWEBB A225	WBWRITCT	-	-	-	-	X	X	Web WRITE requests
	BTS Root	DFHCBTS C202	PRCSID	-	-	-	X	X	X	BTS Root Activity identifier
	BTSActID	DFHCBTS C203	ACTVTYID	-	-	-	X	X	X	BTS Activity identifier
	Err Flag	DFHTASK C064	TASKFLAG	X	X	X	X	X	X	Task error flags
	Group ID	DFHTASK C082	TRNGRPID	-	-	-	X	X	X	Transaction Group ID
	NETUOWID	DFHTASK C098	NETUOWSX	X	X	X	X	X	X	Network Unit-of-Work ID
	OTSTID	DFHTASK C194	OTSTID	-	-	-	-	X	X	Object Transaction Service (OTS) transaction id
	RM UOWID	DFHTASK C132	RMUOWID	-	X	X	X	X	X	Recovery UOW ID
	RRMSURID	DFHTASK C190	RRMSURID	-	-	-	X	X	X	RRMS/MVS unit-of-recovery ID (URID)

Figure 61 (Part 6 of 6). Cross-Reference - Ordered by CICS PA Field Name

Notes:

1. Only some of the fields can be specified in Selection Criteria (SELECT operand).
2. The fields with no CICS PA Field name cannot be specified in Report Forms (FIELD operand), typically because they are very long fields or unprintable fields like UOWs and flags.
3. Some special fields, such as APPLID and RESPONSE, are not defined in the CMF Dictionary and are given an owner of 'CICSPA'. They are either derived from the fixed section of the CMF record (for example, APPLID), or calculated from two or more other CMF fields (for example, RESPONSE). The FILENAME field is only available when CMF transaction resource class data is being collected.
4. The APPLTRAN and APPLPROG fields are only available when application programs invoke the application naming event monitoring points.

Appendix C. Notices

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Glossary of CICSPA Command Operands and Fields

This glossary lists all the operands, suboperands, and fields used with the **CICSPA** command.

A

ABCODEC. Performance field used with the **FIELDS** and **SELECT** operands; contains the current abend code.

ABCODEO. Performance field used with the **FIELDS** and **SELECT** operands; contains the original abend code.

ACCMETH. Performance field used with the **FIELDS** operand; contains the access method defined for the terminal ID or session ID in the **TERM** field (owner: **DFHTERM**, field id: 002).

ACTIVE. Suboperand used with **SELECT(PERFORMANCE** and **SELECT(EXCEPTION** to select long-running (active) transactions. Requires a report interval to be specified using **FROM** and **TO**.

ACTVTYNM. Performance field used with the **FIELDS** operand; contains the name of the CICS BTS activity.

APPLID. Control operand (global or report-level); specifies the application identifier(s) of the CICS system(s) whose data you want to process.

| **APPLPROG.** CMF ID: **APPLNAME DFHAPPL C001**.
 | Performance field used with the **FIELDS** and **SELECT**
 | operands; contains the Application naming Program
 | name (bytes 5 to 12 of the **DFHAPPL** field
 | **APPLNAME**).

APPLRECS. CICS PA ID: **APPLRECS CICSPA A002**.
 Performance field used with the **FIELDS** operand; contains the number of Application records in this Network Unit-of-Work Extract record. All Cross-System Work Extract records include this User Field counter.

| **APPLTRAN.** CMF ID: **APPLNAME DFHAPPL C001**.
 | Performance field used with the **FIELDS** and **SELECT**
 | operands; contains the Application naming Transaction
 | ID (bytes 1 to 4 of the **DFHAPPL** field **APPLNAME**).

AVE. Suboperand used with **SUMMARY(FIELDS;** requests the average value of a count or clock field.

B

BAACDCCT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS delete, get, and put activity data container requests.

BAACQPCT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS acquire process and acquire activity requests.

BADACTCT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS define activity requests.

BADCPACT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS delete activity, cancel process, and cancel activity requests.

BADFIECT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS define input event requests.

BADPROCT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS defined process requests.

BALKPACT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS link process and link activity requests.

BAPRDCCT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS delete, get, and put process data container requests.

BARASYCT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS run **ACQPROCESS** and run activity asynchronous requests.

BARATECT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS retrieve reattach requests.

BARMPACT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS resume process and resume activity requests.

BARSPACT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS BTS reset process and reset activity requests.

BARSYNCT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of CICS

BTS run ACQPROCESS and run activity synchronous requests.

BASUPACT. Performance field used with the FIELDS and SELECT operands; contains the number of CICS BTS suspend process and suspend activity requests.

BATIAECT. Performance field used with the FIELDS and SELECT operands; contains the number of CICS BTS timer associated requests.

BATOTCCT. Performance field used with the FIELDS and SELECT operands; contains the total number of CICS BTS process container and activity container requests.

BATOTECT. Performance field used with the FIELDS and SELECT operands; contains the total number of CICS BTS event related requests.

BATOTPCT. Performance field used with the FIELDS and SELECT operands; contains the total number of CICS BTS process and activity requests

BMSIN. Performance field used with the FIELDS and SELECT operands; contains the number of BMS IN requests.

BMSMAP. Performance field used with the FIELDS and SELECT operands; contains the number of BMS MAP requests.

BMSOUT. Performance field used with the FIELDS and SELECT operands; contains the number of BMS OUT requests.

BMSTOTAL. Performance field used with the FIELDS and SELECT operands; contains the total number of BMS requests issued.

BRDGTRAN. Performance field used with the FIELDS and SELECT operands; contains the name of the bridge listener transaction.

BTS. Report operand used to request the BTS (CICS Business Transaction Services) Report.

BY. (1) Suboperand used with the LISTX operand; specifies the performance record sort sequence on the Performance List Extended Report. (2) Suboperand used with the SUMMARY operand; specifies the summarization order on the Performance Summary Report.

C

CFCAPICT. Performance field used with the FIELDS and SELECT operands; contains the number of CICS OO Foundation class requests, including the Java API for CICS (JCICS) classes.

CFDTSLOT. Exception field used with the SELECT operand; contains the name of the coupling facility data table that incurred a wait for a locking or non-locking request slot.

CFDTSYNC. Performance field used with the FIELDS and SELECT operands; contains CF (coupling facility) data table syncpoint wait time. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

CFDTSWAIT. Performance field used with the FIELDS and SELECT operands; contains CF (coupling facility) access requests wait time. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

CHARACTER. (1) Suboperand used with the FIELDS and SELECT operands; identifies a user character field. OWNER must be specified to determine which character field the data is taken from. If only part of the field is to be considered, this is specified using SUBSTR(offset,length). In SELECT statements, VALUE must also be specified. (2) Suboperand used with the CROSS operand for the Cross-System Work Extract; identifies a user character field to include in the extract data set. Requires OWNER, LENGTH, and HEADER to be specified.

CHARIN1. Performance field used with the FIELDS and SELECT operands; contains the number of characters received from a principal terminal facility.

CHARIN2. Performance field used with the FIELDS and SELECT operands; contains the number of characters received from a secondary terminal facility.

CHAROUT1. Performance field used with the FIELDS and SELECT operands; contains the number of characters transmitted from a principal terminal facility.

CHAROUT2. Performance field used with the FIELDS and SELECT operands; contains the number of characters transmitted from a secondary terminal facility.

CHMODECT. Performance field used with the FIELDS and SELECT operands; contains the number of CICS TCB change modes.

CLIENTIP. Performance field used with the FIELDS operand; contains the interpreted Client IP address (nnn.nnn.nnn.nnn).

CLOCK. Suboperand used with the CROSS operand for the Cross-System Work Extract; identifies a user clock field to include in the extract data set. Requires OWNER, NUMBER, and HEADER to be specified. This field has two parts: elapsed time and a count of the number of times that the clock was stopped (number of occurrences). CLOCK applies to both parts of the field.

CLOCKCOUNT. Suboperand used with the FIELDS and SELECT operands; identifies the count component of a user clock field. OWNER and NUMBER suboperands must be specified to determine which user clock the data is taken from. For SELECT statements, VALUE must also be specified.

CLOCKTIME. Suboperand used with the FIELDS and SELECT operands; identifies the time component of a user clock field. OWNER and NUMBER suboperands must be specified to determine which user clock the data is taken from. For SELECT statements, VALUE must also be specified.

COMMWAIT. Performance field used with the LIST(FIELDS, LISTX(FIELDS and SELECT operands; contains the total time value of the communications related fields IRWAIT, TCWAIT, SZWAIT, LU61WAIT, and LU62WAIT. The time value is displayed in seconds to four decimal places. If it is a very large value, the field shows as + + + + +.

COUNT. (1) Field qualifier used with the FIELDS and SELECT operands to identify the count component of a CMF clock field (time is the other component). For example, SUSPEND(COUNT),FCWAIT(TIME,COUNT). The count is the number of times that the clock was stopped (number of occurrences). With the SELECT operand, TIME or COUNT must be specified (there is no default). TIME is the default for the FIELDS operand. (2) Suboperand used with the FIELDS and SELECT operand to identify a user count field. OWNER and NUMBER suboperands must be specified to determine which user count the data is taken from. For SELECT statements, VALUE must also be specified. For example, COUNT(OWNER(owner),NUMBER(nnn),VALUE(value list)) (3) Suboperand used with the CROSS operand for the Cross-System Work Extract; identifies a count type user field to include in the extract data set. Requires OWNER, NUMBER, and HEADER to be specified.

CPU. Performance field used with the FIELDS and SELECT operands; contains CPU time. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

CROSSsystem. Report operand used to request the Cross-System Work Report, Cross-System Work Extract, or both.

D

DATE. Qualifier for time stamp fields such as START or STOP; specifies that the date is to be reported in the format *mm/dd/yyyy*.

DATEISO. Qualifier for time stamp fields such as START or STOP; specifies that the date is to be reported in the format *yyyy-mm-dd*.

DATEM. Qualifier for time stamp fields such as START or STOP; specifies that the date is to be reported in the format *mm/dd*.

DATEYR. Qualifier for time stamp fields such as START or STOP; specifies that the date is to be reported in the format *mm/dd/yy*.

DB2. Report operand used to request the DB2 Report.

DB2CONWT. Performance field used with the FIELDS and SELECT operands; contains the DB2 Connection wait time. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

DB2RDYQW. Performance field used with the FIELDS and SELECT operands; contains the DB2 Thread wait time. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

DB2REQCT. Performance field used with the FIELDS and SELECT operands; contains the number of DB2 (EXEC SQL and IFI) requests.

DB2WAIT. Performance field used with the FIELDS and SELECT operands; contains the DB2 (EXEC SQL and IFI) wait time. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

DDNAME. Suboperand used in requesting a Cross-System Work Extract or an Exported Performance Extract; specified with a valid 8-character DDname, it overrides the default DDname used for the requested extract data set.

DELIMIT. Suboperand used with the EXPORT operand; specifies the field delimiter for the records written to the Exported Performance Extract data set. The default is a semicolon (;).

DEV. Suboperand used with SUMMARY(FIELDS); requests the standard deviation of the values of a count or clock field.

DHCREATE. Performance field used with the FIELDS and SELECT operands; contains the number of document handler CREATE requests issued.

DHINSERT. Performance field used with the FIELDS and SELECT operands; contains the number of document handler INSERT requests issued.

DHRETRVE. Performance field used with the FIELDS and SELECT operands; contains the number of document handler RETRIEVE requests issued.

DHSET. Performance field used with the FIELDS and SELECT operands; contains the number of document handler SET requests issued.

DHTOTAL. Performance field used with the FIELDS and SELECT operands; contains the total number of document handler requests issued.

DHTOTDCL. Performance field used with the FIELDS and SELECT operands; contains the total length of documents created by the task.

DISPATCH. Performance field used with the FIELDS and SELECT operands; contains the total elapsed time during which the user task was dispatched by the CICS dispatcher on each CICS TCB under which the task executed. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. The time is shown in seconds to four decimal places if possible. If not, the decimal point is moved. Specify the COUNT parameter to request the number of times that the clock was stopped (number of occurrences). TIME or COUNT must be specified with SELECT. TIME is the default for FIELDS.

DISPWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time during which the user task waited for redispach by the CICS dispatcher. (This does not include the elapsed time spent waiting for the first dispatch. See SUSPEND.) This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. The time is shown in seconds to four decimal places if possible. If not, the decimal point is moved. Specify the COUNT parameter to request the number of times that the clock was stopped (number of occurrences). TIME or COUNT must be specified with SELECT. TIME is the default for FIELDS.

DPLRECS. CICS PA ID: DPLRECS CICSPA A005. Performance field used with the FIELDS operand; contains the number of Distributed Program Link (DPL) records in this Network Unit-of-Work Extract record.

This is a subset of FUNCSHIP, the Function Shipping record count. All Cross-System Work Extract records include this User Field counter.

DSPDELAY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for the first dispatch. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

E

ENQDELAY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for a CICS task control local enqueue. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

ERRFLAGS. Performance field used with the FIELDS operand. This 4-byte field contains a string of 32 bits which signal transaction errors.

EXCEPTION. Suboperand used with the SELECT operand; specifies that the selection criteria applies to exception class data records. Selection criteria for performance class data must be specified in a separate SELECT statement.

EXCLUDE. Suboperand used with the SELECT operand; causes records that match the specified criteria to be excluded from the report or extract.

EXPORT. Report operand used to request the Exported Performance Data Extract.

EXTERNAL. Suboperand used with the LISTX, SUMMARY, CROSS, TRANGROUP, and BTS operands. If specified for the SUMMARY report, it invokes the external sort facility; otherwise the report uses an internal sort. EXTERNAL(ddname) specifies the DDname of the External Work Data Set which stores records for the external sort facility. The LISTX, CROSS, TRANGROUP, and BTS reports always use an external sort, and if EXTERNAL is not specified, CICS PA assigns a data set from the External Work Data Set pool.

EXWAIT. Performance field used with the FIELDS and SELECT operands; contains the accumulated elapsed time for all exception conditions. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

F

FCADD. Performance field used with the FIELDS and SELECT operands; contains the number of file control ADD requests.

FCAMCT. Performance field used with the FIELDS and SELECT operands; contains the number of access method calls from file control.

FCBROWSE. Performance field used with the FIELDS and SELECT operands; contains the number of file control BROWSE requests.

FCDELETE. Performance field used with the FIELDS and SELECT operands; contains the number of file control DELETE requests.

FCGET. Performance field used with the FIELDS and SELECT operands; contains the number of file control GET requests.

FCPUT. Performance field used with the FIELDS and SELECT operands; contains the number of file control PUT requests.

FCTOTAL. Performance field used with the FIELDS and SELECT operands; contains the total number of file control requests issued.

FCTY. Performance field used with the FIELDS and SELECT operands; contains the name of the transaction's principal facility, if any.

FCTYTYPE. Performance field used with the FIELDS and SELECT operands; contains an interpretation of the type of transaction facility from byte 0 of the transaction flags field.

FCWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for non-RLS file I/O. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

FIELDS. Suboperand used with the LIST, LISTX, and SUMMARY operands; specifies which fields are to print on the Performance List, Performance List Extended, and the Performance Summary Report, and the order of the columns.

| **FILENAME.** CICS PA ID: FILENAME CICSPA C916.
| Transaction resource class data field used with the
| SELECT operand; contains the File name. Applicable
| to the Transaction Resource Usage Report and ignored
| by all others.

FORMAT. Control operand (global) used to specify time and date delimiters for reports and extracts. The operand syntax is
FORMAT(time-delimiter,date-delimiter). The default time-delimiter is a colon (:), and the default date-delimiter is a slash (/).

FROM. Suboperand used with the SELECT operand and ACTIVE, START, or STOP; specifies the start of a report interval to restrict the data reported based on transaction Start or Stop times. The format is
FROM(date,time),TO(date,time). The date is a calendar date or a relative date, and the time is a time-of-day.

FUNCSHIP. CICS PA ID: FUNCSHIP CICSPA A004. Performance field used with the FIELDS operand; contains the number of Function Shipping records in this Network Unit-of-Work Extract record. All Cross-System Work Extract records include this User Field counter.

G

GIVEUPWT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited as a result of giving up control to another task. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

GNQDELAY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for a CICS task control global enqueue. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

GRAPH. Operand used to create a graph report from the CMF performance class data. GRAPH is followed by a suboperand requesting a specific graph.

H

HEADER. Suboperand used with character user fields on the CROSS operand for the Cross-System Work Extract; specifies the 8-character name for the field to be written to the extract data set. The default is "USER".

I

ICDELAY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time that the user task waited as a result of issuing Interval Control requests (DELAY, RETRIEVE, specific time of day). This field has two parts, a time value and a count. Specify the TIME parameter to request the

elapsed time. Specify the COUNT parameter to request the number of occurrences.

ICSTART. Performance field used with the FIELDS and SELECT operands; contains the number of interval control PUT/START requests.

ICTOTAL. Performance field used with the FIELDS and SELECT operands; contains the total number of interval control requests.

IMSREQCT. Performance field used with the FIELDS and SELECT operands; contains the number of IMS (DBCTL) requests.

IMSWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for DBCTL to service the IMS requests issued by the user task. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

INCLUDE. Suboperand used with the SELECT operand; causes records that match the specified criteria to be included in the report or extract.

Input. Control operand (global) used to specify the DDNAME of the SMF input data set.

INTERVAL. (1) Suboperand used with the SUMMARY operand when START or STOP are specified to request a report summarizing transaction activity over time; specifies the time interval (mm:ss) of each line in the report. The interval can be between 1 second and 60 minutes. The default is 1 minute. (2) Suboperand used with the GRAPH operand; specifies the time interval (in minutes) of each line of the Transaction Rate or Transaction Response Time graph reports.

IOWAIT. Performance field used with the LIST(FIELDS, LISTX(FIELDS, and SELECT operands; contains the total time value of the I/O wait time fields FCWAIT, JCWAIT, TDWAIT, TSWAIT. The time value is displayed in seconds to four decimal places. If it is a very large value, the field shows as + + + + +.

IRESP. Performance field used with the FIELDS and SELECT operands; contains the CICS internal response time for the transaction. It is calculated by the difference in the Start and Stop times minus the time spent waiting on the terminal (operator think time).

IRWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for control to return at this end of an MRO (Inter-Region Communication) connection. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed

time. Specify the COUNT parameter to request the number of occurrences.

J

JCWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for journal (logstream) I/O. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

JNLWRITE. Performance field used with the FIELDS and SELECT operands; contains the number of journal control write requests.

JOBNAME. Performance field used with the FIELDS operand; contains the jobname of the CICS system from which the performance class data was output.

JVMITIME. CMF ID: JVMITIME DFHTASK S273. Performance field used with the FIELDS and SELECT operands; contains the elapsed time the user task spent initializing the CICS Java Virtual Machine (JVM) environment, and is a component of the task JVM elapsed time field, JVMTIME. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

JVMMTIME. CICS PA ID: JVMMTIME CICSPA S910. Performance field used with the FIELDS and SELECT operands; contains the JVM method time, the elapsed time spent in the CICS JVM by the user task, excluding the JVM initialize and reset elapsed times. It is calculated by subtracting the sum of the JVM init time (JVMITIME) and JVM reset time (JVMRTIME) from the JVM elapsed time (JVMTIME). This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

JVMRTIME. CMF ID: JVMRTIME DFHTASK S275. Performance field used with the FIELDS and SELECT operands; contains the elapsed time the user task spent resetting and/or destroying the CICS Java Virtual Machine (JVM) environment. It is a component of the task JVM elapsed time field, JVMTIME. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

JVMSUSP. Performance field used with the FIELDS and SELECT operands; contains the elapsed time during which the user task was suspended by the CICS dispatcher while running in the CICS Java Virtual Machine (JVM). This field has two parts, a time value

and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

JVMTIME. Performance field used with the FIELDS and SELECT operands; contains the elapsed time that the user task spent in the CICS Java Virtual Machine (JVM). This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

J8CPU. Performance field used with the FIELDS and SELECT operands; contains the CPU time during which the user task was dispatched by the CICS dispatcher on a CICS J8 mode TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

K

KY8CPU. CMF ID: KY8CPUT DFHTASK S263. Performance field used with the FIELDS and SELECT operands; contains the total processor (CPU) time during which the user task was dispatched by the CICS dispatcher domain on a CICS Key 8 mode TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

KY8DISPT. CMF ID: KY8DISPT DFHTASK S262. Performance field used with the FIELDS and SELECT operands; contains the total elapsed time during which the user task was dispatched by the CICS dispatcher domain on a CICS Key 8 mode TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

L

LABELS. Suboperand used with the EXPORT operand; requests that the first record written to the Exported Performance Extract data set is to be the field headings.

LENGTH. Suboperand used with character user fields on the CROSS operand for the Cross-System Work Extract; specifies the length of the user character field to be written to the extract data set. The length is between 1 and 256.

LIMIT. Suboperand used with the LISTX operand. The format is LIMIT(fieldname(proclim)) where proclim is a number between 1 and 99999999. Applies to one of the sort fields specified in the BY operand to limit the

number of records processed at that level in the sort sequence.

LINECount. Control operand (global or report-level); specifies the number of lines per page to print on the reports.

LIST. (1) Report operand used to request the Performance List Report. (2) Report operand used to request an Export Extract formatted by using a LIST or LISTX (sort ignored) Report Form. The DDNAME suboperand identifies that this is an extract, not a report.

LISTEXception. Report operand used to request the Exception List Report.

LISTX. (1) Report operand used to request the Performance List Extended Report. (2) Report operand used to request the Cross-System Work Extended Report. This is where the Cross-System Work Report is tailored using a LISTX Report Form. BY(UOWID) identifies that this is the Cross-System Work Extended Report, not the Performance List Extended Report.

LOCKDLAY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited to acquire a lock on a resource. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

LOGGER. Report operand used to request the System Logger Report.

LOGWRITE. Performance field used with the FIELDS and SELECT operands; contains the number of Logger write requests issued.

LUNAME. Performance field used with the FIELDS and SELECT operands; contains the VTAM logical unit name of the terminal ID associated with the transaction.

LU61WAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for I/O on a LUTYPE6.1 connection or session. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

LU62WAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for I/O on a LUTYPE6.2 connection or session. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

L8CPU. Performance field used with the FIELDS and SELECT operands; contains the CPU time during which

MAX • NOPRINTMultiple

the user task was dispatched by the CICS dispatcher on a CICS L8 mode TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

M

MAX. Suboperand used with SUMMARY(FIELDS); requests the maximum value of a count or clock field.

MAXHTDLY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited to obtain a CICS Hot-Pooling TCB (H8 mode), because the CICS system had reached the limit set by the system parameter, MAXHPTCBS. The H8 mode open TCBS are used exclusively by HPJ-compiled Java programs defined with HOTPOOL(YES). This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

MAXJTDLY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited to obtain a CICS JVM TCB (J8 mode), because the CICS system had reached the limit set by the system parameter, MAXJVMTCBS. The J8 mode open TCBS are used exclusively by Java programs defined with JVM(YES). This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

MAXOTDLY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited to obtain a CICS open TCB (J8 or L8 mode) because the CICS system had reached the limit set by the system parameter MAXOPENTCBS. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

MIN. Suboperand used with SUMMARY(FIELDS); requests the minimum value of a count or clock field.

MSCPU. Performance field used with the FIELDS and SELECT operands; contains the total CPU time during which the user task was dispatched by the CICS dispatcher on each CICS TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

MSDISPT. Performance field used with the FIELDS and SELECT operands; contains the total elapsed time during which the user task was dispatched by the CICS dispatcher on each CICS TCB. This field has two parts, a time value and a count. Specify the TIME parameter

to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

MSGIN1. Performance field used with the FIELDS and SELECT operands; contains the number of input messages from a principal terminal facility.

MSGIN2. Performance field used with the FIELDS and SELECT operands; contains the number of output messages from a principal terminal facility.

MSGOUT1. Performance field used with the FIELDS and SELECT operands; contains the number of input messages from a secondary terminal facility.

MSGOUT2. Performance field used with the FIELDS and SELECT operands; contains the number of output messages from a secondary terminal facility.

MVSID. Performance field used with the FIELDS operand; contains the SMF system ID.

MXTDELAY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for first dispatch which was delayed because of the limits set by the MXT system parameter being reached. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

N

NATURE. Performance field used with the FIELDS operand; contains an interpretation of the transaction's principal facility (if applicable) as a terminal ID or session ID.

NETID. Performance field used with the FIELDS and SELECT operands; contains the network qualified name (NQNAME) for CICS terminal resources using any VTAM LUALIAS (defined or dynamic).

NOAPPLID. Control operand (report-level); specifies that you want to report on all APPLIDs in the SMF input file.

NOLABELS. Suboperand used with the EXPORT operand; indicates that a field headings record is not to be written to the Exported Performance Extract data set.

NOPRINT. Suboperand used on the CROSS operand. It specifies that the Cross-System Work Report is not to be produced. It is used to request only the Extract.

NOPRINTMultiple. Suboperand used on the CROSS operand. It specifies that the performance class records contained in a unit-of-work that includes multiple tasks are not printed.

NOWRITE. Suboperand used on the CROSS operand. It specifies that the Cross-System Work Extract data set is not to be created. It is used to request only the Report.

NOWRITEMultiple. Suboperand used on the CROSS operand. It specifies that the performance class records contained in a unit-of-work that includes multiple tasks are not written to the output data set.

NUMBER. Suboperand for user fields used with FIELDS or SELECT(PERFORMANCE) operands; specifies the number of the user field within the owner as specified in the Monitoring Control Table (MCT).

O

ORIGIN. Performance field used with the FIELDS operand; contains an interpretation of the transaction origin type from byte 4 of the transaction flags field.

OSOWAIT. CMF ID: SOOIOWTT DFH SOCK S299. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for outbound socket I/O. (The inbound socket I/O wait time is contained in SOWAIT.) This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

OTSINDWT. CMF ID: OTSINDWT DFH SYNC S199. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task was dispatched and/or suspended indoubt whilst processing a syncpoint for an Object Transaction Service (OTS) Syncpoint request. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

OTSTID. CMF ID: OTSTID DFH TASK C194. Performance field used with the FIELDS and SELECT operands; contains the OTS Tid, the Object Transaction Service Transaction id which can be used to correlate all the transactions that are part of the same Object Transaction.

Note: This field is supported by CICS PA but is not available from the CICS PA dialog.

OUTput. Suboperand used to specify the DDname for the report output.

OWNER. Suboperand for user fields used with the FIELDS, SELECT(PERFORMANCE), or CROSSsystem operands; specifies the owner ID for the user field as specified in the Monitoring Control Table (MCT).

P

PCDPL. Performance field used with the FIELDS and SELECT operands; contains the number of Distributed Program LINK (DPL) requests.

PCLINK. Performance field used with the FIELDS and SELECT operands; contains the number of program control LINK requests.

PCLOAD. Performance field used with the FIELDS and SELECT operands; contains the number of program control LOAD requests.

PCLOADTM. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for program fetches from the DFHRPL program library. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

PCLURM. Performance field used with the FIELDS and SELECT operands; contains the number of program link LINK URM requests.

PCSTGHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task.

PCXCTL. Performance field used with the FIELDS and SELECT operands; contains the number of program control XCTL requests.

PC24BHW. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task below the 16MB line.

PC24CHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task below the 16MB line, in the CDSA.

PC24RHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task below the 16MB line, in the RDSA.

PC24SHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task below the 16MB line, in the SDSA.

PC31AHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task above the 16MB line.

PC31CHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task above the 16MB line, in the ECDSA.

PC31RHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task above the 16MB line, in the ERDSA.

PC31SHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of program storage in user by the user task above the 16MB line, in the ESDSA.

PERFORMANCE. Suboperand used with the SELECT operand; specifies that the selection criteria applies to performance class data records. Selection criteria for exception class data must be specified in a separate SELECT statement.

PORT. CMF ID: PORTNUM DFH SOCK A246. Performance field used with the FIELDS and SELECT operands; contains the port number of the installed TCP/IP service resource definition from which the transaction was initiated.

PRCSNAME. Performance field used with the FIELDS operand; contains the name of the CICS BTS process.

PRCSTYPE. Performance field used with the FIELDS operand; contains the CICS BTS process type.

PRINTMultiple. Suboperand used on the CROSS and TRANGROUP operands. It specifies that the performance records that are contained in a network unit-of-work that includes multiple records are to be printed.

PRINTSingle. Suboperand used on the CROSS and TRANGROUP operands. It specifies that the performance records that are contained in a network unit-of-work that includes a single record only are to be printed.

PROGRAM. Performance field used with the FIELDS and SELECT operands; contains the initial program name for the task.

PTPWAIT. CMF ID: PTPWAIT DFHTASK S285. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for the 3270 bridge partner transaction to complete. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

Q

QRCPU. Performance field used with the FIELDS and SELECT operands; contains the CPU time during which the user task was dispatched by the CICS dispatcher on the CICS QR mode TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

QRDISPT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time during which the user task was dispatched by the CICS dispatcher on the CICS QR mode TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

QRMODDLY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for redispach on the CICS QR mode TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

R

RANGE1(number). Suboperand used with the GRAPH(TRANRATE and GRAPH(RESPONSE operands; specifies the high-end (in seconds) of the Average Response Time graph for the Transaction Rate and Transaction Response Time graph reports.

RANGE2(number). (1) Suboperand used with the GRAPH(TRANRATE operand for the Transaction Rate graph report; RANGE2(number) specifies the high-end of the graph of Number of Transactions Completed. (2) Suboperand used with the GRAPH(RESPONSE operand for the Transaction Response Time graph report; RANGE2(number) specifies the high-end (in seconds) of the Maximum Response Time graph.

RECCOUNT. Performance field used with the FIELDS and SELECT operands; contains the number of performance class records written for a user task.

RECORDSELECTION. Alias for RECSEL report operand.

RECSEL. Report operand used to request the Record Selection Extract.

RELEASE. Performance field used with the FIELDS operand; contains the CICS release of the performance class data.

RESPONSE. (1) Suboperand of the GRAPH report operand; requests the Transaction Response Time graph report. (2) Field used with the FIELDS, SELECT(PERFORMANCE, and SELECT(EXCEPTION operands; contains the CICS response time for the transaction. It is calculated as the difference between the Start and Stop times.

| **RESUSAGE.** Report operand used to request the Transaction Resource Usage Report.

RLSCPU. Performance field used with the FIELDS and SELECT operands. The RLS File Request CPU (SRB) time field; contains the SRB CPU time the transaction spent processing RLS file requests. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

RLSWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for RLS file I/O. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

RLUNAME. CMF ID: RLUNAME DFHTERM C198. Performance field used with the FIELDS and SELECT operands; contains the real VTAM logical unit name of the terminal id associated with the transaction.

RMIOOTHER. CICS PA ID: RMIOOTHER CICSPA S911. Performance field used with the FIELDS and SELECT operands; contains the amount of elapsed time the task was suspended by the dispatcher while in the Resource Manager Interface (RMI), excluding time waiting for DB2 and IMS. The value is calculated by subtracting the sum of the IMS wait time (IMSWAIT), the DB2 readyq wait time (DB2RDYQW), the DB2 connection wait time (DB2CONWT), and the DB2 wait time (DB2WAIT) from the RMI suspend time (RMISUSP). This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

RMISUSP. Performance field used with the FIELDS and SELECT operands; contains the elapsed time during which the user task was suspended by the CICS dispatcher whilst in the Resource Manager Interface (RMI). This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

RMITIME. Performance field used with the FIELDS and SELECT operands; contains the elapsed time the user task spent in the Resource Manager Interface

(RMI). This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

ROCPU. CMF ID: ROCPUT DFHTASK S270. Performance field used with the FIELDS and SELECT operands; contains the total processor (CPU) time during which the user task was dispatched by the CICS dispatcher on the CICS RO mode TCB. The CICS RO mode TCB is used for opening and closing CICS data sets, loading programs, issuing RACF® calls, and so on. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

RODISPT. CMF ID: RODISPT DFHTASK S269. Performance field used with the FIELDS and SELECT operands; contains the total elapsed time during which the user task was dispatched by the CICS dispatcher on the CICS RO mode TCB. The CICS RO mode TCB is used for opening and closing CICS data sets, loading programs, issuing RACF calls, and so on. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

RPTCLASS. Performance field used with the FIELDS and SELECT operands; contains the MVS Workload Manager (WLM) service class for this transaction.

RQPWAIT. CMF ID: RQPWAIT DFHTASK S193. Performance field used with the FIELDS and SELECT operands; contains the elapsed time during which the request processor user task CIRP waited for any outstanding replies to be satisfied. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

RQRWAIT. CMF ID: RQRWAIT DFHTASK S192. Performance field used with the FIELDS and SELECT operands; contains the elapsed time during which the request receiver user task CIRR (or user specified transaction id) waited for any outstanding replies to be satisfied. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

RRMSWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited indoubt using the MVS resource recovery services (RRS) for transactional EXCI. This field has two parts, a time value and a count. Specify the TIME parameter to request the

elapsed time. Specify the COUNT parameter to request the number of occurrences.

RSYSID. Performance field used with the FIELDS and SELECT operands; contains the connection name (sysid) of the remote system to which the transaction was routed.

RTYPE. Performance field used with the FIELDS and SELECT operands; indicates the reason for a performance class record to be written for a user task.

RUNTRWTT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for completion of a transaction that executed as a result of the user task issuing a CICS BTS run ACQPROCESS or run activity request to execute a process or activity synchronously. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

S

SC24CGET. Performance field used with the FIELDS and SELECT operands; contains the number of GETMAINS for storage in the CDSA.

SC24CHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of storage allocated to the task from the CDSA.

SC24COCC. Performance field used with the FIELDS and SELECT operands; contains the CDSA storage “occupancy” of the transaction. This measures the area under the curve of storage-in-use against elapsed time. The unit of measure is “1K byte-units”, where the “unit” is equal to one second. For example, a user occupying 12,288 bytes of storage for 1.5 seconds incurs 18 (12 * 1.5) 1K byte-units of this statistic. This statistic reflects the use of GETMAINS and FREEMAINS.

SC24FSHR. Performance field used with the FIELDS and SELECT operands; contains the number of bytes of shared storage FREEMAINED in the CDSA and SDSA.

SC24GSHR. Performance field used with the FIELDS and SELECT operands; contains the number of bytes of shared storage GETMAINED in the CDSA and SDSA.

SC24SGET. Performance field used with the FIELDS and SELECT operands; contains the number of GETMAINS for shared storage in the CDSA and SDSA.

SC24UGET. Performance field used with the FIELDS and SELECT operands; contains the number of GETMAINS for storage in the UDSA.

SC24UHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of storage allocated to the task from the UDSA.

SC24UOCC. Performance field used with the FIELDS and SELECT operands; contains the UDSA storage “occupancy” of the transaction. This measures the area under the curve of storage-in-use against elapsed time. The unit of measure is “1K byte-units”, where the “unit” is equal to one second. For example, a user occupying 12,288 bytes of storage for 1.5 seconds incurs 18 (12 * 1.5) 1K byte-units of this statistic. This statistic reflects the use of GETMAINS and FREEMAINS.

SC31CGET. Performance field used with the FIELDS and SELECT operands; contains the number of GETMAINS for storage in the ECDSA.

SC31CHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of storage allocated to the task from the ECDSA.

SC31COCC. Performance field used with the FIELDS and SELECT operands; contains the ECDSA storage “occupancy” of the transaction. This measures the area under the curve of storage-in-use against elapsed time. The unit of measure is “1K byte-units”, where the “unit” is equal to one second. For example, a user occupying 12,288 bytes of storage for 1.5 seconds incurs 18 (12 * 1.5) 1K byte-units of this statistic. This statistic reflects the use of GETMAINS and FREEMAINS.

SC31FSHR. Performance field used with the FIELDS and SELECT operands; contains the number of bytes of shared storage FREEMAINED in the ECDSA and ESDSA.

SC31GSHR. Performance field used with the FIELDS and SELECT operands; contains the number of bytes of shared storage GETMAINED in the ECDSA and ESDSA.

SC31SGET. Performance field used with the FIELDS and SELECT operands; contains the number of GETMAINS for shared storage in the ECDSA and ESDSA.

SC31UGET. Performance field used with the FIELDS and SELECT operands; contains the number of GETMAINS for storage in the EUDSA.

SC31UHWM. Performance field used with the FIELDS and SELECT operands; contains the high-water mark of storage allocated to the task from the EUDSA.

SC31UOCC. Performance field used with the FIELDS and SELECT operands; contains the EUDSA storage “occupancy” of the transaction. This measures the area under the curve of storage-in-use against elapsed time. The unit of measure is “1K byte-units”, where the “unit” is equal to one second. For example, a user occupying

12,288 bytes of storage for 1.5 seconds incurs 18 (12 * 1.5) 1K byte-units of this statistic. This statistic reflects the use of GETMAINS and FREEMAINS.

SELECT. Control operand (global or report-level) used to select records for reporting based on field values.

SESSTYPE. Performance field used with the FIELDS operand; contains an interpretation of the type of session for the session ID in the TERM field (owner: DFHTERM, field id: 002).

SMFSTART. Control operand (global); specifies the start of a time period to restrict the SMF input data processed based on the SMF record time stamp. The format is SMFSTART(date,time),SMFSTOP(date,time). The date is a calendar date or a relative date, and the time is a time-of-day.

SMFSTOP. Control operand (global); specifies the end of a time period to restrict the SMF input data processed based on the SMF record time stamp. The format is SMFSTART(date,time),SMFSTOP(date,time). The date is a calendar date or a relative date, and the time is a time-of-day.

SOBYDECT. Performance field used with the FIELDS and SELECT operands; contains the number of bytes decrypted by the secure sockets layer (SSL).

SOBYENCT. Performance field used with the FIELDS and SELECT operands; contains the number of bytes encrypted by the secure sockets layer (SSL).

SOCHRIN. CMF ID: SOCHRIN DFH SOCK A295. Performance field used with the FIELDS and SELECT operands; contains the number of characters received from outbound sockets.

SOCHRIN1. CMF ID: SOCHRIN1 DFH SOCK A302. Performance field used with the FIELDS and SELECT operands; contains the number of characters received from inbound sockets.

SOCHROUT. CMF ID: SOCHROUT DFH SOCK A297. Performance field used with the FIELDS and SELECT operands; contains the number of characters sent to outbound sockets.

SOCHROU1. CMF ID: SOCHROU1 DFH SOCK A304. Performance field used with the FIELDS and SELECT operands; contains the number of characters sent to inbound sockets.

SOCNPSCT. CMF ID: SOCNPSCT DFH SOCK A290. Performance field used with the FIELDS and SELECT operands; contains the number of create non-persistent socket requests issued by the user task.

SOCPSCT. CMF ID: SOCPSCT DFH SOCK A291. Performance field used with the FIELDS and SELECT

operands; contains the number of create persistent socket requests issued by the user task.

SOEXTRCT. CMF ID: SOEXTRCT DFH SOCK A289. Performance field used with the FIELDS and SELECT operands; contains the number of EXTRACT TCP/IP and EXTRACT CERTIFICATE requests issued by the user task.

SOMSGIN1. CMF ID: SOMSGIN1 DFH SOCK A301. Performance field used with the FIELDS and SELECT operands; contains the number of RECEIVE requests from inbound sockets.

SOMSGOU1. CMF ID: SOMSGOU1 DFH SOCK A303. Performance field used with the FIELDS and SELECT operands; contains the number of inbound socket SEND requests issued.

SONPSHWM. CMF ID: SONPSHWM DFH SOCK A292. Performance field used with the FIELDS and SELECT operands; contains the peak number (high-water mark) of non-persistent outbound sockets established by the user task.

SOPSHWM. CMF ID: SOPSHWM DFH SOCK A293. Performance field used with the FIELDS and SELECT operands; contains the peak number (high-water mark) of persistent outbound sockets established by the user task.

SORCV. CMF ID: SORCVCT DFH SOCK A294. Performance field used with the FIELDS and SELECT operands; contains the number of socket RECEIVE requests issued.

SOSEND. CMF ID: SOSENDCT DFH SOCK A296. Performance field used with the FIELDS and SELECT operands; contains the total number of outbound socket SEND requests issued.

SOTOTAL. CMF ID: SOTOTCT DFH SOCK A298. Performance field used with the FIELDS and SELECT operands; contains the total number of socket requests issued.

SOWAIT. CMF ID: SOIOWTT DFH SOCK S241. Performance field used with the FIELDS and SELECT operands; contains the inbound socket I/O wait time, the elapsed time in which the user task waited for socket I/O. (The outbound socket I/O wait time is contained in OSOWAIT.) This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

SRVCLASS. CMF ID: SRVCLASS DFH CICS C167. Performance field used with the FIELDS and SELECT operands; contains the MVS Workload Manager (WLM) service class for this transaction.

START. Time stamp field used with the **FIELDS**, **SELECT(PERFORMANCE)**, and **SELECT(EXCEPTION)** operands; contains the task start time. With **FIELDS**, a date or time format is required: either **DATE**, **DATEISO**, **DATM**, **DATEYR**, **TIMET** (default), **TIMM**, or **TIMES**. For **SELECT**, a report interval must be specified using **FROM** and **TO**.

STOP. Time stamp field used with the **FIELDS**, **SELECT(PERFORMANCE)**, and **SELECT(EXCEPTION)** operands; contains the task stop time. With **FIELDS**, a date or time format is required: either **DATE**, **DATEISO**, **DATM**, **DATEYR**, **TIMET** (default), **TIMM**, or **TIMES**. For **SELECT**, a report interval must be specified using **FROM** and **TO**.

STORAGEW. Exception field used with the **SELECT** operand. This is a character field containing the name of a CICS dynamic storage area (DSA) that incurred a wait for storage.

STYPE. Performance field used with the **FIELDS** and **SELECT** operands; a 2-character field that indicates the transaction start type.

SUBSTR. Suboperand for user character fields used with **FIELDS** or **SELECT(PERFORMANCE)** operands; specifies that only part of the field is to be considered. The format is **SUBSTR(offset,length)**. For example, **SUBSTR(1,8)** identifies the first eight bytes of the character field.

SUMEXception. Report operand used to specify the Exception Summary Report.

SUMMARY. (1) Report operand used to specify the Performance Summary Report. (2) Report operand used to request an Export Extract formatted by using a SUMMARY Report Form. The **DDNAME** suboperand identifies that this is an extract, not a report.

SUSPEND. Performance field used with the **FIELDS** and **SELECT** operands; contains the total elapsed wait time for which the user task was suspended by the CICS dispatcher. This field has two parts, a time value and a count. Specify the **TIME** parameter to request the elapsed time. Specify the **COUNT** parameter to request the number of occurrences.

SYNCDELAY. Performance field used with the **FIELDS** and **SELECT** operands; contains the elapsed time in which the user task waited for a syncpoint request to be issued by its parent transaction. This field has two parts, a time value and a count. Specify the **TIME** parameter to request the elapsed time. Specify the **COUNT** parameter to request the number of occurrences.

SYNCPT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of syncpoint requests issued by the user task.

SYNCTIME. Performance field used with the **FIELDS** and **SELECT** operands; contains the elapsed time in which the user task was dispatched and/or suspended processing Syncpoint requests. This field has two parts, a time value and a count. Specify the **TIME** parameter to request the elapsed time. Specify the **COUNT** parameter to request the number of occurrences.

SYSID. Suboperand used with the **CROSS** operand for the Cross-System Work Extract. **SYSID(applid,mvsid)** specifies the **APPLID** and **MVS (SMF) ID** to be written in each record of the extract data set. The defaults are respectively **MULTIPLE** and **CICS**.

SZALLCTO. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of **FEPI ALLOCATE** requests that timed out.

SZALLOC. Performance field used with the **FIELDS** and **SELECT** operands; contains the **FEPI ALLOCATE** requests issued by the user task.

SZCHRIN. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of characters received through **FEPI**.

SZCHROUT. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of characters sent through **FEPI**.

SZRCV. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of **FEPI RECEIVE** requests.

SZRCVTO. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of **FEPI RECEIVE** data requests that timed out.

SZSEND. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of **FEPI SEND** requests issued by the user task.

SZSTART. Performance field used with the **FIELDS** and **SELECT** operands; contains the number of **FEPI START** requests issued by the user task.

SZTOTAL. Performance field used with the **FIELDS** and **SELECT** operands; contains the total number of **FEPI** requests issued.

SZWAIT. Performance field used with the **FIELDS** and **SELECT** operands; contains the elapsed time in which the user task waited for **FEPI** services. This field has two parts, a time value and a count. Specify the **TIME** parameter to request the elapsed time. Specify the **COUNT** parameter to request the number of occurrences.

S8CPU. Performance field used with the FIELDS and SELECT operands; contains the CPU time during which the user task was dispatched by the CICS dispatcher on a CICS S8 mode TCB. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

T

TASKCNT. Special field used with the SUMMARY(FIELDS operand; This special field is generated by CICS PA during processing of the Performance Summary Report. It gives the total number of CMF records processed for the report.

TASKNO. Field used with the FIELDS, SELECT(PERFORMANCE, and SELECT(EXCEPTION operands; contains the transaction number assigned by CICS and has a value between 1 and 99999.

TCALLOC. Performance field used with the FIELDS and SELECT operands; contains the terminal facility ALLOCATE count.

TCBATTCT. Performance field used with the FIELDS and SELECT operands; contains the number of CICS TCB attaches.

TCC62IN2. Performance field used with the FIELDS and SELECT operands; contains the number of characters received from the alternate facility LUTYPE6.2 (APPC) sessions.

TCC62OU2. Performance field used with the FIELDS and SELECT operands; contains the number of characters sent to the alternate facility LUTYPE6.2 (APPC) sessions.

TCLASSNM. Performance field used with the FIELDS and SELECT operands; contains the name of the transaction class.

TCLDELAY. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for first dispatch which was delayed because of the limits set for this transaction's transaction class. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

TCM62IN2. Performance field used with the FIELDS and SELECT operands; contains the number of messages received from the alternate facility LUTYPE6.2 (APPC) sessions.

TCM62OU2. Performance field used with the FIELDS and SELECT operands; contains the number of mes-

sages sent to the alternate facility LUTYPE6.2 (APPC) sessions.

TCWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for input from the terminal user, after issuing an EXEC CICS RECEIVE request. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

TDGET. Performance field used with the FIELDS and SELECT operands; contains the number of Transient data GET requests.

TDPURGE. Performance field used with the FIELDS and SELECT operands; contains the number of Transient data PURGE requests.

TDPUT. Performance field used with the FIELDS and SELECT operands; contains the number of Transient data PUT requests.

TDTOTAL. Performance field used with the FIELDS and SELECT operands; contains the total number of transient data requests issued by the user task.

TDWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for VSAM transient data I/O. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

TERM. Field used with the FIELDS, SELECT(PERFORMANCE, and SELECT(EXCEPTION operands; contains the 4-character terminal ID.

TERMCNNM. Performance field used with the FIELDS and SELECT operands; contains the name of the owning connection (sysid) for those transactions associated with a session terminal facility.

TERMCODE. Performance field used with the FIELDS operand; contains an interpretation of the terminal device type for the terminal ID, or session type for the session ID, in the TERM field (owner: DFHTERM, field id: 002).

TERMINFO. Performance field used with the FIELDS operand; contains a hexadecimal interpretation of the terminal information field, TERMINFO (owner: DFHTERM, field id: 165).

TIME. Field qualifier used with the FIELDS and SELECT operands to identify the elapsed time component of a CMF clock field (count is the other component). For example, CPU(TIME),FCWAIT(TIME,COUNT). With the SELECT

operand, TIME or COUNT must be specified (there is no default). TIME is the default for the FIELDS operand. The time is shown in seconds to four decimal places. If it is a very large value, the field shows as + + + + +.

TIMEM. Qualifier for time stamp fields such as START or STOP; specifies that the time is to be reported in the format *hh:mm*.

TIMES. Qualifier for time stamp fields such as START or STOP; specifies that the time is to be reported in the format *hh:mm:ss*.

TIMET. Qualifier for time stamp fields such as START or STOP; specifies that the time is to be reported in the format *hh:mm:ss.thm*.

TITLE1. Control operand (report-level); specifies up to 64 characters as the first half of a report title which prints at the top of each page below the report heading.

TITLE2. Control operand (report-level); specifies up to 64 characters as the second half of a report title which prints at the top of each page below the report heading.

TO. Suboperand used with the SELECT operand and ACTIVE, START, or STOP; specifies the end of a report interval to restrict the data reported based on transaction Start or Stop times. The format is FROM(date,time),TO(date,time). The date is a calendar date or a relative date, and the time is a time-of-day.

TOT. Suboperand used with SUMMARY(FIELDS); requests the standard deviation of the values of a count or clock field.

TOTAL. Report operand used to request the Performance Totals Report.

TOTRECS. CICS PA ID: TOTRECS CICSPA A001. Performance field used with the FIELDS operand; contains the total number of CMF performance records in this Network Unit-of-Work Extract record. All Cross-System Work Extract records include this User Field counter.

TRAN. Field used with the FIELDS, SELECT(PERFORMANCE, and SELECT(EXCEPTION operands; contains the 4-character transaction ID.

TRANFLAG. This 8-byte field is used on the FIELDS suboperand. It contains the transaction flags in hexadecimal notation.

TRANGROUP. Report operand used to request the Transaction Group Report.

TRANPRTY. Performance field used with the FIELDS and SELECT operands; contains the priority of the transaction.

TRANRATE. Suboperand of the GRAPH report operand; requests the Transaction Rate graph report.

TRANROUT. CICS PA ID: TRANROUT CICSPA A003. Performance field used with the FIELDS operand; contains the number of Transaction Routing records in this Network Unit-of-Work Extract record. All Cross-System Work Extract records include this User Field counter.

TRANATYPE. Performance field used with the FIELDS operand; contains an interpretation of the type of transaction from byte 1 of the transaction flags field.

TSGET. Performance field used with the FIELDS and SELECT operands; contains the number of temporary storage PUT to auxiliary storage requests.

TSPUTAUX. Performance field used with the FIELDS and SELECT operands; contains the number of temporary storage PUT to main storage requests.

TSPUTMCT. Performance field used with the FIELDS and SELECT operands; contains the number of temporary storage GET requests.

TSSHWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for an asynchronous shared temporary storage request to a temporary storage data server to complete. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

TSTOTAL. Performance field used with the FIELDS and SELECT operands; contains the total number of temporary storage requests issued by the user task.

TSSWAIT. Performance field used with the FIELDS and SELECT operands; contains the elapsed time in which the user task waited for VSAM temporary storage I/O. This field has two parts, a time value and a count. Specify the TIME parameter to request the elapsed time. Specify the COUNT parameter to request the number of occurrences.

U

UOWID. Performance field used with the FIELDS operand for the LIST and LISTX reports; contains the network unit-of-work id.

UOWSEQ. Performance field used with the FIELDS operand for the LIST and LISTX reports; contains the network unit-of-work id sequence number.

USERID. Field used with the FIELDS, SELECT(PERFORMANCE, and SELECT(EXCEPTION

operands; an 8-byte character field that contains the User ID.

V

VALUE. Suboperand used when specifying user fields in the SELECT operand.

VBUFFERW. Exception field used with the SELECT operand; contains the 8-byte name of a file that incurred a wait for a VSAM buffer.

VSTRINGW. Exception field used with the SELECT operand; contains the 8-byte name of a file that incurred a wait for a VSAM string.

W

WBBROWSE. CMF ID: WBBRWCT DFHWEBB A239. Performance field used with the FIELDS and SELECT operands; contains the number of CICS Web Interface (CWI) browse requests issued by the user task.

WBCHRIN. Performance field used with the FIELDS and SELECT operands; contains the number of characters received from the CICS Web Interface (CWI).

WBCHROUT. Performance field used with the FIELDS and SELECT operands; contains the number of characters sent to the CICS Web Interface (CWI).

WBEXTRCT. CMF ID: WBEXTRCT DFHWEBB A238. Performance field used with the FIELDS and SELECT operands; contains the number of CICS Web Interface (CWI) extract Web requests issued by the user task.

WBRCV. Performance field used with the FIELDS and SELECT operands; contains the number of CICS Web Interface (CWI) RECEIVE requests issued by the user task.

WBREAD. CMF ID: WBREADCT DFHWEBB A224. Performance field used with the FIELDS and SELECT operands; contains the number of CICS Web support READ HTTPHEADER and FORMFIELD requests issued by the user task.

WBREPRCT. Performance field used with the FIELDS and SELECT operands; contains the number of reads from the repository in shared temporary storage.

WBREPWCT. Performance field used with the FIELDS and SELECT operands; contains the number of writes to the repository in shared temporary storage.

WBSEND. Performance field used with the FIELDS and SELECT operands; contains the total number of Web SEND requests issued by the user task.

WBTOTAL. Performance field used with the FIELDS and SELECT operands; contains the total number of Web requests issued.

WBWRITE. CMF ID: WBWRITCT DFHWEBB A225. Performance field used with the FIELDS and SELECT operands; contains the number of CICS Web support WRITE HTTPHEADER requests issued by the user task.

WLM. Alias for WORKLOAD report operand.

WORKLOAD. Report operand used to request the Workload Manager Activity Report.

WRITEMultiple. Suboperand used on the CROSS operand. It specifies that the performance class records contained in a network unit-of-work that includes multiple records are to be written to an output data set.

WRITESingle. Suboperand used on the CROSS operand. It specifies that the performance class records that are contained in a network unit-of-work that includes a single record only are to be written to an output data set.

Z

ZONE. Control operand (global); specifies the time zone to use for reporting. The format is ZONE(time zone). The time zone is an integer from -12 to +12 representing the number of hours that local time is west or east of GMT. If specified, it overrides your local CPU time zone setting. It is only useful if the SMF data comes from a system with a different time zone setting. Indeed, if this is the case, ZONE *must* be specified for the DB2 and System Logger reports to show correct times.

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