CICS® Transaction Server for OS/390®

Installation Guide

Release 3

GC33-1681-33

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Note!

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

Fifth edition (November 2000)

This edition applies to Release 3 of CICS Transaction Server for OS/390, program number 5655-147, and to all subsequent versions, releases, and modifications until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

This edition replaces and makes obsolete the previous edition, SC33-1681-03. The CICS Transaction Server for OS/390 Release 2 edition remains applicable and current for users of that release, and may be ordered using its order number, SC33-1681-01 .

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Preface

What this book is about

This book is intended to help you install CICS Transaction Server for OS/390 Release 3. It contains guidance about tailoring CICS for use in your systems environment.

This book does not describe installing the Front End Programming Interface (FEPI) feature of CICS. For further information about loading the FEPI feature from the distribution tape, see the *OS/390 Program Directory*. For information about the FEPI feature, including how to configure it after it has been loaded from the distribution tape, see the *CICS Front End Programming Interface User's Guide*.

Who is this book for?

This book is for system programmers who are responsible for installing and tailoring CICS and CICSPlex SM.

What you need to know to understand this book

To fully understand the information in this book, you should have experience of the IBM MVS operating system, and the System Modification Program/Extended (SMP/E) licensed program needed to maintain CICS and CICSPlex SM. To use the installation verification procedures, you should be familiar with the JCL and cataloged procedures for MVS. It also helps if you are familiar with CICS and CICSPlex SM concepts.

How to use this book

CICS and CICSPlex SM are available only as elements of the CICS Transaction Server, through either the ServerPac or CBPDO method of delivery. For information about these two methods of delivery of the CICS Transaction Server, see the *CICS Transaction Server for OS/390: Planning for Installation* manual.

To install the CICS Transaction Server using the CBPDO method, you should use the *CICS Transaction Server for OS/390 Program Directory*, together with the instructions contained in the Memo to Users Extension, to load the software from the tape DASD. For the ServerPac method, you follow the supplied set of ISPF dialogs and the accompanying documentation.

After you have loaded the CICS Transaction Server elements to DASD, you should then use this book to tailor CICS to your environment; that is to:

- Integrate CICS with MVS and ACF/VTAM
- Apply service to CICS (if required)
- Create the CICS data sets
- Install DB2 support (if required)
- Install MRO and ISC support (if required)
- Run the installation verification procedures (if required).

Notes:

1. “Appendix B. CICS modules eligible for the MVS link pack area” on page 423 gives details of the CICS modules that are needed in, and eligible for, the MVS link pack area.
2. If you installed CICS from CBPDO, you do not need to run the DFHISTAR job again to specify the post-installation parameters. However, if you wish to create several copies of the post-installation jobs (for example to create several copies of the DFHDEFDS job to define CICS data sets unique to several CICS regions), you can edit and run the DFHISTAR job as many times as required.

Some of the information in this book is also of interest if you have installed CICS Transaction Server using the ServerPac method of delivery.

In particular, you should edit and run the DFHISTAR job, specifying the keyword POST, to define parameters needed to tailor your CICS environment.

Notes on terminology

“CICS” is used throughout this book to mean the CICS element of the IBM CICS Transaction Server for OS/390 Release 3.

“RACF” is used throughout this book to mean the MVS Resource Access Control Facility (RACF) or any other external security manager that provides equivalent function.

“MVS” is used throughout this book to mean the operating system MVS, or the Base Control Program (BCP) element OS/390.

“MVS/ESA SP 5.2” is used throughout this book to mean the MVS/ESA System Product Version 5 Release 2.

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

Throughout this book, the term *hlq* is used to denote the high-level qualifier of the CICS TS data sets; for example, CICSTS13.CICS for CICS data sets and CICSTS13.CPSM for CICSPlex SM data sets. The CICSTS13 part of the high-level qualifier is defined by the LINDEX parameter in the DFHISTAR installation job.

IMS library names

The IMS libraries referred to in this chapter are identified by IMS.libnam (for example, IMS.RESLIB). If you are using your own naming conventions, change the IMS prefix to match those naming conventions.

CICS system connectivity

This information on CICS system connectivity to CICSPlex SM supersedes the
information in the CICSPlex SM books. Changes are marked with a # in the
margin.

This release of CICSPlex SM may be used to control CICS systems that are directly connected to it, and indirectly connected through a previous release of CICSPlex SM.

For this release of CICSPlex SM, the directly-connectable CICS systems are:
- CICS Transaction Server for OS/390 1.3
- CICS Transaction Server for OS/390 1.2
- CICS Transaction Server for OS/390 1.1
- CICS for MVS/ESA 4.1
- CICS Transaction Server for VSE/ESA Release 1
- CICS for OS/2 3.1
- CICS for OS/2 3.0

CICS systems that are not directly connectable to this release of CICSPlex SM are:
- CICS for MVS/ESA 3.3
- CICS for MVS 2.1.2
- CICS for VSE/ESA 2.3
- CICS for VSE/ESA 2.2
- CICS for OS2 2.0.1

Note: IBM Service no longer supports these CICS release levels.

You can use this release of CICSPlex SM to control CICS systems that are connected to, and managed by, your previous release of CICSPlex SM. However, if you have any directly-connectable release levels of CICS, as listed above, that are connected to a previous release of CICSPlex SM, you are strongly recommended to migrate them to the current release of CICSPlex SM, to take full advantage of the enhanced management services. See the *CICS Transaction Server for OS/390 Migration Guide* for information on how to do this.

Table 1 shows which CICS systems may be directly connected to which releases of CICSPlex SM.

Table 1. Directly-connectable CICS systems by CICSPlex SM release

CICS system	**CICSPlex SM component of CICS TS 1.3**	**CICSPlex SM 1.3**	**CICSPlex SM 1.2**
CICS TS 1.3	Yes	No	No
CICS TS 1.2	Yes	Yes	No
CICS TS 1.1	Yes	Yes	Yes
CICS for MVS/ESA 4.1	Yes	Yes	Yes
CICS for MVS/ESA 3.3	No	Yes	Yes
CICS for MVS 2.1.2	No	Yes	Yes
CICS TS for VSE/ESA Rel 1	Yes	No	No
CICS for VSE/ESA 2.3	No	Yes	Yes
CICS for VSE/ESA 2.2	No	Yes	Yes
CICS for OS/2 3.1	Yes	No	No
CICS for OS/2 3.0	Yes	Yes	Yes
CICS/OS2 2.0.1	No	Yes	Yes

Bibliography

CICS Transaction Server for OS/390

CICS Transaction Server for OS/390: Planning for Installation	GC33-1789
CICS Transaction Server for OS/390 Release Guide	GC34-5352
CICS Transaction Server for OS/390 Migration Guide	GC34-5353
CICS Transaction Server for OS/390 Installation Guide	GC33-1681
CICS Transaction Server for OS/390 Program Directory	GI10-2506
CICS Transaction Server for OS/390 Licensed Program Specification	GC33-1707

CICS books for CICS Transaction Server for OS/390

General	
CICS Master Index	SC33-1704
CICS User's Handbook	SX33-6104
CICS Transaction Server for OS/390 Glossary (softcopy only)	GC33-1705
Administration	
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
Programming	
CICS Application Programming Guide	SC33-1687
CICS Application Programming Reference	SC33-1688
CICS System Programming Reference	SC33-1689
CICS Front End Programming Interface User's Guide	SC33-1692
CICS C++ OO Class Libraries	SC34-5455
CICS Distributed Transaction Programming Guide	SC33-1691
CICS Business Transaction Services	SC34-5268
Diagnosis	
CICS Problem Determination Guide	GC33-1693
CICS Messages and Codes	GC33-1694
CICS Diagnosis Reference	LY33-6088
CICS Data Areas	LY33-6089
CICS Trace Entries	SC34-5446
CICS Supplementary Data Areas	LY33-6090
Communication	
CICS Intercommunication Guide	SC33-1695
CICS Family: Interproduct Communication	SC33-0824
CICS Family: Communicating from CICS on System/390	SC33-1697
CICS External Interfaces Guide	SC33-1944
CICS Internet Guide	SC34-5445
Special topics	
CICS Recovery and Restart Guide	SC33-1698
CICS Performance Guide	SC33-1699
CICS IMS Database Control Guide	SC33-1700
CICS RACF Security Guide	SC33-1701
CICS Shared Data Tables Guide	SC33-1702
CICS Transaction Affinities Utility Guide	SC33-1777

CICS DB2 Guide	SC33-1939

CICSPlex SM books for CICS Transaction Server for OS/390

General	
CICSPlex SM Master Index	SC33-1812
CICSPlex SM Concepts and Planning	GC33-0786
CICSPlex SM User Interface Guide	SC33-0788
CICSPlex SM Web User Interface Guide	SC34-5403
CICSPlex SM View Commands Reference Summary	SX33-6099
Administration and Management	
CICSPlex SM Administration	SC34-5401
CICSPlex SM Operations Views Reference	SC33-0789
CICSPlex SM Monitor Views Reference	SC34-5402
CICSPlex SM Managing Workloads	SC33-1807
CICSPlex SM Managing Resource Usage	SC33-1808
CICSPlex SM Managing Business Applications	SC33-1809
Programming	
CICSPlex SM Application Programming Guide	SC34-5457
CICSPlex SM Application Programming Reference	SC34-5458
Diagnosis	
CICSPlex SM Resource Tables Reference	SC33-1220
CICSPlex SM Messages and Codes	GC33-0790
CICSPlex SM Problem Determination	GC33-0791

Other CICS books

CICS Application Programming Primer (VS COBOL II)	SC33-0674
CICS Application Migration Aid Guide	SC33-0768
CICS Family: API Structure	SC33-1007
CICS Family: Client/Server Programming	SC33-1435
CICS Family: General Information	GC33-0155
CICS 4.1 Sample Applications Guide	SC33-1173
CICS/ESA 3.3 XRF Guide	SC33-0661

If you have any questions about the CICS Transaction Server for OS/390 library, see *CICS Transaction Server for OS/390: Planning for Installation* which discusses both hardcopy and softcopy books and the ways that the books can be ordered.

Books from related libraries

Systems Network Architecture (SNA)

- *Systems Network Architecture - Function Description of Logical Unit Types*, GC20-1868
- *Systems Network Architecture - Types of Logical Unit to Logical Unit Sessions*, GC20-1869.

Advanced communications function for VTAM (ACF/VTAM)

- *Network Program Products General Information*, GC30-3350
- *Advanced Communications Function for VTAM Installation and Resource Definition*, SC23-0111

- *Advanced Communications Function for VTAM Customization*, SC23-0112
- *Advanced Communications Function for VTAM Operation*, SC23-0113
- *Advanced Communications Function for VTAM Messages and Codes*, SC23-0114
- *Advanced Communications Function for VTAM Diagnosis Guide*, SC23-0116
- *Advanced Communications Function for VTAM Diagnosis Reference*, LY30-5582
- *Advanced Communications Function for VTAM Data Areas*, LY30-5584
- *Advanced Communications Function for VTAM Programming*, SC23-0115
- *Advanced Communications Function for VTAM Reference Summary*, SC23-0135.

NetView Version 3.1

- *NetView User's Guide*, SC31-8056
- *NetView Installation and Administration Guide*, SC31-8043
- *NetView Installation and Administration and Security Reference*, SC31-8045
- *NetView Customization Guide*, SC31-8052
- *NetView Customization: Writing Command Lists*, SC31-8055
- *NetView Automation Planning*, SC31-8051
- *NetView Automation Implementation*, SC31-8050
- *NetView RODM and GMFHS Programming Guide*, SC31-8049
- *NetView Messages*, SC31-8046

NetView MultiSystem Manager Version 2.2

- *MultiSystem Manager: Open Topology Interface*, SC31-8144
- *MultiSystem Manager: Lovell NetWare NetworksOpen Topology Interface*, SC31-8129
- *MultiSystem Manager: OS/2 LAN Network Manager Networks*, SC31-8130
- *MultiSystem Manager: Internet Protocol Networks*, SC31-8131

DATABASE 2 (DB2)

- *IBM DATABASE 2 Administration Guide*, SC26-4888
- *IBM DATABASE 2 Application Programming and SQL Guide*, SC26-4889
- *IBM DATABASE 2 Command and Utility Reference*, SC26-4891.

eNetwork Communications Server for OS/2 Warp, Version 5

- *Quick Beginnings*, GC31-8189

CICS for OS/2 Versions 3 and 3.1

- *Installation*, GC33-1580
- *Operation*, SC33-1582
- *Customization*, SC33-1581
- *Intercommunication*, SC33-1583

CICS for OS/2 Version 3 and the CICS Client for OS/2 are distributed as part of the IBM Transaction Server for OS/2 Warp, Version 4.

CICS for OS/2 Version 3.1 and the CICS Client for OS/2 are distributed as part of the IBM Transaction Server for OS/2 Warp, Version 4.1.

Please refer to the *CICS Library Guide* for your release of CICS for the titles and form numbers of additional books that support these releases.

OS/2 Version 2

An order number is not given for the following book because the number can vary from country to country.

- *Using OS/2 Version 2*

OS/2 Warp

An order number is not given for the following book because the number can vary from country to country.

- *User's Guide to OS/2 Warp*

Virtual Storage Access Method (VSAM)

- *MVS/ESA Access Method Services Reference for VSAM Catalogs*, GC26-4075
- *MVS/ESA VSAM Administration Guide*, GC26-4151
- *MVS/ESA Catalog User's Guide*, GC26-4041.

Resource Access Control Facility (RACF)

- *Resource Access Control Facility (RACF): General Information*, GC28-0722
- *System Programming Library: Resource Access Control Facility (RACF)*, SC28-1343
- *Resource Access Control Facility (RACF) Command Language Reference*, SC28-0733
- *Resource Access Control Facility (RACF) Security Administrators Guide*, SC28-1340.

System Modification Program Extended (SMP/E)

- *System Modification Program Extended: User's Guide*, SC28-1302
- *System Modification Program Extended: (SMP/E) Terminal User's Guide*, SC28-1109
- *System Modification Program Extended: General Information*, GC28-1106
- *System Modification Program Extended: Reference*, SC28-1107.

Sysplex planning

- *System/390 MVS Sysplex Application Migration*, GC28-1211

DFSMS/MVS

- *DFSMS/MVS DFSMSdfp Storage Administration Reference*, SC26-4920
- *DFSMS/MVS Access Method Services for ICF*, SC26-4906

MVS

- *OS/390 MVS Programming: Assembler Services Reference*, GC28-1910
- *OS/390 MVS Setting Up a Sysplex*, GC28-1779.
- *OS/390 MVS Installation Exits*, SC28-1753.
- *OS/390 MVS Programming: Authorized Assembler Services Reference ALE-DYN*, GC28-1764
- *OS/390 MVS Planning: Workload Management*, GC28-1761.
- *OS/390 MVS Programming: Authorized Assembler Services Reference ENF-IXG*, GC28-1765

- *OS/390 MVS Programming: Authorized Assembler Services Reference LLA-SDU*, GC28-1766
- *OS/390 MVS Programming: Authorized Assembler Services Reference SET-WTO*, GC28-1767
- *OS/390 MVS Initialization and Tuning Guide*, SC28-1751
- *OS/390 MVS Initialization and Tuning Reference*, SC28-1752
- *OS/390 MVS Routing and Descriptor Codes*, GC28-1778

IMS/ESA Versions 4, 5, and 6 libraries

Table 2. IMS/ESA libraries

Title	**Version 4**	**Version 5**	**Version 6**
Administration Guide: Database Manager	----	SC26-8012	SC26-8725
Administration Guide: System	----	SC26-8013	SC26-8730
Administration Guide: Transaction Manager	----	SC26-8014	SC26-8731
Application Programming: Database Manager	----	SC26-8015	SC26-8727
Application Programming: Database Manager Summary	----	SC26-8037	----
Application Programming: DC Calls	SC26-4283	----	----
Application Programming: Design Guide	SC26-4279	SC26-8016	SC26-8728
Application Programming: DL/I Calls	SC26-4274	----	----
Application Programming: EXEC DLI Commands	SC26-4280	SC26-8018	SC26-8726
Application Programming: DL/I Calls Summary	SX26-3765	----	----
Application Programming: EXEC DLI Commands Summary	SX26-3775	SC26-8036	----
Application Programming: Transaction Manager	----	SC26-8017	SC26-8729
Application Programming: Transaction Manager Summary	----	SC26-8038	----
Customization Guide	----	SC26-8020	SC26-8732
Common Queue Server Reference	----	----	LY37-3730
Customization Guide: Database	SC26-4624	----	----
Customization Guide: Data Communications	SC26-4625	----	----
Customization Guide: Systems	SC26-4285	----	----
Data Communication Administration Guide	SC26-4286	----	----
Database Administration Guide	SC26-4281	----	----
Database Recovery Control Guide and Reference	----	----	SC26-8733
Diagnosis Guide and Reference	LY27-9539	LY27-9620	LY37-3731
Failure Analysis Structure Tables (FAST) for Dump Analysis	LY27-9512	LY27-9621	LY37-3732
General Information	GC26-4275	GC26-3467	----
Installation Guide	SC26-4276	----	----
Installation Volume 1: Installation and Verification	----	SC26-8023	GC26-8736
Installation Volume 2: System Definition and Tailoring	----	SC26-8024	GC26-8737

Table 2. IMS/ESA libraries (continued)

Title	Version 4	Version 5	Version 6
Licensed Programming Specifications	----	GC26-8040	GC26-8738
LU6.1 Adapter for LU6.2 Applications: Program Description/Operations	SC26-4392	----	----
Master Index and Glossary	SC26-4291	SC26-8027	----
Messages and Codes	SC26-4290	SC26-8028	GC26-8739
Open Transaction Manager Access Guide/Reference	----	SC26-8026	SC26-8743
Operations Guide	SC26-4287	SC26-8029	SC26-8741
Operator's Reference	SC26-4288	SC26-8030	SC26-8742
Release Planning Guide	GC26-4386	GC26-8031	GC26-8744
Sample Operating Procedures	SC26-4277	SC26-8032	SC26-8767
Summary of Operator Commands/Summary of Commands	SX26-3764	SC26-8042	SC26-8766
System Administration Guide	SC26-4282	----	----
System Definition Reference	SC26-4278	----	----
Utilities Reference: Database/Utilities Reference: Database Manager	SC26-4627	SC26-8034	SC26-8769
Utilities Reference: Data Communication	SC26-4628	----	----
Utilities Reference: Systems	SC26-4629	SC26-8035	SC26-8770
Utilities Reference: Transaction Manager	----	SC26-8022	SC26-8771

Determining if a publication is current

IBM regularly updates its publications with new and changed information. When first published, both hardcopy and BookManager softcopy versions of a publication are usually in step. However, due to the time required to print and distribute hardcopy books, the BookManager version is more likely to have had last-minute changes made to it before publication.

Subsequent updates will probably be available in softcopy before they are available in hardcopy. This means that at any time from the availability of a release, softcopy versions should be regarded as the most up-to-date.

For CICS Transaction Server books, these softcopy updates appear regularly on the *Transaction Processing and Data Collection Kit* CD-ROM, SK2T-0730-xx. Each reissue of the collection kit is indicated by an updated order number suffix (the -xx part). For example, collection kit SK2T-0730-06 is more up-to-date than SK2T-0730-05. The collection kit is also clearly dated on the cover.

Updates to the softcopy are clearly marked by revision codes (usually a “#” character) to the left of the changes.

Summary of changes

This book is based on the Installation Guide for CICS Transaction Server for OS/390 Release 2 SC33–1681–01. Changes from that edition are marked by vertical lines to the left of the changes.

Changes for the CICS Transaction Server for OS/390 Release 3 edition

- Post-installation, addition to chapter on authorizing CICS regions
- VTAM definitions required for CICS: PERSIST=MULTI
- Defining an MVS console
- Java support

CICSPlex SM installation and setup

To support the inclusion of CICSPlex SM as an element of CICS Transaction Server for OS/390 Release 3, and the consequent revised installation processes, a new part, "Part 3. CICSPlex SM installation and setup" on page 183 has been added to explain how to install the CICSPlex SM element. This information was previously available in the *CICSPlex SM Setup* book at the previous release. It contains the following chapters

- "Chapter 29. Setup checklist and worksheets" on page 185.
- "Chapter 30. Setting up a coordinating address space (CAS)" on page 201.
- "Chapter 31. Setting up a CICSPlex SM address space (CMAS)" on page 217.
- "Chapter 32. Setting up a CICS Transaction Server for OS/390 or CICS/ESA managed application system (MAS)" on page 245.
- "Chapter 33. Setting up a CICS/VSE remote managed application system (MAS)" on page 265.
- "Chapter 34. Setting up a CICS for OS/2 remote managed application system (MAS)" on page 281.
- "Chapter 35. Setting up the interface to NetView RODM" on page 297.
- "Chapter 36. Configuring the Starter Set" on page 303.
- "Chapter 37. Applying service to CICSPlex SM" on page 313.
- "Chapter 38. CICSPlex SM installation verification procedures" on page 317.
- "Chapter 39. Installation verification procedure 2 (IVP2)" on page 343.
- "Chapter 40. Installation verification procedure 3 (IVP3)" on page 373.
- "Chapter 41. Installation verification procedure 4 (IVP4)" on page 379.
- "Chapter 42. Installation verification procedure 5 (IVP5)" on page 385.
- "Chapter 43. Using the EYUINST EXEC to tailor skeleton jobs" on page 393.
- "Chapter 44. CICSPlex SM system parameters" on page 403.
- "Chapter 45. CMAS journaling" on page 411.
- "Chapter 46. Preparing to use the IPCS tools" on page 415.

Changes for the CICS Transaction Server for OS/390 Release 2 edition

The major changes to CICS that affect CICS Transaction Server for OS/390 Release 2 are:

- “Chapter 20. Defining the logger environment for CICS journaling” on page 73 has been rewritten, to include information about DASD-only log streams.
- The chapter discussing the installation of DB2 support has been removed. Information about CICS DB2 is available in the *CICS DB2 Guide*.
- A new section “Chapter 2. Authorizing CICS regions to access MVS resources” on page 5 to explain how to authorize CICS region userids to OpenEdition MVS.

Changes for the CICS Transaction Server for OS/390 Release 1 edition

The major changes to CICS Transaction Server for OS/390 Release 1 that affect this book are:
- Support for the MVS logger
- The removal of journal control
- Support for VSAM RLS.

Other changes made to this book include:
- The removal of information relating to XRF, including information for the DFHALTDS and DFHIVPAL jobs
- The removal of information relating to the CICSplex IVPs.

Part 1. Post-installation tasks

The information about ACF/VTAM, MVS, RACF® and other products given in this part is for guidance only. Always consult the current publications of the other products for the latest information. See “Books from related libraries” on page xviii.

Note: “RACF” is used throughout this book to mean the MVS Resource Access Control Facility (RACF) or any other external security manager that provides equivalent function. The advice about using RACF applies only if you have security active in your system. If so, you must use an external security manager (such as RACF).

This part discusses what you should do after you have loaded the CICS® Transaction Server elements to DASD, and before you run CICS. It contains the following chapters:

The following chapters discuss the MVS definitions required for optional CICS functions.

Chapter 1. Authorizing the hlq.SDFHAUTH library

Although, in general, CICS runs in problem state, the CICS initialization program, DFHSIP, needs to run in supervisor state for part of its execution.

For a module to be able to run in supervisor state, it must be link-edited as an authorized module into a partitioned data set, which must also be defined to the operating system as APF-authorized. For CICS-supplied modules, the link-editing has been done for you. The CICS-supplied DFHSIP module is link-edited with the **authorized** attribute (using SETCODE AC(1)), and is installed in the *hlq*.SDFHAUTH library.

APF-authorize the *hlq*.SDFHAUTH library by adding it to the list of APF-authorized libraries in the appropriate PROGxx (or IEAAPFxx) member in SYS1.PARMLIB. The *hlq*.SDFHAUTH library must be APF-authorized to enable certain CICS modules, such as DFHSIP, to run in supervisor state.

If your list(s) of APF-authorized libraries are specified in the dynamic format (in a PROGxx member), refresh the APF list dynamically using the SETPROG or SET PROG=xx command.

If your list(s) of APF-authorized libraries are specified in the static format (in IEAAPFxx members), schedule an MVS IPL for the APF-authorization to take effect.

For information about maintaining lists of APF-authorized libraries, see the *OS/390 MVS Initialization and Tuning Guide.*

When you prepare your startup job stream, provide a STEPLIB DD statement for the *hlq*.SDFHAUTH library. When you define your STEPLIB DD statement, remember that all other libraries concatenated with the *hlq*.SDFHAUTH library must also be APF-authorized. This is because, if any of the libraries in a STEPLIB concatenation are not authorized, MVS regards all of them as unauthorized.

The *hlq*.SDFHLOAD library contains only programs that run in problem state, and should ***not*** be authorized. The *hlq*.SDFHLOAD library must be included in the CICS DFHRPL library concatenation. There is an example of this library DD statement in the sample job stream provided in the *CICS System Definition Guide.*

For information about authorizing access to CICS data sets, see the *CICS RACF Security Guide.*

Chapter 2. Authorizing CICS regions to access MVS resources

You should consider authorizing access to the following when planning your security requirements to run CICS:

CICS PDS libraries
: Protect your CICS data sets that use RACF. See "Protecting CICS load module data sets".

VTAM® ACB
: Authorize each CICS region userid to OPEN the VTAM ACB for the region's specified APPLID. See "Authorizing access to a CICS region's VTAM ACB" on page 6.

CICS system transactions
: Authorize each CICS region userid to access the CICS category 1 system transactions. See "Authorizing the region userid to access category 1 transactions" on page 7.

SMSVSAM server
: Authorize each CICS region to open the SMSVSAM control ACB if you plan to use CICS with VSAM record-level data sharing. See "Authorizing access to an SMSVSAM server" on page 7.

System logger log streams
: Authorize each CICS region userid to access the MVS system logger log streams that are used by CICS. See "Authorizing access to MVS log streams" on page 8.

RACF resource classes
: Activate the appropriate RACF resource classes to enable terminal users to access CICS resources and user-defined resources. See "Activating RACF resource classes" on page 10.

Protecting CICS load module data sets

To prevent unauthorized or accidental modification of *hlq*.SDFHAUTH, you should RACF-protect this library. Without such protection, the integrity and security of your MVS system are at risk. Additionally, if you require protection against the unauthorized use of DFHSIP, do not place this module in the LPA and do not include *hlq*.SDFHAUTH in the MVS LNKLST unless DFHSIP is RACF-protected as a controlled program with a profile in the RACF PROGRAM resource class.

You should also RACF-protect the other libraries (including *hlq*.SDFHLOAD) that make up the STEPLIB and DFHRPL library concatenations.

For information about authorizing access to CICS data sets, see the *CICS RACF Security Guide*.

Authorizing access to data set services modules

During initialization, CICS determines the availability of backup-while-open (BWO) support by linking to the callable services modules IGWAMCS2 and IGWABWO. CICS also checks the DFSMSdss™ (or DFDSS) release level by linking to the modules ADRRELVL and ADRMCLVL. If access to these data set services modules is controlled by means of RACF PROGRAM general resource profiles, security violation messages are issued against the CICS region userid, unless the userid is authorized to access ADR-prefixed module names.

You can avoid security violation messages against the CICS region userids, and still control access to data set services, as follows:

- If you have generic PROGRAM profiles protecting access to ADR modules, create specific PROGRAM profiles for the ADDRELVL and ADRMCLVL modules, and ensure your CICS region userids have READ access to these specific profiles.
- Instead of using PROGRAM profiles to protect access to data set services, use one of the following methods:
  - Define suitable profiles in the DASDVOL general resource class.
  - Defining profiles in the FACILITY general resource class that are supported by DFSMS™ to control access to data set services.

  For information about using DASDVOL and FACILITY class profiles to control the uses of data set services, see the *DFSMS/MVS DFSMSdss Storage Administration Reference*, SC26-4929, and the *DFSMS/MVS DFSMSdss Storage Administration Guide*, SC26-4930.

Authorizing access to a CICS region's VTAM ACB

You can control which users, among those who are running non-APF-authorized programs, can OPEN the VTAM ACB associated with a CICS address space (CICS region). This ensures that only authorized CICS regions can present themselves as VTAM applications that provide services with this APPLID, thus preventing unauthorized users from impersonating real CICS regions. (Note that the CICS region userid needs the OPEN access, not the issuer of the SET VTAM OPEN command.)

To enable CICS to start up with external security, you must first have authorized the CICS region userid to open the CICS region's VTAM ACB with the applid specified on the APPLID system initialization parameter.

For each APPLID, create a VTAMAPPL profile, and give the CICS region userid READ access. For example:

```
RDEFINE VTAMAPPL applid UACC(NONE)  NOTIFY(userid)
PERMIT applid CLASS(VTAMAPPL) ID(cics_region_userid) ACCESS(READ)
```

The correct CICS APPLID to specify in the VTAMAPPL class is the specific APPLID, as specified in the CICS system initialization parameters. If you are using XRF (that is, if CICS is started with XRF=YES in effect), you must define two VTAMAPPL profiles — one each for both the active and alternate CICS region's specific APPLID (the second operand on the CICS APPLID startup option).

Notes:

1. The VTAMAPPL class must be active and RACLISTed for this protection to be in effect; for example:

   ```
   SETROPTS CLASSACT(VTAMAPPL) RACLIST(VTAMAPPL)
   ```
2. If a CICS region is not to use VTAM, you do not need to authorize the CICS region userid for the CICS applid.
3. If you do not control the opening of a CICS region's VTAM ACB, a new VTAM application started with the same applid as that of a running CICS region has the following effect:

- The running CICS region performs a FORCECLOSE of its VTAM ACB and issues message DFHZC0101.
- The running CICS region either terminates or continues, depending on your use of the XXRSTAT exit. (The default is to terminate.) If the CICS region continues, all TCAM sessions remain bound to the CICS region, but it no longer uses VTAM.
- The new application opens the VTAM ACB with the specified applid.
- If the first running CICS region used VTAM persistent sessions, the new application recovers any VTAM sessions that persist from that CICS region.

For information about creating VTAMAPPL profiles for CICS region applids, see the *CICS RACF Security Guide* For information about the XXRSTAT exit, see the *CICS Customization Guide*.

Authorizing the region userid to access category 1 transactions

To enable CICS to start up with external security, you must first have authorized the CICS region userid to access the category 1 system transactions. If the region userid does not have this authority at CICS startup, CICS issues message DFHXS1113, and terminates.

To give the region userid the authority to access the category 1 system transactions, edit and submit the sample job stream in Figure 1 to execute the CICS-supplied sample CLIST, DFH$CAT1. This job uses the RACF commands in the CLIST to update the RACF database.

Note: Only a user with the RACF authority SPECIAL can execute the CLIST to update the RACF database.

```
//RACFMIG  JOB 'accounting information',
//             CLASS=A,USER=userid,PASSWORD=password
//DEFINE   EXEC PGM=IKJEFT01
//SYSPRINT DD SYSOUT=A
//SYSTSPRT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//SYSTSIN  DD *
 EXEC 'CICSTS13.CICS.SDFHSAMP(DFH$CAT1)' LIST
/*
//
```

Figure 1. Batch job to execute the sample CLIST, DFH$CAT1

For information about category 1 transactions and about determining the CICS region userid, see the *CICS RACF Security Guide*.

Authorizing access to an SMSVSAM server

If you plan to run CICS with VSAM record-level sharing (RLS), you must authorize each CICS region that connects to an SMSVSAM server to have access to that server. This means granting access to the appropriate profile in the RACF SUBSYSNM general resource class. You define profiles in the SUBSYSNM resource class to control access by subsystems like CICS that want to connect to SMSVSAM.

A SUBSYSNM profile name is the name by which a given subsystem, such as CICS, is known to VSAM. For CICS regions, you must use the CICS applid as the profile name in the SUBSYSNM general resource class.

When CICS attempts to register the control ACB during CICS initialization, SMSVSAM calls RACF to check that the CICS region userid is authorized to a profile name in the SUBSYSNM class that matches the CICS applid. If the CICS region userid does not have READ authority, the register fails.

For example, if the applid of a CICS AOR is CICSDAA1, and the CICS region userid (shared by a number of AORs) is CICSDA##, define and authorize the profile as follows:

```
RDEFINE SUBSYSNM  CICSDAA1  UACC(NONE) NOTIFY(userid)

PERMIT  CICSDAA1  CLASS(SUBSYSNM)  ID(CICSDA##)  ACCESS(READ)
```

Authorizing access to MVS log streams

There is no facility within CICS for controlling LOGSTRM security checks. This is controlled by the MVS security administrator activating the LOGSTRM and FACILITY general resource classes by means of the SETROPTS command.

Users of the IXCMIAPU administrative data utility and CICS regions both require appropriate authorizations to log streams and IXLSTR coupling facility structures.

Authorizations for users of IXCMIAPU

You create log structures and define log streams using the IXCMIAPU administrative data utility to update the LOGR data set. To do this, your userid needs the appropriate level of authorization, as shown in the following examples:

Coupling facility structures

To define and delete log structures using IXCMIAPU, you need ALTER access to the LOGR resource profile named MVSADMIN.LOGR in the FACILITY general resource class. For example, use the following RACF command:

```
PERMIT MVSADMIN.LOGR CLASS(FACILITY) ACCESS(ALTER) ID(your_userid)
```

Coupling facility log streams

To define, delete, and update log streams (including log stream models) that are defined in coupling facility structures, you need:

- ALTER access to the appropriate log stream profile defined in the LOGSTRM general resource class
- UPDATE access to the coupling facility structure (IXLSTR) profile defined in the FACILITY general resource class (in this case, profile names are prefixed with IXLSTR).

For example, if the log stream and structure resource profiles are defined to RACF with the following commands:

```
RDEFINE LOGSTRM log_stream_profile  UACC(NONE)  [NOTIFY]
RDEFINE FACILITY IXLSTR.structure_name_a  UACC(NONE)  [NOTIFY]
```

use the following RACF commands to give your userid the required authorizations to these two profiles:

```
PERMIT log_stream_profile  CLASS(LOGSTRM) ACCESS(ALTER) ID(your_userid)
PERMIT IXLSTR.structure_name_a CLASS(FACILITY) ACCESS(UPDATE) ID(your_userid)
```

Authorizations for CICS regions

If the LOGSTRM resource class is active, the level of authorization required depends on whether log streams are always explicitly defined to the MVS system logger.

Ensure that the CICS region userid is authorized to write to (and create if necessary) the log streams that are used for its system log and general logs (see "Chapter 20. Defining the logger environment for CICS journaling" on page 73.) You do this by granting the appropriate access authorization to log stream profiles in the RACF LOGSTRM general resource class:

- If CICS is expected to create log streams dynamically, CICS must have **ALTER** authority to the relevant log stream (LOGSTRM) profiles, and **UPDATE** authority to the relevant coupling facility structure (IXLSTR) profiles. For example:

```
PERMIT region_userid.applid.* CLASS(LOGSTRM) ACCESS(ALTER)
       ID(region_userid)
PERMIT IXLSTR.structurename CLASS(FACILITY) ACCESS(UPDATE)
       ID(region_userid)
```

- If all the log streams that CICS writes to are already defined to MVS, CICS needs only **UPDATE** authority to the log stream profiles. For example:

```
PERMIT region_userid.applid* CLASS(LOGSTRM) ACCESS(UPDATE)
      ID(region_userid)
```

Note: In the above examples, *region_userid.applid*.* is the generic profile name of the log stream resource. These examples illustrate a resource name prefixed by the region userid and applid. *region_userid* is the CICS region userid under which CICS is running, either as a started task or batch job.

Permit READ access to those users who need to read the CICS log streams. You must permit UPDATE access to those users who need to update journals by granting the user the appropriate authority to the log stream (in the LOGSTRM resource class) and to the JOURNALNAME (in the JCICSJCT class).

The generic profile in the following example could be defined to cover all the log streams referenced by the CICS region identified by its region userid and applid:

```
RDEFINE LOGSTRM region_userid.** UACC(NONE)
```

If, however, you have multiple CICS systems sharing the same region userid, but with differing security requirements, include the applid in the generic profile, as follows:

```
RDEFINE LOGSTRM region_userid.applid.* UACC(NONE)
```

The following example allows the CICS region userid under which CICS is running to write journal and log records to log streams in the named coupling facility structure:

```
PERMIT IXLSTR.structurename CLASS(FACILITY) ACCESS(UPDATE)
       ID(region_userid)
```

The following examples give access to two categories of user:

```
PERMIT region_userid.applid.* CLASS(LOGSTRM) ACCESS(READ)
       ID(authorized_browsers)
PERMIT region_userid.applid* CLASS(LOGSTRM) ACCESS(UPDATE)
       ID(archive_userid)
```

In these examples, *archive_userid* is the userid under which an application program runs to purge old data from CICS logs when the data is no longer needed, and *authorized_browsers* refers to the userids of users allowed to read log streams, but cannot purge data.

If several CICS regions share the same CICS region userid, you can make profiles more generic by specifying * for the *applid* qualifier.

The number of profiles you define depends on the naming conventions of the logs, and to what extent you can use generic profiling.

Authorizing CICS region userids to OpenEdition MVS

The CICS Web interface uses the OpenEdition® sockets API. This means that CICS regions using the Web interface must be authorized to access the OpenEdition sockets libraries to ensure the Web interface can resolve OpenEdition sockets API calls.

Authorize your CICS regions by including an OpenEdition MVS (OMVS) segment in the CICS region's user profile, specifying the UID parameter. In the OMVS segment, UID specifies the numeric user identifier.

When you are creating a new user profile for a CICS region userid, include the OMVS segment with the UID parameter specified (for example, on the ADDUSER command).

For CICS region userids that already exist, add the OMVS segment information using the ALTUSER command. For example:

```
ALTUSER CICSHAA1 OMVS( UID(4127) )
```

where CICSHAA1 is the CICS region userid of a CICS AOR that is initialized with Web Interface support, and 4127 is the OpenEdition numeric user identifier of the CICS region.

For information about defining OMVS segment parameters in a user profile, see the *OS/390 Security Server (RACF) Command Language Reference*, SC28-1919.

Activating RACF resource classes

Before you can use RACF for CICS resources and for user-defined resources, you must activate the associated RACF resource classes by using the RACF SETROPTS command.

To run the CICS-supplied IVPs with external security, you must activate the resource classes for CICS resources.

To use your own user-defined resources with external security in your CICS environment, you must:

- Define resource classes for your resources.
- Activate the resource classes.
- Optionally RACLIST resource classes to be used for QUERY SECURITY commands. This builds in-storage profiles for those resource classes.

For information about RACF resource classes, see the *CICS RACF Security Guide*.

Chapter 3. Defining the default CICS userid to RACF

If you intend using RACF to authorize terminal users to access CICS resources, you should define a default CICS userid to RACF and specify it on the CICS system initialization parameter, DFLTUSER. This default userid assigns the security attributes to be used for all CICS terminal users who do not sign on with the CESN transaction (or a user-written equivalent).

During startup, CICS tries to sign on the default userid. If it cannot be signed on (for example, if not defined), CICS issues message DFHSN0701 and terminates CICS initialization. After the valid default CICS userid is signed on, its security attributes are used for all CICS terminal users who do not sign on with the CESN transaction. If the default userid is defined to RACF with a CICS segment, the operator attributes in that segment are also used for users who do not sign on.

For information about defining the userid to RACF, see the *CICS RACF Security Guide*.

Chapter 4. Installing CICS-required modules in the MVS linklist

There are two categories of modules that CICS loads from the MVS linklist:
1. CICS-supplied modules
2. Modules of other MVS products (for example, DFSMS)

CICS-supplied modules required in the MVS linklist

CICS supplies the modules listed below in the *hlq*.SDFHLINK library, where *hlq* is defined by the LINDEX parameter in the DFHISTAR installation job.

AMDUSREF Alias of DFHTG530.

AXMSC AXM server connection routines for CICS data sharing servers.

AXMSI AXM subsystem initialization routine for CICS data sharing servers.

DFHDTCV Connection validation subroutine for shared data tables.

DFHDTSVC Shared data tables SVC services.

DFHGTCNV Subroutine used by LOGR subsystem interface.

DFHLGCNV Exit routine for LOGR subsystem interface.

DFHMVRMS General MVS RESMGR exit stub.

DFHNCIF Named counter server interface.

DFHNCOPT Named counter server options.

DFHPD530 Dump formatting routine for use with IPCS.

| **DFHRPDUF** System dump formatting routine for ONC RPC.

DFHRPTRI Trace interpretation routine for ONC RPC.

DFHRXSVC RRS domain authorized services.

DFHSNNFY RACF CICS segment changes notification routine.

DFHSNPTO CICS RACF dynamic parse TIMEOUT keyword print routine.

DFHSNVCL CICS RACF dynamic parse OPCLASS validation routine.

DFHSNVID CICS RACF dynamic parse OPIDENT validation routine.

DFHSNVPR CICS RACF dynamic parse OPPTRY validation routine.

DFHSNVTO CICS RACF dynamic parse TIMEOUT validation routine.

| **DFHSSIN** CICS MVS subsystem initialization routine.

DFHSSMGT CICS subsystem message table that contains the text of messages for the subsystem interface modules.

DFHTG530 Link module for the CICS GTF trace printing load module DFHTRGTF.

DFHTR530 Link module for the CICS GTF trace printing load module DFHTR530.

DFHTT530 Link module used for trace interpretation.

DFHXCSVC External CICS interface (EXCI) SVC services routine.

These modules are supplied in an APF-authorized library in the MVS linklist because:

1. They can be required by non-CICS regions such as batch jobs or a CICS data sharing server.
2. They must be consistent across several CICS regions.
3. They can be required by both CICS and non-CICS regions.
4. The RACF dynamic parse routines are required by the Security Administrator who executes the ADDUSER or ALTUSER commands under TSO. For information about the RACF interface routines, see the *CICS RACF Security Guide*.

These modules are in the *hlq*.SDFHLINK library when you install CICS.

Ensure the modules supplied in SDFHLINK are available from an APF-authorized library in the MVS linklist by:

- Adding these modules, as required, to an existing APF-authorized library defined in the MVS linklist, or
- Defining SDFHLINK itself as an APF-authorized library and including it in the MVS linklist.

Compatibility with earlier CICS releases

Unless otherwise stated, the CICS TS Release 3 versions of the modules in SDFHLINK are compatible with earlier releases of CICS.

Note: DFHPD530, DFHTG530, DFHTR530 and DFHTT530 are release dependant. If you run more than one release of CICS, ensure the correct versions are available (for example, DFHPD410 for CICS/ESA® 4.1.).

CICS shared data tables modules for the MVS linklist

CICS supplies the following modules, for the shared data tables facility, in the *hlq*.SDFHLINK. If you intend using the shared data tables facility, ensure these modules are available in the MVS linklist or the MVS link pack area:

- DFHDTSVC and DFHDTCV, because all regions using shared data tables must use the same level of SVC code
- DFHMVRMS, the RESMGR exit stub, because CICS JOBLIB/STEPLIB data sets are unavailable at end-of-memory

Modules of other MVS products in the MVS linklist

There are some DFSMS modules that CICS loads from the MVS linklist. This requirement is either dependent on the function you are using (such as backup-while-open (BWO) support), or on the release of DFSMS. The modules are:

IGWABWO

This module, supplied in the MVS callable services library, SYS1.CSSLIB, is loaded by CICS from the MVS linklist if you are using BWO for files accessed in non-RLS mode.

Note: In addition to IGWABWO being in the linklist, you must also install IGWAMCS2 in the LPA. CICS tests for the presence of this module in the LPA to determine that BWO support is present in the MVS image before attempting to load IGWABWO.

For files accessed in RLS mode, CICS does not require IGWABWO or IGWAMCS2.

IGWARLS

This module, supplied in the MVS callable services library, SYS1.CSSLIB, is loaded by CICS from the MVS linklist if you have DFSMS 1.3 or later installed. CICS issues the following message if it can't load IGWARLS:

```
DFHFC0116 APPLID THE LOAD OF CALLABLE
          SERVICE IGWARLS HAS FAILED WITH RETURN CODE
          X'EEEE'.
```

CICS initialization fails if CICS cannot load this callable services module.

Chapter 5. Defining CICS as an MVS subsystem

Define CICS as an MVS subsystem before running CICS with any of the following:
- The console message-handling facility
- Multiregion operation (MRO)
- Shared database
- MVS workload management.

For information about the console message-handling facility see “The console message-handling facility” on page 18 and the *CICS Operations and Utilities Guide*.

For information about MRO, see the *CICS Intercommunication Guide*.

For information about shared database facility, see the *CICS Operations and Utilities Guide*.

For information about MVS workload management see the *OS/390 MVS Planning: Workload Management*.

Also, if you are running CICS with XRF in a multi-MVS environment or a two-CPC (central processing complex) configuration, defining CICS as an MVS subsystem can reduce operator intervention during takeover if MVS or a CPC fails while more than one CICS is running.

Defining CICS as an MVS subsystem involves three members of the SYS1.PARMLIB partitioned data set: IEASYSxx, IEFSSNaa , and DFHSSIyy. You only need member DFHSSIyy if you want the console message-handling facility.

Note: aa,xx,yy represent suffixes used to distinguish different versions of members of the SYS1.PARMLIB library.

Note that if you intend to start CICS with the START command you must either:
- Give the MVS started task procedure a name different from the subsystem name in IEFSSNaa (default ‘CICS’),

  or
- Issue the start command with the parameter SUB=JES2 or SUB=JES3 as appropriate.

For more information about the subsystem interface, see the *OS/390 MVS Using the Subsystem Interface* .

The IEASYSxx MVS initialization member

In an IEASYSxx member (of the SYS1.PARMLIB library) used for MVS initialization, include the parameter SSN=aa, where aa refers to the SYS1.PARMLIB member IEFSSNaa that contains the definitions for all subsystems needed for this IPL of MVS, including the definition of CICS as an MVS subsystem.

The IEFSSNaa MVS subsystem initialization member

To define CICS as an MVS subsystem, code an entry in the IEFSSNaa member in the SYS1.PARMLIB library. If you want to use the console message handling facility, code the entry using one of the following methods:

```
CICS,DFHSSIN,DFHSSIyy
```

or

```
SUBSYS SUBNAME(CICS)
  INITRTN(DFHSSIN)
  INITPARM(DFHSSIyy)
```

This entry is used for every CICS region running under MVS that you have IPLed with this version of the IEFSSN member. Apart from the suffix yy, you **must** code the entry exactly as shown. The meanings of the terms are as follows:

CICS
is the name of the CICS subsystem.

DFHSSIN
is the name of the CICS subsystem routine that initializes the console message-handling facilities. If you omit this name, CICS is defined as an MVS subsystem, but none of the console message-handling facilities are enabled.

DFHSSIyy
is the name of a SYS1.PARMLIB member, described below, in which you have defined message-formatting initialization parameters for the CICS subsystem. If you specify DFHSSIN but omit DFHSSIyy, the DFHSSIN routine tries to use the parameters defined in member DFHSSI00. If the DFHSSI00 member does not exist, it uses default values (defined in the DFHSSIN member) described in “Default message-formatting initialization parameters” on page 21.

The IEFSSNaa member in the SYS1.PARMLIB library also contains the definitions for all the other subsystems needed for this IPL of MVS, for example JES2, IRLM, and DATABASE 2™ (DB2).

The console message-handling facility

The console message handling facility is an optional feature of the CICS subsystem that can affect the appearance of CICS messages displayed on an MVS console. It is effective when you specify FORMATMSG=YES as an initialization parameter for the CICS subsystem. The subsystem reformatting is enabled when at least one of the following is executing in the MVS image where the subsystem is defined:

- CICS/MVS® version 2 release 1.2
- CICS/ESA version 3 release 1.1 with APAR PL66570
- CICS/ESA version 3 release 2.1 or later
- A message automation subsystem (such as NetView) which enables the MVS “subsystem console message broadcasting” service

When this facility is used, it affects messages displayed on MVS system consoles in the following ways:

- The subsystem tries to ensure that all console messages issued by all CICS regions have a standard format. The format is:

```
                  +DFHnnnn    APPLID   MESSAGE-TEXT
                  |           |        |
Column number:    1           13       22
```

The “plus” sign (+) is added by MVS to indicate that a problem-state program issued the message. It is not present when CICS issues the message while it is in supervisor state.

The applid inserted into the message is the specific application identifier. This is the identifier that is specified in the system initialization parameter APPLID. It is the only operand when XRF=NO is also specified, or the second operand when XRF=YES is also specified.

- The subsystem adds routecodes specified in the ROUTECODE subsystem initialization parameter, so the messages might be sent to more destinations.
- The subsystem reformats messages for all CICS releases, even those issued by CICS/OS/VS version 1.
- The subsystem does not reformat messages that are issued by a CICS region that has not yet determined its applid. This includes messages that are issued while processing the system initialization table and its overrides.
- The subsystem routine that reformats the messages does not receive control until after the message has been recorded in the CICS job’s job log. Therefore, the reformatting is not usually apparent in the job log.
- Messages issued by the message domain already contain the applid. The subsystem does not insert the applid into such messages, but it might insert blank characters to cause alignment into standard locations.
- If the original CICS message is a long one, adding the applid might cause the message to exceed the maximum length for an MVS console message. In this case, the original message is suppressed (does not appear on the console), and the reformatted message is issued using the MVS multiple-line console message service to split the message over several lines. Both the original message and perhaps several instances of the reformatted multiple-line message appear in the job log, but only one copy of the reformatted message is displayed on the console.
- For some messages where the applid normally follows a time and date stamp, inserting the applid in the standard position would have resulted in the applid being duplicated within the message. For these messages, the subsystem eliminates the time and date stamp, because these are available from other sources, and only one occurrence of the applied is shown.

The DFHSSIyy message-formatting initialization member

You can specify message-formatting initialization parameters for the CICS subsystem in a member DFHSSIyy of the SYS1.PARMLIB library, where yy is the suffix that identifies the SYS1.PARMLIB member used to define the CICS subsystem. These parameters, described in this section, are FORMATMSG, HIDEPASSWORD, and ROUTECODES. Code the parameters in columns 1 through 71 of the DFHSSIyy member, for example:

```
FORMATMSG=YES,HIDEPASSWORD=YES,ROUTECODES=(1,2)
```

or

```
FORMATMSG=YES
HIDEPASSWORD=YES
ROUTECODES=(1,2,
3,4,
5,6)
```

FORMATMSG={<u>YES</u>|NO}
: Specifies whether the CICS applid is to be inserted into all DFH console messages that do not use the CICS message domain.

YES
Insert CICS applid into messages.

NO
Do not insert CICS applid into messages.

HIDEPASSWORD={YES|NO}
Specifies whether to mask the password from MODIFY commands used to enter the CICS signon transaction at an MVS console.

YES
Mask the password.

NO
Do not mask the password.

ROUTECODES=(n1[,n2] ....)
n1, n2... are numbers representing generic routecodes to be added to *all* DFH console messages issued by CICS. The routecodes 1-12 have special meanings:

1	Master console action.
2	Master console information.
3	Tape pool.
4	Direct access pool.
5	Tape library.
6	Disk library.
7	Unit record pool.
8	Teleprocessing control.
9	System security.
10	System error/maintenance.
11	Programmer information.
12	Emulators.

The status of other routecodes is as follows:

13-20	Available for customer use.
29-40	Reserved.
41-128	Available to authorized programs only.

For more information about these routing codes, see the *OS/390 MVS Initialization and Tuning Reference* manual for your version of MVS.

Default message-formatting initialization parameters

You can define message-formatting initialization parameters for the CICS subsystem in a member DFHSSIyy of the SYS1.PARMLIB library.

To use parameters defined in a DFHSSIyy member other than the DFHSSI00 member, you must specify DFHSSIyy on the IEFSSNaa member in the SYS1.PARMLIB library used to define CICS as an MVS subsystem. If you do not specify DFHSSIyy, the DFHSSIN routine tries to use the parameters defined in the DFHSSI00 member. If the DFHSSI00 member does not exist, it uses the default parameters defined in the DFHSSIN routine.

If you specify DFHSSIyy, but it does not exist, the DFHSSIN routine uses the default message-formatting initialization parameters defined in the DFHSSIN routine.

The default message-formatting initialization parameters defined in the DFHSSIN routine are:

```
FORMATMSG=YES,HIDEPASSWORD=YES
(generic routecodes are not added to messages)
```

The default facilities:

- Insert the CICS applid into the CICS console message between the message identifier and the message text. The applid is inserted into only those console messages (starting with DFH) that do not use the CICS message domain. The CICS message domain inserts the CICS applid into all messages that it handles.

  If the original message is a long one, inserting the CICS applid might cause the message to exceed the maximum length for an MVS console message. In this case, the original message is suppressed (that is, does not appear on the console), and the reformatted message is issued using the MVS multiple-line console message service to split the message text over several lines. Both the original message and perhaps several instances of the reformatted multiple-line message appear in the job log, but only one copy of the reformatted message is displayed on the console.
- Examine each MODIFY command to see if it resembles a MODIFY CICS,CESN ... command. If the MODIFY command contains an old or new password (PS=xxxx,NEWPS=xxxx), the default facilities obliterate the password with asterisks. If the MODIFY command does not contain a password, the password you enter at the MVS console is masked.

  Note: If your primary subsystem is JES3, the old and new passwords still appear in the JES3 hardcopy log. JES3 records the MODIFY command before the CICS message formatting subsystem can obliterate the password. (This does not happen when the primary subsystem is JES2.) The passwords are suppressed from the console for both JES2 and JES3. For information about the CESN transaction, and about how to prevent passwords from appearing in the hardcopy log, see the *CICS Supplied Transactions* manual.

If you do not specify DFHSSIN in the IEFSSNaa entry that defines CICS, the message handling facilities are not enabled. Also, if you run CICS as a started task, you cannot use the name “CICS” for the procedure name.

Activating message formatting

After you have defined CICS as an MVS subsystem with support for the console message-handling facility (and have specified the message-formatting parameters in the DFHSSIyy member of the SYS1.PARMLIB library), the message-handling facility is activated by the next MVS subsystem to invoke the subsystem console message broadcasting service of MVS console support. This occurs when you start up a CICS/MVS 2.1.2, or later CICS release, region or if an automated-operation program, such as NetView, is active in the MVS image.

A newly-started CICS region determines its own applid during initialization. Until the applid is known, the message-formatting facility cannot operate. Therefore, messages issued very early in CICS initialization are not formatted.

Modules needed to use the console message-handling facilities

To use the console message-handling facilities provided by the MVS subsystem functions of CICS the following CICS modules must be available at MVS IPL time:

DFHSSEN
The module that cleans up CICS resources at end-of-memory and at end-of-task.

DFHSSGC
The subsystem generic connect module that connects an active CICS region to the CICS subsystem.

DFHSSIN
The CICS subsystem initialization module.

DFHSSMGT
The subsystem message table that contains the text of messages for the subsystem interface modules.

DFHSSWT
The subsystem interface write-to-operator (WTO) router that determines whether WTO calls should be routed to the appropriate CICS-dependent modules.

These modules must reside in the LPA or in an APF-authorized library in the MVS linklist, as follows:

- The modules DFHSSIN and DFHSSMGT, installed in the *hlq*.SDFHLINK library, must reside in an APF-authorized library in the MVS linklist.
- The DFHSSEN module installed in the *hlq*.SDFHLPA library, must reside in the LPA.
- The modules DFHSSGC and DFHSSWT, installed in the *hlq*.SDFHLPA library, must reside either in the LPA or in an APF-authorized library in the MVS linklist.

Note: *hlq* is defined by the LINDEX parameter in the DFHISTAR installation job.

The current versions of these modules are compatible with earlier CICS releases that support console message handling.

For information about adding modules installed in the *hlq*.SDFHLINK library to the MVS linklist, see “Chapter 4. Installing CICS-required modules in the MVS linklist” on page 13.

For information about adding modules installed in the *hlq*.SDFHLPA library to the LPA, see “Chapter 9. Installing CICS modules in the MVS link pack area” on page 35.

Coexistence considerations

To use the message-handling facilities for CICS, you should note the following coexistence considerations:

Automated-operation programs

If your automation system needs to see the console messages before they are reformatted by CICS, its subsystem definition should be placed in IEFSSNXX before the definition for CICS. But if your automation system needs to see the reformatted messages, its definition must come after that of CICS. Consult the documentation of your automation package to determine which applies to you.

Other CICS releases

If the message-handling facility has been defined to MVS (by the CICS entry in the IEFSSNaa member of the SYS1.PARMLIB library), CICS regions running earlier releases of CICS in the same MVS image have the full benefit of the message handling that has been defined if either of the following is true:

- An automated-operation program, such as NetView, is active in the MVS image.
- A CICS region that supports message handling is running in the same MVS image. This includes CICS Transaction Server for OS/390 Release 3 regions, CICS Transaction Server for OS/390 Release 2 regions, CICS Transaction Server for OS/390 Release 1 regions, CICS/ESA 4.1 regions, CICS/ESA 3.3 regions, and CICS/MVS 2.1.2 regions with console support, and CICS/ESA 3.1.1 regions with a PTF for APAR PL66570 applied.

Note: A consequence of the console messages now having a standard format is that the date, time and informational message is no longer included. If you use these as a token, you must make a change to the code so that it looks for a different token.

Chapter 6. Installing the CICS Type 3 SVC

Install the current level of the CICS Type 3 SVC, DFHCSVC, before you attempt to start a region. To install the CICS Type 3 SVC:

1. Define the DFHCSVC module to MVS. (See “Defining the CICS SVCs to your MVS” on page 26.)
2. Install the DFHCSVC module into the LPA.

   Do not change DFHCSVC attributes

   Do ***not*** relink-edit the DFHCSVC module in order to install it into the LPA. The term *install* means move or copy a module into the LPA, by using SMP/E, or by using a copying method that re-blocks the copied modules when the target data set has a smaller block size than the data set you are copying from.

   The DFHCSVC module, as supplied, has the attributes AMODE(31) and RMODE(ANY); do ***not*** change these attributes.

   For further information about installing the DFHCSVC module in the LPA, see “Chapter 9. Installing CICS modules in the MVS link pack area” on page 35.
3. Specify the DFHCSVC number on the CICSSVC system initialization parameter.

The current version of the CICS SVC module is downward compatible with all earlier releases of CICS, which enables you to run your earlier CICS regions with current regions in the same MVS image.

CICS contains a test to verify that it is using the correct level of the CICS DFHCSVC module. If CICS calls an SVC module using the SVC number specified on the CICSSVC system initialization parameter, and the module is not at the current level, CICS issues message DFHKE0104. As a result of this message, CICS either abends with a system dump, or prompts the operator to enter an alternative SVC number, depending on the option specified on the PARMERR system initialization parameter.

Coexisting with CICS Version 3 and 4 regions

To continue using an old Type 3 SVC number on existing CICS/ESA Version 3 regions until you have completed system testing the current installation, ensure the current version of the CICS SVC module, DFHCSVC, is in the LPA, using a different name. For further information about using more than one version of the CICS SVC, see “Using more than one version of the CICS Type 3 SVC” on page 26.

Coexisting with CICS Versions 1 and 2

You can continue using a Type 2 SVC number on existing CICS Version 1 or Version 2 regions until you have completed system testing the current installation. In addition to the Type 2 SVC installed in the MVS nucleus, ensure the current version of the CICS SVC module, DFHCSVC, is in the LPA, and specify an SVC number that is different from the Type 2 version. As soon as practicable, change over to the current version of DFHCSVC for all regions, and remove the Type 2 SVC from the MVS nucleus.

If you need to use the current SVC with CICS Version 1 or Version 2 regions, you must regenerate some of the earlier release CICS modules that use the SVC number defined in them when they are generated. For information on how to regenerate modules such as DFHCRC, refer to a pre-Version 3 *Installation Guide*.

Defining the CICS SVCs to your MVS

You define both the CICS Type 3 SVC and the HPO SVC to your MVS system by specifying SVCPARM statements.

You must define the CICS SVCs in an IEASVCxx member of the SYS1.PARMLIB library, using SVCPARM statements. SVCPARM statements are described in the *OS/390 MVS Initialization and Tuning Guide*and the *OS/390 MVS Initialization and Tuning Reference* manual. If you are using the default SVC numbers, the CICS entries are as follows:

```
SVCPARM 216,REPLACE,TYPE(3),EPNAME(DFHCSVC)
SVCPARM 215,REPLACE,TYPE(6),EPNAME(DFHHPSVC)  [Only required for HPO]
```

For the current SVC modules, you must specify the EPNAME parameters as shown in the sample CICS entries.

Note: If you have a version of the DFHHPSVC module from an earlier release of CICS already link-edited into your MVS nucleus, you do not need to replace it with the latest version. Versions of the DFHHPSVC module from earlier releases of CICS are compatible with the current release. The CSECT name (EPNAME) of the version of the DFHHPSVC module from earlier releases is IGC215 (or IGCnnn, if SRBSVC=nnn was used as a CICS system generation parameter in the earlier release).

If you are not using the default SVC numbers, change the values 215 and 216 to the SVC numbers you have chosen.

You select the required IEASVCyy member by coding the SVC parameter (SVC=yy) in a SYS1.PARMLIB member (IEASYSxx) which you use to IPL your MVS. When you code new SVC numbers, they do not come into effect until you next IPL your MVS.

Using more than one version of the CICS Type 3 SVC

You may need to use more than one version of the CICS Type 3 SVC, for example to test service applied to the DFHCSVC module while using the current version in a production system.

You can run several CICS regions, at different release levels, in the same MVS image, with each region using its own version of the CICS SVC. However, if some of those regions use MRO, all regions that use MRO must use the latest CICS Type 3 SVC (DFHCSVC module) and the latest DFHIRP module. For information about using the latest SVC with earlier releases of CICS, see “MRO between different CICS releases with a changed SVC number” on page 27 and a pre-Version 3 *Installation Guide*.

To use more than one version of the CICS SVC, rename the new SVC module in the LPA, then respecify the SVC in the SVCPARM statements, as outlined in "Defining the CICS SVCs to your MVS" on page 26. To rename the new CICS SVC module, use the renaming facility of ISPF or IEBCOPY, or the TSO command RENAME, renaming the module to a unique name of your choice. We recommend that you use SMP/E to rename the CICS SVC module in the SDFHLPA library. By using the SMP/E RENAME command, SMP/E is informed of the change to the name of the CICS SVC module. Therefore, if you later use SMP/E to apply service to that module, the service is applied to the renamed module in the LPA, ***not*** the DFHCSVC module.

For example, you might want to use an SVC number 255 for a test CICS region, as well as the default CICS SVC numbered 216, for your production system:

1. Create and apply an SMP/E USERMOD to RENAME the new CICS SVC module:

   ```
   ++USERMOD(umod1) .
   ++VER(C150) FMID(HCI5300) .
   ++RENAME (DFHCSVC) TONAME(newname) .
   ```

2. You could then specify the number 255 for the new CICS SVC version by adding an appropriate statement to the list of SVCPARM statements. That list would then read:

   ```
   SVCPARM 216,REPLACE,TYPE(3),EPNAME(DFHCSVC)
   SVCPARM 215,REPLACE,TYPE(6),EPNAME(DFHHPSVC)  [Only required for HPO]
   SVCPARM 255,REPLACE,TYPE(3),EPNAME(newname)   [New CICS SVC version]
   ```

   Note: The EPNAME parameter for the new CICS SVC specifies the module name, not the CSECT name, for the new CICS SVC module.

   All the SVCPARM statements apply to the same IEASVCxx member of the SYS1.PARMLIB library.

3. Re-IPL MVS to enable all the SVC versions specified in the SVCPARM statements. After you re-IPL MVS, you can use both versions of the CICS SVC, as long as both regions do not use MRO concurrently. If both systems use MRO, then only the new, latest version of the SVC (and the latest DFHIRP module) must be used by both regions.
4. In the system initialization table (SIT) for your production system, specify (by the system initialization parameter CICSSVC) the number of the current CICS SVC. Similarly, in the SIT for your test system, specify the number of the new CICS SVC version.

MRO between different CICS releases with a changed SVC number

If a CICS TS region and other earlier release CICS regions in the same MVS image use MRO, all the regions must use the CICS TS SVC module. If when you install the CICS TS SVC in the LPA, you give the SVC a number different from the number defined to the earlier CICS regions, you must respecify the SVC number. On each earlier release CICS region to use the CICS TS SVC, specify the new SVC number on the CICSSVC system initialization parameter.

For CICS Version 1 and Version 2 regions, you should also delete the old Type 2 SVC from your MVS nucleus. This ensures that all communicating regions are using the new Type 3 SVC.

Chapter 7. Selecting the high-performance option

The high-performance option (HPO) is provided for users whose top priority is to optimize terminal response times and maximize transaction throughput. HPO improves performance by reducing the transaction path length; that is, the number of instructions needed to service each request.

Note: Use of HPO potentially allows CICS application programs to bypass all MVS integrity controls. If you decide to use HPO, ensure that the application programs used on your CICS system meet your own installation's integrity requirements.

The code to support the **VTAM authorized path** feature of HPO (the improved path through VTAM) is included in CICS.

Defining DFHHPSVC to MVS

The DFHHPSVC module must be defined to MVS as a Type 6 SVC; the default HPO SVC number defined in the DFHSIT module is 215. If you want to change the default Type 6 SVC number:

1. Define the new number to MVS. (See "Defining the CICS SVCs to your MVS" on page 26.)
2. Define the new number to CICS using the SRBSVC system initialization parameter.

If you are not using HPO, you are recommended **not** to load the DFHHPSVC module into the MVS nucleus. You choose to use HPO explicitly by coding HPO=YES in the system initialization table (SIT).

Loading module DFHHPSVC

Before you can use HPO, ensure the HPO SVC module is included in the MVS nucleus by using one of the following methods:

1. Copy the DFHHPSVC module into SYS1.NUCLEUS, renaming it to IGC215 or the appropriate name if you are not using the default, and specify it on an INCLUDE statement in the NUCLSTxx member of the SYS1.PARMLIB library. (You must also specify the name of the NUCLSTxx member on the NUCLST statement of the LOADxx member of the SYS1.PARMLIB library.) The NUCLSTxx method provides you with greater flexibility in customizing the MVS nucleus than the NMLDEF method described in the method 2.

   Note: If you have a link-edited version of the DFHHPSVC module (from an earlier release of CICS) in the MVS nucleus, you must remove it before you attempt to use the DFHHPSVC module specified on an INCLUDE statement in the NUCLSTxx member of the SYS1.PARMLIB library.

   For further information about coding a NUCLSTxx member, and about a comparison with using the NMLDEF macro, see the *OS/390 MVS Initialization and Tuning Guide*.
2. Copy the DFHHPSVC module into SYS1.NUCLEUS and specify it in a nucleus module list (NML) for CICS, created using the NMLDEF macro shown in the sample job in Figure 2 on page 30. This NML selects the CICS members in SYS1.NUCLEUS that are to be loaded into the MVS nucleus, and eliminates the

need for the MVS nucleus to be re-link-edited for the DFHHPSVC module (or any other module needed in the MVS nucleus).

Note: If you have a link-edited version of the DFHHPSVC module (from an earlier release of CICS) in the MVS nucleus, you must remove it before you attempt to use the DFHHPSVC module specified in an NML.

For information about coding an NMLDEF macro, see the *OS/390 MVS Programming: Authorized Assembler Services Reference LLA-SDU* manual.

```
//LOADSVC   JOB 'accounting info',MSGCLASS=A,CLASS=A
//NMLDEF    EXEC ASMHCL
//C.SYSIN    DD *
IEANCnnn NMLDEF NUCL=DFHHPSVC
//L.SYSLMOD DD DSN=SYS1.NUCLEUS,UNIT=3380,DISP=OLD
//L.SYSIN DD *
  NAME IEANCnnn
/*
//
```

where *nnn* is the number of the CICS NML, in the range 001 through 256. Choose the value of *nnn* to be unique within your MVS nucleus.

Figure 2. Sample job stream to load the CICS Type 6 SVC into the MVS nucleus

Removing existing DFHHPSVC modules from the MVS nucleus

You can remove a link-edited version of the DFHHPSVC module (for an earlier release of CICS) from the MVS nucleus by running a link-edit job to replace the existing version of the nucleus with one that does not contain the module to be removed.

Notes:

1. If the existing nucleus-resident DFHHPSVC module is known to SMP/E, use the SMP/E UCLIN statement to remove the module entry.
2. You must link-edit the nucleus module, IEANUC0x, with the scatter (SCTR) attribute. If you do not do this, MVS enters a non-restartable wait state at system initialization.
3. If you have a version of the DFHHPSVC module from an earlier release of CICS already installed in your MVS nucleus, you do not need to replace it with the latest version. Versions of the DFHHPSVC module from earlier releases of CICS are compatible with the current release.

Chapter 8. Defining CICS regions as applications to VTAM

To use VTAM terminals with CICS, you must ensure that your CICS regions are defined to VTAM before you attempt to run them.

To define your CICS regions to VTAM (as VTAM applications), you must:

1. Define VTAM application program major nodes (APPL) to be used for your CICS regions, as APPL definition statements in a member of the SYS1.VTAMLST library (or your own user.VTAMLST library).
2. Issue a VARY ACT command to activate the APPL definition for a CICS region to be able to use that CICS region with VTAM.

For further information about defining CICS as a VTAM application, see the *OS/390 eNetwork Communications Server: SNA Resource Definition Reference* and *OS/390 eNetwork Communications Server: SNA Network Implementation*.

You must also ensure that your VTAM terminals are properly defined for connection to CICS. This is particularly important if you intend using the CICS autoinstall function. For those terminals for which you want to use autoinstall, you must code LOGON mode table entries that match the model TYPETERM/TERMINAL definitions that CICS uses. You can either code your own autoinstall models, or use the CICS-supplied model definitions that are generated for you when you initialize the CICS system definition data set (CSD).

Note: If you do not have ACF/VTAM® installed, you may get assembly errors if you try to apply service to CICS-supplied modules containing VTAM macros.

For programming information about matching VTAM LOGMODE definitions with CICS model definitions, see the *CICS Customization Guide*.

For information about defining model and VTAM terminal definitions to CICS, see the *CICS Resource Definition Guide*.

For further information about defining VTAM resources, see the *ACF/VTAM Installation and Resource Definition* manual.

Defining specific CICS APPL statements to VTAM

To define a VTAM APPL statement for a CICS region, you must specify the full name of the APPL on the VTAM APPL definition statement.

For example, you could use the following definition for the CICS region, CICSHTH1:

```
***********************************************************************
* Specific APPL definition for CICS region CICSHTH1
***********************************************************************
CICSHTH1 APPL  AUTH=(ACQ,VPACE,PASS),VPACING=0,EAS=5000,PARSESS=YES    X
               SONSCIP=YES
*********************************************************************
```

Notes:

1. Code CICSHTH1 on the CICS system initialization parameter APPLID to define the VTAM application identifier to CICS.
2. See "Data set naming conventions" on page 119 for information about the naming convention used for the CICSHTH1 applid.

For further information about the parameters that you must specify on the VTAM APPL definition statement, see "VTAM definitions required for CICS".

VTAM definitions required for CICS

When you define your CICS system to ACF/VTAM, include the following parameters on the VTAM APPL statement:

ACBNAME=acbname
: Specifies the minor node name (*acbname*) assigned to this application. This name must be unique within the domain. If you do not specify this parameter, the name of the VTAM APPL statement is taken.

AUTH=(ACQ,VPACE[,PASS])
: ACQ allows CICS to acquire LUTYPE6 sessions. VPACE allows pacing of the intersystem flows. PASS is needed if you intend to use the EXEC CICS ISSUE PASS command, which passes existing terminal sessions to other VTAM applications.

EAS=*number*
: Specifies the number of network-addressable units. The number must include the total number of parallel sessions for this CICS system.

HAVAIL=YES
: Indicates that the application supports XRF sessions and is authorized to initiate XRF sessions.

LOGMODE=*name*
: (For CICS-to-CICS APPC systems.) Defines the name of the MODE table that contains the LU6.2 MODEENT for the secondary sessions.

PARSESS=YES
: Specifies LUTYPE6 parallel session support.

PERSIST=MULTI
: Indicates that the application supports Multi Node Persistent Sessions (MNPS). For further information, see the *OS/390 eNetwork Communications Server: SNA Network Implementation*.

SONSCIP=YES
: Specifies session outage notification (SON) support. SON enables CICS, in certain cases, to recover a session after session failure without operator intervention.

VPACING=number
: Specifies the maximum number of normal-flow requests that another logical unit can send on an intersystem session before waiting to receive a pacing response. Start with a value of 5.

VTAM version and release level indicator

CICS can communicate with different releases of VTAM. It can find out which level you are using, and hence what level of function is available. This means that you can upgrade CICS and VTAM at different times. CICS finds out whether extra function is available when a new version of VTAM is installed, and produces a message if the facilities are not being exploited fully.

The terminal control modules in CICS are assembled against the most recent release of VTAM that was available when the distribution tape was created. You can use any release of VTAM from ACF/VTAM Version 3 Release 1, or a later upward compatible release, or use the DCB interface only of ACF/TCAM Version 3 or later. For details of the minimum level of products that you can use with the current release, see the *CICS Transaction Server for OS/390 Release Guide*.

Message DFHZC3473 on opening the VTAM ACB

If the master terminal operator opens the VTAM ACB for the first time, using the command CEMT SET VTAM OPEN, but CICS is not using all available VTAM function, message DFHZC3473 is sent to the transient data destination called CSNE. The same message is sent there if the ACB is opened automatically, during initialization, rather than by CEMT.

Cross-domain considerations

If you want to use VTAM services to access a CICS region on another MVS image, you must ensure that the required cross-domain services are defined to the VTAMs involved.

For example, to be able to use a VTAM APPC connection between a CICS region (applid CICSHTH1) on MVS image MVSH and a CICS region (applid CICSHAJ1) on MVS image MVSJ, you must:

1. Define the cross-domain services (CDRSC) for accessing CICSHAJ1 in a member of the SYS1.VTAMLST library (or your own user.VTAMLST library) for MVSH.
2. Issue a VARY ACT command on MVSH to activate the CDRSC definition for accessing CICSHAJ1.
3. Define the cross-domain services (CDRSC) for accessing CICSHTH1 in a member of the SYS1.VTAMLST library (or your own user.VTAMLST library) for MVSJ.
4. Issue a VARY ACT command on MVSJ to activate the CDRSC definition for accessing CICSHTH1.

For example, you could:

1. Create the following CDRSC definition in a member of the VTAMLST library on MVSH:

```
CDIDHAJ1 VBUILD TYPE=CDRSC
*********************************************
* CDRSC for access to applid CICSHAJ1 on MVSJ
*********************************************
CICSHAJ1 CDRSC CDRM=IYAMCDRM   MVSJ
```

2. Issue the following command on MVSH to activate the cross-domain services to CICSHAJ1 on MVSJ:

```
/V NET,ACT,ID=CDIDHAJ1
```

3. Create the following CDRSC definition in a member of the VTAMLST library on MVSJ:

```
CDIDHTH1 VBUILD TYPE=CDRSC
*********************************************
* CDRSC for access to applid CICSHTH1 on MVSH
*********************************************
CICSHTH1 CDRSC CDRM=IYALCDRM   MVSH
```

4. Issue the following command on MVSJ to activate the cross-domain services to CICSHTH1 on MVSH:

```
/V NET,ACT,ID=CDIDHTH1
```

Chapter 9. Installing CICS modules in the MVS link pack area

This section describes:

- What you should consider before you install modules in the MVS link pack area. This is described in "Preparing to install CICS modules in the MVS link pack area".
- What you should do to use CICS modules in the MVS link pack area. This is described in "How to use modules in the MVS link pack area" on page 39, which provides specific information about the following:
  - "Space requirements for CICS modules in the MVS link pack area" on page 39
  - "Defining the CICS LPA library to your MVS" on page 39
  - "Installing CICS modules in the LPA" on page 40
  - "Controlling the use of modules from the MVS link pack area" on page 42

Preparing to install CICS modules in the MVS link pack area

Before you install modules in the MVS link pack area, you should consider the following points, described in subsequent topics:

- "Benefits of using the MVS link pack area"
- "What is meant by the MVS link pack area?" on page 36
- "Which modules must be in the MVS link pack area" on page 36
- "Which modules can be in the MVS link pack area?" on page 37
- "Service considerations" on page 38

Benefits of using the MVS link pack area

The benefits of placing code in the MVS link pack area are:

- The code is protected from possible corruption by user applications. Because the MVS link pack area is in protected storage, it is virtually impossible to modify the contents of these programs.
- Performance can be improved and the demand for real storage reduced if you use the MVS link pack area for program modules. If more than one copy of the same release of CICS is running in multiple address spaces of the same processor, each address space requires access to the CICS nucleus modules. These modules may either be loaded into each of the address spaces or shared in the MVS link pack area. If they are shared in the MVS link pack area, this can reduce the working set and therefore, the demand for real storage (paging).
- You can decrease the storage requirement in the private area by judicious allocation of the unused storage in the MVS link pack area created by rounding to the next segment.

  If you know the amount of space that you need in the LPA, and from that the total size of the MVS common area above the CICS private storage, you can determine on which 1MB segment lies the boundary between the two areas. This may indicate that there is some space in the MVS common area left unused, which you could use for CICS LPA-eligible modules. By moving some more modules from the CICS private storage to the LPA, you decrease the space needed for modules in the CICS private storage.

What is meant by the MVS link pack area?

The MVS link pack area comprises several areas, both above and below 16MB. In this publication, the term **MVS link pack area** is used to refer to the pageable link pack areas above and below the line, into which modules that are to be used from the MVS link pack area are normally installed.

Note: The MVS link pack area has both pageable and fixed parts. Although you can install CICS modules into the fixed parts, you are recommended to use the pageable areas for performance reasons.

The MVS link pack area below 16MB is specifically referred to by the term **LPA**, and the area above 16MB is referred to by the term **ELPA**. A module that is link-edited with the RMODE(ANY) attribute is loaded into the ELPA.

If you install a module into the LPA or ELPA, that module will not be used from the MVS link pack area until you re-IPL your MVS with CLPA specified. However, you can use the MVS modified link pack area (MLPA) to provide a temporary extension to the PLPA, existing only for the life of the current IPL. You can use this area to add or replace altered LPA-eligible modules without having to recreate the MVS link pack area. For further information about the MLPA, see the *OS/390 MVS Initialization and Tuning Guide*.

Which modules must be in the MVS link pack area

The CICS modules listed in Table 3 must be in the MVS link pack area for the reasons given in the notes after the table.

Table 3. CICS modules required in the MVS link pack area

Module	Description	When needed in LPA	See notes after this table
DFHCSVC	CICS Type 3 SVC	Always	1, 2, 3, and 5
DFHDSPEX	CICS post exit stub	Always	1 and 4
DFHDUMPX	SDUMPX IEASDUMP QUERY exit	Always	1 and 3
DFHIRP	Interregion communication program	To use MRO, CICS shared database, or the console message-handling facility	1, 2, and 5
DFHSSEN	Subsystem interface end-of-memory / end-of-task clean up routine	To use the console message-handling facility	1, 2, and 5
DFHSSGC	Subsystem generic connect module	To use the console message-handling facility	6
DFHSSWT	Subsystem interface WTO router	To use the console message-handling facility	6
DFH99SVC	Dynamic alloeaction - SVC services	Always	1

Notes:

1. Can be used only from the MVS link pack area, and must be installed there before CICS can be started.
2. You must always install the latest service level of the modules DFHCSVC, DFHIRP (if needed) and DFHSSEN.

3. The DFHCSVC and DFHDUMPX modules supplied with the current release are downward-compatible and work correctly with earlier CICS regions. Therefore, if you are running different releases of CICS on the same MVS image, you are recommended to use the current versions of the modules.

   The DFHCSVC module must be defined to MVS as a Type 3 SVC (default SVC number is 216), and if you use a non-default SVC number, you must define it to CICS on the CICSSVC system initialization parameter. You should review the information in the *CICS Transaction Server for OS/390 Migration Guide* before installing the DFHCSVC module in the MVS link pack area.

   > **Moving DFHCSVC into the MVS link pack area**
   >
   > Do **not** use the linkage editor to install the CICS SVC module into a library in the MVS link pack area. To copy or move the module from the *hlq*.SDFHAUTH library to the nominated library in the MVS link pack area, you should use either a suitable copy utility program, such as IEBCOPY, or an SMP/E USERMOD with `++MOVE` statements.

4. The DFHDSPEX module is downward-compatible with earlier releases of CICS. If you are running earlier releases of CICS with the current version, you must ensure that the current version module is installed in the MVS link pack area. The DFHDSPEX module must be in the MVS link pack area for integrity reasons, but the post exit routine, DFHDSAUT, can reside either in the MVS link pack area, or in the CICS address space. This enables you to use different levels of the DFHDSAUT module in different CICS regions running in the same MVS image, because the DFHDSAUT module may not be compatible between CICS versions.
5. To communicate by MRO, all CICS regions in the same MVS image must use the latest level of the modules DFHCSVC, DFHIRP and DFHSSEN in the MVS link pack area.

   If a region detects that DFHIRP is at a lower level, when attempting to open interregion communication, it issues message DFHIR3799, and interregion communication fails to open.
6. To use the console message-handling facility, these modules must reside either in the MVS link pack area or in an APF-authorized library in the MVS linklist.

Which modules can be in the MVS link pack area?

Besides those CICS modules that must be in the MVS link pack area, other CICS modules and user application program modules can also be used from the MVS link pack area.

CICS modules

A CICS module optionally installed in the MVS link pack area (that is, not a module required in the MVS link pack area) can be used only by the release of CICS to which it relates.

Those CICS modules that can reside above the 16MB line (for example, the CICS message table, DFHMGT), are loaded above the line. Such modules can also be installed in the extended link pack area (ELPA).

CICS modules eligible to be used from the MVS link pack area are listed in the CICS-supplied USERMODs, DFH$UMOD (for base CICS modules), installed in the *hlq*.SDFHSAMP library. Details of LPA-eligible modules are given in “Appendix B. CICS modules eligible for the MVS link pack area” on page 423, to help you select those CICS modules that you want to install in the MVS link pack area.

User application programs

User application programs can be used from the MVS link pack area if they are read-only and:

- Written in COBOL, do not overwrite WORKING STORAGE, and are compiled using VS COBOL II. (The CICS translator generates a CBL statement with the required compiler options, RENT and RES.)
- Written in PL/I (do not overwrite STATIC storage) and compiled using PL/I Version 1 Release 5.1 or later. (The CICS translator inserts the required REENTRANT option into the PROCEDURE statement.)
- Written in C/370, compiled with the RENT option, and link-edited with the RENT option.
- Written in Assembler language, assembled with the RENT option, and link-edited with the RENT and REFR options.

BMS maps or programs compiled using OS/VS COBOL are not LPA-eligible.

Command-level user application programs compiled using VS COBOL II or PL/I Version 1 Release 5.1 or later, or written in Assembler language or C/370, may be loaded above the 16MB line. (For information about installing application programs, see the *CICS System Definition Guide*.)

A read-only module that may reside above the 16MB line is also eligible for the extended link pack area (ELPA).

Service considerations

Using modules with mismatching service levels can cause unpredictable results. To be safe, do not use the LPA version of a module if it differs from the version in the CICS libraries that you are using.

Load modules used from the LPA might be at a lower service level than the rest of your CICS region in any of the following circumstances:

- You are running CICS from libraries which belong to a target zone currently at a higher service level than the LPA zone.
- You have applied service to the LPA zone since the last IPL of MVS.
- You are not using the MLPA to replace service-updated load modules, but have applied service to the LPA zone since last IPL of MVS for which CLPA (create link pack area) was specified.

Thus, if you have applied service to a load module in your CICS libraries, you should also apply the service to the LPA version of the module, if one exists. This stipulation is made so that the MVS link pack area always contains tested load modules.

Use the SMP/E RESTORE function to back off the USERMOD before the LPA zone is updated or copied. Afterwards the USERMOD may be re-applied.

If you have used a copy of the CICS-supplied USERMODs to install modules into the MVS link pack area, and the original USERMOD is serviced, you may like to reflect the changes in your version of the USERMOD.

How to use modules in the MVS link pack area

To use CICS modules in the MVS link pack area:

1. Check that you have enough space for the selected modules.
2. Install the modules in the MVS link pack area.
3. Control the usage of modules from the MVS link pack area.

These steps are described in the following sections.

Space requirements for CICS modules in the MVS link pack area

Allow enough space in the MVS link pack area for you to install those CICS modules that you intend using from there. You can find out how much space you need by:

- Reviewing the sizes of the modules that you want to install in the MVS link pack area, as given in "Appendix B. CICS modules eligible for the MVS link pack area" on page 423.
- Reviewing the module index of a system dump for the CICS region started with the system initialization parameter LPA=NO.
- Calculating the module sizes given for each module in the listing of modules provided by the IEHLIST utility program.

Remember also to allow space for any of your user application programs that you intend using from the MVS link pack area.

Note: The total space needed depends on how the modules are packaged into the MVS link pack area by the operating system.

What next?

Once you have determined the space in the MVS link pack area needed, you must next create a library with enough space, and define it to your MVS. This is described in the topic "Defining the CICS LPA library to your MVS".

Defining the CICS LPA library to your MVS

CICS supplies the library *hlq*.SDFHLPA. This library contains the modules that must be in the LPA. You can also use this library to install other CICS modules or application programs which you want to use from the LPA.

You can give the *hlq*.SDFHLPA library your own index, but if you do, you must specify the new index on the LINDEX parameter of the DFHISTAR job.

Add the full name of the *hlq*.SDFHLPA library to an LPALSTxx member of SYS1.PARMLIB. This ensures that the library contents are loaded into the PLPA at the next IPL of your system when CLPA is specified. Also APF-authorize the *hlq*.SDFHLPA library, by adding its name to an IEAAPFxx member of the SYS1.PARMLIB library.

For more information about this see "Chapter 25. Java support" on page 129.

You should also RACF-protect the *hlq*.SDFHLPA library, to prevent unauthorized or accidental modification of this library. For information about protecting the CICS libraries, see the *CICS RACF Security Guide*.

What next?

During migration to the current release use of the MVS link pack area, you may like to add a DD statement for the *hlq*.SDFHLPA library to the DFHRPL concatenation of your CICS startup job stream.

You can install into the *hlq*.SDFHLPA library the CICS modules to be used from the MVS link pack area. This is described in "Installing CICS modules in the LPA".

Installing CICS modules in the LPA

By *install*, we mean move or copy a module into a suitable LPA library, by using SMP/E, or by using a copying method that will re-block the copied module(s) when the target data set has a smaller block size than the data set you are copying from (for example, use the COPYMOD function of the IEBCOPY program). A procedure for installing modules into the MVS link pack area by using SMP/E is described in thissection.

You should not relink-edit the modules in order to get them into the LPA library. CICS modules as supplied have the necessary attributes that cause MVS to load them automatically above the line (into the ELPA).

To install modules in the CICS LPA library, and to ensure that SMP/E can continue to service them, complete the following steps:

1. Select those modules that you want to use from the MVS link pack area, and specify them in the SMP/E USERMOD to be used to install the modules in the MVS link pack area.

   You can use the CICS-supplied USERMOD, LPAMODS, or create and use your own version.

   If you use your own version of a USERMOD, this can include `++MOVE` statements from both CICS-supplied USERMODs.
2. Receive the USERMOD into the CICS global zone.
3. Apply the USERMOD to the LPA zone.

   Note: When you have installed all your modules into the CICS LPA library (and defined it to MVS), you should re-IPL your MVS with CLPA specified to enable the modules to be used from the CICS LPA library.

These steps are described in the following sections.

Selecting modules for the MVS link pack area

You should install in the MVS link pack area only those modules that you want to use from the MVS link pack area. "Appendix B. CICS modules eligible for the MVS link pack area" on page 423 lists the CICS-supplied modules eligible for the MVS link pack area, and gives descriptions and other information to help you select those CICS modules that you want to use from the MVS link pack area.

To install modules in the MVS link pack area, you should use an SMP/E USERMOD that contains ++MOVE statements for only the modules to be installed in the MVS link pack area.

The CICS-supplied SMP/E USERMOD, DFHUMOD

CICS supplies an SMP/E USERMOD called DFHUMOD (in member DFH$UMOD in the *hlq*.SDFHSAMP library). This USERMOD contains ++MOVE statements for all CICS modules, in the *hlq*.SDFHAUTH and *hlq*.SDFHLOAD libraries, that are eligible for the MVS link pack area. The USERMOD also indicates whether each module is LPA- or ELPA-eligible. You can choose which of the modules to install in the MVS link pack area by creating your own version of the USERMOD. Your selection will generally include modules in the working set of the installation.

Changing a CICS-supplied USERMOD

If you intend changing a CICS-supplied USERMOD, to choose modules to install in the MVS link pack area, take a copy of the USERMOD and update the copy only. If you have copied the *hlq*.SDFHSAMP library, for instance when changing user-replaceable programs, then you already have copies of the CICS-supplied USERMODs. If the original *hlq*.SDFHSAMP library is serviced, and the USERMOD is modified, you may like to reflect the changes in your version.

Preparing the USERMOD

To choose which read-only modules to install in the MVS link pack area, edit your copy of the SMP/E USERMOD to:

1. Comment out the ++MOVE statements for the modules that you do not want to install in the LPA, and
2. Move the remaining ++MOVE statements (for the modules that you do want to install in the LPA) one column to the left, so that the ++MOVE statements start in column one of the USERMOD module.
3. Add ++MOVE statements for your user application program modules that you want to install in the LPA, with the ++MOVE statements starting in column one of the DFH$UMOD module.

Receiving and applying the USERMOD

Receive the USERMOD into the CICS global zone and apply it to the LPA target zone. This causes SMP/E to move those load modules you have specified from the named CICS target library (*hlq*.SDFHLOAD or *hlq*.SDFHAUTH) into the CICS LPA library. Applying the USERMOD will also update the corresponding LMOD entries within the target zone SMPCSI.

Do not accept the USERMOD into the distribution zone, and for the time being, do not apply it to any other target zone.

To receive and apply the CICS-supplied sample usermods in DFH$UMOD, you can use the associated job DFHLPUMD which is tailored to your CICS environment and stored in the *hlq*.XDFHINST library when you run the DFHISTAR job.

What next?

To enable CICS to use the modules that you have installed in the MVS link pack area, you must re-IPL your MVS with CLPA specified.

You must also specify to CICS that it is to use modules from the MVS link pack area. You can also control which modules are to be used from the MVS link pack area in several ways. This is described in the topic "Controlling the use of modules from the MVS link pack area".

Controlling the use of modules from the MVS link pack area

This topic describes what you must do to enable CICS to use modules from the MVS link pack area, and what you can do to specify that CICS **is not** to use eligible modules from the MVS link pack area.

The methods for controlling the use of modules from the MVS link pack area ***do not*** apply to the modules DFHCSVC, DFHDSPEX, and DFHIRP. These modules can be used only from the MVS link pack area.

Modules in the MVS link pack area from hlq.SDFHAUTH

CICS uses standard MVS load facilities for modules installed in the MVS link pack area from the CICS APF-authorized library, *hlq*.SDFHAUTH. That is, such a module will be used from the first of the following locations that it is found in:

1. STEPLIB concatenation
2. MVS link pack area
3. MVS LNKLST

Using modules from the MVS link pack area

To use any of the CICS modules installed in the MVS link pack area from the *hlq*.SDFHAUTH library you must remove any version of the module from the *hlq*.SDFHAUTH library (or any other library in the STEPLIB concatenation).

Using modules from the STEPLIB

You can prevent CICS using modules installed in the MVS link pack area from the *hlq*.SDFHAUTH library by installing versions of those modules in a library in the STEPLIB concatenation. CICS will then use the versions of the modules loaded from the STEPLIB concatenation into the CICS address space, rather than any versions that may be in the MVS link pack area.

Modules in the MVS link pack area from hlq.SDFHLOAD

The use of CICS modules installed in the MVS link pack area from the *hlq*.SDFHLOAD library is controlled by CICS system initialization parameters and resource definitions.

The *hlq*.SDFHLOAD library is used for non-nucleus CICS modules, and some CICS nucleus modules. You can also use the library for your own user application programs.

Using modules from the MVS link pack area

To use any of the CICS modules installed in the MVS link pack area from the *hlq*.SDFHLOAD library:

- Copy the modules into a CICS LPA library. (That is, you do not have to remove them from the *hlq*.SDFHLOAD library.)
- Specify the system initialization parameter LPA=YES. CICS then uses the following search order:
  1. MVS link pack area
  2. DFHRPL DD concatenation
- For a non-nucleus CICS module or user application program, specify USELPACOPY(YES) on the associated PROGRAM resource definition. These modules are identified in the CICS-supplied USERMODs by the statement:

  ```
  /* Not loaded from LPA unless USELPACOPY is set to Y in the CSD   */
  ```

  For each CICS-supplied LPA-eligible module that needs USELPACOPY(YES) specified in its associated PROGRAM resource definition, you must create your own resource definition with USELPACOPY(YES) specified, and use it instead of the CICS-supplied resource definition. This is because you cannot modify the CICS-supplied resource definitions. For example, you could use the DFHCSDUP utility program to:

  1. Copy the CICS-supplied resource groups that contain the module definitions to new resource groups.
  2. For each module that needs USELPACOPY(YES), change the PROGRAM resource definition in the new resource groups to specify USELPACOPY(YES).
  3. Add your new resource groups to a new group list (that is, at the start of the list).
  4. Append the CICS-supplied group list DFHLIST (or your own equivalent of that group list) to your group list. Alternatively, include DFHLIST on the GRPLIST system initialization parameter as well as your group list.
  5. Remove the CICS-supplied groups that you have copied.

  Once the program definitions have been changed on the CSD you should:

  – Reinitialize the CICS catalogs if you have been using modules not in the MVS link pack area, and now want to use those modules from the MVS link pack area

  – Specify your new group list (and DFHLIST if your group list does not include the list of resource groups provided in DFHLIST) on the GRPLIST system initialization parameter.

  A sample DFHCSDUP job for all CICS LPA-eligible jobs is given in Figure 3 on page 47.

  Note: In the above example, instead of steps 3 and 4, you could use the CEDA transaction to:

  – Copy your group list to create a new group list.

  – Add the new (USELPACOPY(YES)) groups to the new group list ***in the same place as*** the original, CICS-supplied, groups.

Notes:

1. CICS will use eligible modules installed in the MVS link pack area, if:
   - You have ***not*** specified the name of the module on the CICS system initialization parameter PRVMOD.
   - The module has not been already loaded from the DFHRPL concatenation.
2. If CICS cannot find an eligible module in the MVS link pack area, it loads the private (non-shared) version into the CICS address space from the DFHRPL

concatenation, after issuing the message DFHLD0107I to warn you that the module is not in the MVS link pack area. (See page "The module-not-found warning message (DFHLD0107I)" on page 46 for more information about this message.)

3. CICS assumes that the PL/1 modules, IBMBPSLA and IBMBPSMA, are installed in the MVS link pack area and issues message DFHLD0107I if it fails to find them there. If you want your PL/I application programs to run with the PL/I shared library facility, you must ensure that the modules IBMBPSLA and IBMBPSMA are installed in the MVS link pack area, or in the *hlq*.SDFHLOAD library (or another library in the CICS DFHRPL library concatenation).
4. Program list tables (PLTs) must be placed in the DFHRPL concatenation. However, before PROGRAM resource definitions for phase one PLTPI programs and PLTSD programs are installed (for example, early in CICS initialization) CICS scans the MVS link pack area for those programs, and will issue message DFHLD0107I if it cannot find such a program there.
5. Likewise, before PROGRAM resource definitions for global and task-related user exit programs are installed (for example, early in CICS initialization) CICS scans the MVS link pack area for those programs, and will issue message DFHLD0107I if it cannot find such a program there.

Specifying USELPACOPY(YES)

For every non-nucleus CICS module or user application program that you have moved to the MVS link pack area (that is, have removed from the DFHRPL concatenation), ensure that you have specified USELPACOPY(YES) on the associated PROGRAM resource definition. Otherwise, CICS will not be able to find the module, and may fail to start up successfully.

Using modules from DFHRPL

You can prevent CICS using modules installed in the MVS link pack area from the *hlq*.SDFHLOAD library by either:

- Specifying NO on the LPA system initialization parameter.

  This will prevent CICS from using any modules installed into the MVS link pack area from the *hlq*.SDFHLOAD library. CICS will try to load the modules from libraries in the DFHRPL concatenation.

  You might use this option when you want to run CICS to test a lot of LPA-eligible modules before installing them in the MVS link pack area. For example, you could add the *hlq*.SDFHLPA library to the DFHRPL concatenation while testing CICS modules for the MVS link pack area. Once you have verified the use of those modules from the MVS link pack area, you should specify the LPA=YES system initialization parameter, and remove the *hlq*.SDFHLPA library from the DFHRPL concatenation.
- Specifying the name of the module on the PRVMOD system initialization parameter:

  ```
  PRVMOD={name|(name1,name2,...)}
  ```

  This will prevent CICS from using the specified modules from the MVS link pack area for only the run of CICS on which the PRVMOD parameter is specified. You might use the PRVMOD parameter when you want to run CICS to test a new version of an LPA-eligible module before replacing the version already in the MVS link pack area.

Specify the full module name on the PRVMOD parameter, including any suffix (for example, DFHMCP1$). If only one module is named, the parentheses are optional. The PRVMOD parameter may span input lines. However, do not split module names across lines, because CICS system initialization adds a comma at the end of every input line that does not already end with a comma. The only validity check performed on a module name is to ensure that it does not exceed eight characters.

You cannot code the PRVMOD parameter in the DFHSIT module; you can specify it in the PARM parameter, in the SYSIN data set, or through the system console.

- For a non-nucleus CICS module or user application program, specifying USELPACOPY(NO), the default, on the associated PROGRAM resource definition. These modules are identified in the CICS-supplied USERMODs by the statement:

```
/* Not loaded from LPA unless USELPACOPY is set to Y in the CSD   */
```

  You might use the USELPACOPY(NO) option of the PROGRAM resource definition for a more permanent exclusion of an LPA-resident module than for the single run of CICS control provided by the PRVMOD system initialization parameter.

Verifying modules for the MVS link pack area

While verifying new versions of modules to be installed into the MVS link pack area, you can instruct a CICS region to use the new versions from the DFHRPL concatenation by any of the following options:

- The LPA=NO system initialization parameter
- The PRVMOD system initialization parameter
- The USELPACOPY(NO) option of the associated PROGRAM resource definition (where applicable)

For further information about these options, see “Using modules from DFHRPL” on page 44

In all cases, you must install the new versions of the modules into the *hlq*.SDFHLOAD library, or another library in the DFHRPL concatenation.

If you are verifying many CICS LPA-eligible modules, you might like to add the *hlq*.SDFHLPA library to the DFHRPL concatenation. This allows you to check that the modules you have installed in the MVS link pack area are being loaded from there.

Note: The CICS-supplied usermods use SMP/E to move CICS LPA-eligible modules into the *hlq*.SDFHLPA library. Similarly, if you use SMP/E to apply service to any of those modules, the versions in the *hlq*.SDFHLPA library will be updated. The updated versions of the modules will be used from the MVS link pack area after you next re-IPL your MVS with CLPA specified. Until then, if you add the *hlq*.SDFHLPA library to the DFHRPL concatenation of your CICS region, and specify that CICS is not to use the version of the modules in the MVS link pack area, the updated versions of the modules will be used from the DFHRPL concatenation.

After you have installed and verified the use of modules from the MVS link pack area, you should remove the versions of the modules from the DFHRPL concatenation of your CICS startup job.

You can find out whether CICS is loading modules from the MVS link pack area or the DFHRPL concatenation by reviewing the index of a system dump for the CICS region started with the system initialization parameter LPA=YES. Modules loaded from the MVS link pack area have the dump option LD=3.

The module-not-found warning message (DFHLD0107I)

CICS will issue message DFHLD0107I if it searches the MVS link pack area for a module installed there from *hlq*.SDFHLOAD and fails to find it.

If you encounter this message, check that you have specified USELPACOPY(YES) on the associated PROGRAM resource definition (if applicable). For further information about using modules loaded in the MVS link pack area from the *hlq*.SDFHLOAD library, see “Modules in the MVS link pack area from hlq.SDFHLOAD” on page 42.

CICS uses console routing code 11 for this particular message, which allows you to control the output of this message. For example, you can:

1. Exclude, as required, routing code 11 from specific MVS console definitions in the CONSOLxx member of SYS1.PARMLIB.
2. Use the MVS VARY command to prevent this message from appearing on specified consoles by omitting route code 11 from a VARY command that defines which routing codes go to specified devices. For example:

   ```
   VARY devnum,CONSOLE,ROUT=(rtcode,rtcode,.,.,.)
   ```

   Alternatively, you can remove route code 11 from those already defined by using the following VARY command:

   ```
   VARY devnum,CONSOLE,DROUT=(11)
   ```

3. Use the MVS message processing facility (MPF) to inhibit the message. To use this facility, code an entry specifying the CICS message number in the MPFLSTxx member of SYS1.PARMLIB.

CICS assumes the following PL/1 modules are LPA eligible and issues message DFHLD0107I if it fails to find them there:

```
IBMBPSLA
IBMBPSMA
```

Sample DFHCSDUP job to specify USELPACOPY(YES)

The standard IBM®-supplied program definitions in the CSD all specify USELPACOPY(NO). If you copy, or move, to the LPA some (or all) the IBM programs defined by definitions in the CSD, the next step is to modify the USELPACOPY attribute to ensure CICS uses the LPA copy.

To simplify this task:

- IBM supplies, in the DFH$ULPA member of the SDFHSAMP library, an alternate set of DEFINE statements for all the IBM-supplied programs . All the programs defined in DFH$ULPA specify USELPACOPY(YES).
- If you don't want all the programs to be defined for LPA use, edit the member to remove the programs that are to remain as USELPACOPY(NO).
- The USELPACOPY(YES) versions are all defined in one new group called DFH$ULPA. Change this group name if you want to use your own name.
- The last statement in DFH$ULPA adds the group to a startup list. Edit this to specify your own group list.
- Run the sample DFHCSDUP job shown in Figure 3 to add theDFH$ULPA versions of the definitions to your CSD.
- There is no need to remove the standard definitions from DFHLIST. Specifying your group list after DFHLIST on the GRPLIST system initialization parameter ensures that the modified definitions override the standard definitions.

```
//LPAMODS     JOB  (account_details),MSGCLASS=A,MSGLEVEL=(1,1),
//                 CLASS=A,NOTIFY=userid
//DEFULPA     EXEC PGM=DFHCSDUP
//STEPLIB     DD DSN=CICSTS13.CICS.SDFHLOAD,DISP=SHR
//SYSPRINT    DD SYSOUT=*
//DFHCSD      DD DSN=user.CICSTS13.CICS.DFHCSD,DISP=OLD
//SYSIN       DD DSN=CICSTS13.CICS.SDFHSAMP(DFH$ULPA),DISP=SHR
/*
//*
```

Figure 3. Sample DFHCSDUP job for all CICS LPA-eligible modules

Chapter 10. Defining CICS IPCS exit control data to MVS

If you use the MVS interactive problem control system (IPCS) to format and analyze CICS system dumps, you should ensure that the release-specific CICS formatting routines are defined and available to MVS.

The formatting routine for use under IPCS is named with the release identifier as part of the name; that is, DFHPD***530***. This is the formatting routine you must define to IPCS when formatting system dumps. The CICS formatting routine is release-specific, so if you run more than one release of CICS, ensure that you use the correct version for the system dump you are formatting.

The DFHIPCSP CICS exit control data

IPCS provides an exit control table with imbed statements to enable other products to supply exit control information. The IPCS default table, BLSCECT, normally in the SYS1.PARMLIB library, has the following entry for CICS:

```
IMBED MEMBER(DFHIPCSP)  ENVIRONMENT(ALL) /* CICS                  */
```

Ensure that the CICS-supplied DFHIPCSP module can be found by your IPCS job. The DFHIPCSP module is supplied in the *hlq*.SDFHPARM library. You can either copy the DFHIPCSP module into SYS1.PARMLIB (so that it is in the same default library as BLSCECT) or provide an IPCSPARM DD statement to specify the library containing the IPCS control tables. For example:

```
//IPCSPARM  DD  DSN=SYS1.PARMLIB,DISP=SHR         For BLSCECT
//          DD  DSN=CICSTS13.CICS.SDFHPARM,DISP=SHR     For DFHIPCSP
```

Figure 4 shows the release-specific entries specified in DFHIPCSP.

```
  EXIT EP(DFHPD212) VERB(CICS212) ABSTRACT(+
    'CICS Version 2 Release 1.2 analysis')
  EXIT EP(DFHPD321) VERB(CICS321) ABSTRACT(+
    'CICS Version 3 Release 2.1 analysis')
  EXIT EP(DFHPD330) VERB(CICS330) ABSTRACT(+
    'CICS Version 3 Release 3 analysis')
  EXIT EP(DFHPD410) VERB(CICS410) ABSTRACT(+
    'CICS Version 4 Release 1 analysis')
  EXIT EP(DFHPD510) VERB(CICS510) ABSTRACT(+
    'CICS Transaction Server for OS/390 Release 1 analysis')
  EXIT EP(DFHPD520) VERB(CICS520) ABSTRACT(+
    'CICS Transaction Server for OS/390 Release 2 analysis')
  EXIT EP(DFHPD530) VERB(CICS530) ABSTRACT(+
    'CICS Transaction Server for OS/390 Release 3 analysis')
```

Figure 4. Release-specific entries in DFHIPCSP for DFHPDnnn routines.

To use the DFHIPCSP member as it is, rename the CICS-supplied version of DFHPDX for earlier releases to the names shown in the table.

For information about using IPCS to format CICS system dumps, see the *CICS Operations and Utilities Guide.*

Implementing changes

You probably need to re-IPL MVS to bring the changes described in this chapter into effect before you attempt to run the IVPs.

Chapter 11. MVS Program properties table entries

There are some CICS properties that you can optionally define to MVS. These are outlined in the following section.

You can define entries for CICS in the MVS program properties table (PPT). Figure 5 is an example of a CICS PPT entry in the SCHEDxx member of SYS1.PARMLIB.

```
/*****************************************************************/
/*              Program Properties table addition                */
/*                for the CICS program, DFHSIP                   */
/*                                                               */
/* The following defaults apply to this CICS entry:              */
/*                                                               */
/*  No affinity to a particular processor    (AFF(NONE))         */
/*  Can be canceled                          (CANCEL)            */
/*  Requires data set integrity              (DSI)               */
/*  Not a privileged job                     (NOPRIV)            */
/*  Password protection is required          (PASS)              */
/*  Not a system task                        (NOSYST)            */
/*  Protection key 8                         (KEY(8))            */
PPT PGMNAME(DFHSIP)        /* Add program name DFHSIP to the PPT*/
    NOSWAP                 /* Non-swappable                      */
    NOPREF                 /* No preferred storage required      */
/*                                                               */
```

Figure 5. Sample CICS PPT entry

For information about defining options in the PPT, see the *OS/390 MVS Initialization and Tuning Guide.*

RACF password checking

If your installation has a PPT entry for the DFHSIP program, you should ensure that the PPTNOPAS option is **not** set in the PPT because this bypasses password and RACF authorization checking. However, you should consider making your CICS regions non-swappable by specifying the PPTNSWP option in the PPT. For information about defining CICS PPT entries in the SCHEDxx member of the SYS1.PARMLIB library, see the *OS/390 MVS Initialization and Tuning Reference* manual.

Non-swappable CICS regions

For performance reasons, you should consider making your CICS regions non-swappable, by specifying the NOSWAP option in the PPT. However, you should be aware that the use of certain functions causes CICS regions to be made non-swappable automatically, regardless of what is specified in the PPT (for example, regions using cross-memory services for MRO).

MVS protection key for CICS

CICS can run only in MVS protection key 8 (the default). You must not define any other protection keys for CICS.

If you want to use the storage protection facility of CICS, you must specify the system initialization parameter STGPROT=YES, and must have the required hardware and software. If you operate CICS with storage protection, CICS observes the storage keys and execution keys that you specify in various system and resource definitions. For information about the CICS storage protection facility, and how it affects the storage allocation for the dynamic storage areas, see the *CICS System Definition Guide*. For information about the hardware and software required by the CICS storage protection facility, see the *CICS Transaction Server for OS/390 Program Directory*.

Chapter 12. MVS performance definitions

You can use the MVS workload management facility to manage sysplex resources across MVS subsystems, in parallel with the existing system resource management facilities.

For information about MVS workload management, see the *OS/390 MVS Planning: Workload Management* manual.

If you want to use the MVS workload manager facility, you should:

1. Implement workload management on the MVS images that the CICS workload is to run on, as outlined in "Implementing MVS workload management".
2. Ensure that CICS performance parameters correspond to the policies defined for MVS workload management, as outlined in "Matching CICS performance parameters to service policies" on page 54.

If you do not want to use the MVS workload management facility, you should review your MVS performance definitions to ensure that they are still appropriate for the current release. To do this, review parameters in the IEAICS and IEAIPS members of the MVS PARMLIB library. For more information about these MVS performance definitions, see the *OS/390 MVS Initialization and Tuning Reference* manual.

Implementing MVS workload management

The task of implementing MVS workload management is part of the overall task of planning for, and installing, MVS.

Implementing MVS workload management generally involves the following steps:

1. Establishing your workloads.
2. Setting your business priorities.
3. Understanding your performance objectives.
4. Defining critical work.
5. Defining performance objectives based on current:
   - Business needs
   - Performance:
     - Reporting and monitoring products
     - Capacity planning tools
     - IEAICS and IEAIPS parameters
6. Get agreement for your workload performance objectives.
7. Specify a service level agreement or performance objectives.
8. Specify an MVS WLM service definition using the information from step 7.

   Note: It is helpful at this stage to record your service definition in a form that will help you to enter it into the MVS workload manager ISPF application. You are recommended to use the worksheets provided in the *OS/390 MVS Planning: Workload Management* manual, GC28-1761.
9. Install MVS.
10. Set up a sysplex with a single MVS image, and run in workload manager compatibility mode.

11. Upgrade your existing XCF couple data set.
12. Start the MVS workload manager ISPF application, and use it in the following steps.
13. Allocate and format a new couple data set for workload management. (You can do this from the ISPF application.)
14. Define your service definition.
15. Install your service definition on the couple data set for workload management.
16. Activate a service policy.
17. Switch the MVS image into goal mode.
18. Start up a new MVS image in the sysplex. (That is, attach the new MVS image to the couple data set for workload management, and link it to the service policy.)
19. Switch the new MVS image into goal mode.
20. Repeat steps 18 and 19 for each new MVS image in the sysplex.

Notes:

1. To enable CICS to use MVS workload management, ensure you define CICS as an MVS subsystem (see "Chapter 5. Defining CICS as an MVS subsystem" on page 17). Provided you do this, CICS support for MVS workload manager is initialized automatically during CICS startup.
2. All CICS regions (and other MVS subsystems) running on an MVS image with MVS workload management are subject to the effects of workload manager.

Matching CICS performance parameters to service policies

You must ensure that the CICS performance parameters are compatible with the workload manager service policies used for the CICS workload.

In general, you should define CICS performance objectives to the MVS workload manager first, and observe the effect on CICS performance. Once the MVS workload manager definitions are working correctly, you can then consider tuning the CICS parameters to further enhance CICS performance. However, you should use CICS performance parameters as little as possible.

Performance attributes that you might consider using are:

- Transaction priority, passed on dynamic transaction routing. (Use prioritization carefully, if at all.) The priority assigned by the CICS dispatcher must be compatible with the task priority defined to MVS workload manager.
- Maximum number of concurrent user tasks for the CICS region.
- Maximum number of concurrent tasks in each transaction class.

Chapter 13. Spool performance considerations

The CICS spool interface makes use of the MVS exit IEFDOIXT, which is provided in the SYS1.LINKLIB library. If you have a high volume spool output, you should install the IEFDOIXT exit in a library in the CICS STEPLIB concatenation, and consider having a PLT startup program MVS-load the exit during CICS initialization. This will help optimize the performance of the CICS spool interface.

For further information about the MVS exit IEFDOIXT, see the *OS/390 MVS Installation Exits* manual.

Chapter 14. MVS automatic restart management definitions

You can exploit the MVS automatic restart management facility provided by MVS to implement a sysplex-wide integrated automatic restart mechanism.

If you want to use the MVS automatic restart manager facility, you should:

1. Implement automatic restart management on the MVS images that the CICS workload is to run on.
2. Ensure that CICS startup JCL used to restart CICS regions is suitable for MVS automatic restart management.
3. Specify appropriate CICS START options.
4. Specify appropriate MVS workload policies.

If you do not wish to use the MVS automatic restart management facility, you can use XRF to provide restart of failed CICS regions. For information about XRF, see the *CICS/ESA 3.3 XRF Guide*.

Implementing MVS automatic restart management

The task of implementing MVS automatic restart management is part of the overall task of planning for and installing MVS. For information about MVS automatic restart management, see the *OS/390 MVS Setting Up a Sysplex* manual.

Implementing MVS automatic restart management for CICS generally involves the following steps:

- Ensure that the MVS images available for automatic restarts have access to the databases, logs, and program libraries required for the workload.
- Identify those CICS regions for which you want to use automatic restart management.
- Define restart processes for the candidate CICS regions.
- Define ARM policies for the candidate CICS regions.
- Ensure that the system initialization parameter XRF=NO is specified for CICS startup.

For further information on implementing automatic restart management, see the *CICS System Definition Guide*

Chapter 15. MVS cross-system MRO definitions

You can use the CICS interregion communication (IRC) facility for multiregion operation (MRO) between CICS regions across MVS images in a sysplex. This exploits the cross-system coupling facility (XCF) of MVS, and makes it unnecessary to use VTAM to communicate between MVS images within the same sysplex.

Within a sysplex, where MRO communication between MVS images is by XCF/MRO, all the MVS images must be at the MVS/ESA™ 5.2, or later, level. Also DFHIRP must be installed from the highest release of CICS running in an MVS image.

Sysplex overview

A sysplex consists of multiple MVS systems, coupled together by hardware elements and software services. In a sysplex, MVS provides a platform of basic multisystem services that multisystem applications like CICS can exploit. As an installation's workload grows, additional MVS systems can be added to the sysplex to enable the installation to meet the needs of the greater workload.

To use XCF to communicate in a sysplex, each CICS region joins an XCF group called DFHIR000 by invoking the MVS IXCJOIN macro using services provided by the DFHIRP module. The member name for each CICS region is always the CICS APPLID (NETNAME on the CONNECTION resource definition) used for MRO partners. Each CICS APPLID must be unique within any sysplex regardless of the MVS levels involved. Within the sysplex, CICS regions can communicate only with members of the CICS XCF group (DFHIR000).

MVS XCF considerations for MRO

Ensure that when formatting the primary and alternate couple data sets to be used by the XCF component of MVS:

- The value specified for the MAXMEMBER parameter is large enough to handle the number of CICS regions and users of the EXCI in the CICS XCF group.

  Each XCF group is limited to 4095 members (subject to APAR OW21511 being applied to MVS 5.2, OS/390 Release 1 and OS/390 Release 2), which is therefore the theoretical maximum number of CICS regions that can participate in XCF/MRO in a single sysplex. However, the maximum size of the XCF group is reduced if you set the MVS MAXMEMBER parameter, used to define XCF couple data sets, to a lower limit. When calculating the maximum number of members in the CICS XCF group, allow one member for:

  – Each CICS region to run on an MVS image in the sysplex.

  – Each pipe allocated by a user of the external CICS interface (EXCI). For information about EXCI users and pipes, see the *CICS External Interfaces Guide* manual.

  To list the members in the CICS XCF group, you can use the MVS DISPLAY command. The name of the CICS group is always DFHIR000, so you could use the MVS command:

  ```
  DISPLAY XCF,GROUP,DFHIR000,ALL
  ```

- The value specified for the MAXGROUP parameter is large enough for the CICS XCF group to be established.

Chapter 16. PR/SM policy for handling MVS failures

If you are running CICS under MVS in a Processor Resource/Systems Manager (PR/SM™) environment, you should define to MVS the preferred XCF PR/SM policy for handling MVS failures in a PR/SM environment, and define to PR/SM the authorization for each LPAR to cause reset or deactivation of another LPAR.

XCF PR/SM policy

The function that enables MVS images to take over the resources of other MVS images in the same sysplex. This function is also known as the PR/SM automatic reconfiguration facility (ARF).

Chapter 17. MVS ASREXIT - SYMREC Authorization Exit

A CICS program may call the first failure symptoms (FFS) component. This uses the MVS SYMREC macro to write symptom records to the MVS SYS1.LOGREC data set, in addition to, or instead of, a job log.

The SYMREC authorization exit, ASREXIT, must be in effect to allow CICS to use the SYMREC macro call, otherwise the call fails with return code 12, reason code 3868 (X'F1C').

When SYMREC is being called by CICS the ASREXIT routine must issue a return code that permits the SYMREC to be successfully written.

The MVS sample exit programs ASREXT0 and ASREXT1, supplied in SYS1.SAMPLIB, are suitable for this purpose. For further information about these exits, see the *OS/390 MVS Installation Exits* manual. The ASREXIT routine can determine if CICS is the caller by testing EPLPNAME for the value 'DFHSIP' except:

- When DFHSIP has been renamed, in which case EPLPNAME contains the new name.
- When DFHSIP is the subject of an MVS LINK, in which case EPLPNAME contains the name of the program issuing the MVS LINK (unless it too is the subject of an MVS LINK).

If you choose this method, you may wish to code your ASREXIT routine to allow for these exceptions.

An alternative method of coding the ASREXIT routine is shown in Figure 6. This method is not affected by the exceptions mentioned above.

```
         TITLE 'SYMREC SAMPLE EXIT'
         ASREPL
         PRINT NOGEN
         IHAPSA
         IKJTCB
         PRINT GEN
         DFHAFCD
         EJECT
ASREXIT  CSECT
ASREXIT  AMODE 31
```

Figure 6. An example of coding the ASREXIT routine. (Part 1 of 2)

```
ASREXIT  RMODE ANY
         USING *,R15                Temporary addressability
         MODID BR=YES
         DROP  R15
         STM   R14,R12,12(R13)      Save the caller's registers
         LR    R12,R15
         USING ASREXIT,R12
         L     R3,0(,R1)            Load the address of the EPL
         USING EPL,R3               Get addressability
         LA    R15,RCREJECT         Preset "reject" return code
         USING PSA,0
         L     R1,PSATOLD           Point at current TCB
         USING TCB,R1
         L     R1,TCBEXT2           Point at TCB extension
         DROP  R1
         USING TCBXTNT2,R1
         ICM   R1,B'1111',TCBCAUF   Point at AFCB; is there one?
         BZ    SETRC                No, branch
         DROP  R1
         USING DFHAFCB,R1
         CLC   AFIDENT,=C'AFCX'     Is it a genuine CICS AFCB?
         BNE   SETRC                No, branch
         CLI   AFVER,AFVER1         Is it at least Version 1?
         BL    SETRC                No, branch
         AH    R1,AFLENG            Add length of AFCB's DW
         DROP  R1                   table.
         USING AFTSTART-AFPFXLEN,R1 Allow for AFCB prefix length
         ICM   R1,B'1111',AFTAFCS   Point at AFCS; is there one?
         BZ    SETRC                No, branch
         DROP  R1
         LA    R15,RCWRITE          Set "write" return code
SETRC    DS    0H
         ST    R15,EPLRETC          Store return code
         DROP  R0
         DROP  R3
         DROP  R12
EXIT     LM    R14,R12,12(R13)      Restore caller's registers
         BR    R14                  Return
         LTORG *
R1       EQU   1                    Register 1
R3       EQU   3                    Register 3
R12      EQU   12                   Register 12
R13      EQU   13                   Register 13
R14      EQU   14                   Register 14
R15      EQU   15                   Register 15
RCREJECT EQU  X'0C'                 Return code C
RCWRITE  EQU  X'00'                 Return code 0
         END*  CONSTANTS
```

Figure 6. An example of coding the ASREXIT routine. (Part 2 of 2)

Chapter 18. Definitions required for VSAM RLS support

If you plan to use VSAM RLS to enable CICS regions to share VSAM data sets, carry out the following steps:

1. Install DFSMS/MVS® Version 1 Release 3.0.
2. Define the master CF lock structure.
3. Define CF cache structures and cache sets.
4. Define SMS storage classes for RLS access.
5. Alter data set characteristics, if necessary, to make data sets eligible for RLS access.
6. Define sharing control data sets.
7. Establish new authorization required by the VSAM RLS support.
8. Add new parameters to SYS1.PARMLIB.
9. Establish new procedures for VSAM RLS support.
10. Activate the CF structures.

An overview of each of these steps follows.

Installing DFSMS/MVS Version 1 Release 3.0

See the *DFSMS/MVS Planning for Installation* manual for information about installing DFSMS/MVS.

Defining the master CF lock structure

VSAM RLS support requires a master lock structure named IGWLOCK00 to be defined in the coupling facility. This is used for cross system locking.

See the *DFSMS/MVS DFSMSdfp Storage Administration Reference* manual for information about calculating the size you need for the lock structure.

The amount of coupling facility space required depends on several characteristics of your hardware configuration and the applications that you run, such as:
- The number of processors you have
- The power of your processors
- Your ratio of non-update activity to update activity
- Your ratio of recoverable updates to non-recoverable updates
- Your ratio of sequential requests to direct requests

You define the lock structure in the CFRM policy using the IXCMIAPU utility.

Defining CF cache structures and cache sets

VSAM RLS support requires structures to be defined in the coupling facility known as **cache structures**. These are used for cross system buffer invalidation. You need to determine the number and size of cache structures you require.

The number needed depends on factors such as:
- The number of coupling facilities you have
- The amount of space in each coupling facility

- The amount of data that will be accessed through each coupling facility

See the *DFSMS/MVS DFSMSdfp Storage Administration Reference* manual for information about calculating the amount of space you will need for the cache structures. If you have previously used data sets in LSR mode, the total amount of coupling facility space allocated to cache structures should not be less than the amount of storage you were using for LSR pools, including hiperspace buffers (if used).

You can achieve performance benefits by:
- Making the size of the cache larger
- The way in which you divide cache structures across coupling facilities

You define cache structures in the CFRM policy using the IXCMIAPU utility.

Defining cache sets

You define cache sets using the ISMF control data set (CDS) application.

A cache set maps on to one or more cache structures. If more than one cache set is specified, the data sets can be re-bound to another cache structure in the set in the event of a cache structure failure.

See the *DFSMS/MVS DFSMSdfp Storage Administration Reference* manual for more information about cache sets.

Defining SMS storage classes for RLS access

Before you can use VSAM RLS, you need one or more storage classes which specify a non-blank cache set name.

The ISMF storage class application allows you to specify a cache set name when defining or altering a storage class, together with weighting parameters for tuning, such as CF DIRECT WEIGHT and CF SEQUENTIAL WEIGHT. See the *DFSMS/MVS DFSMSdfp Storage Administration Reference* manual for more information about defining SMS storage classes.

Altering data set attributes for RLS access

Before you can use a data set in RLS access mode, you must ensure that it is eligible to be used in RLS mode. To be eligible for RLS:
- Data sets must reside in SMS managed storage.
- Data sets must specify a storage class that has a non-blank cache set name.
- Data set recoverability attributes must be defined in the ICF catalog (not in the CICS file control resource definition, where they are ignored for RLS).

  You can specify a data set's attributes using the Access Method Services (AMS) DEFINE CLUSTER or ALTER CLUSTER commands.

  Specifying a LOG parameter of NONE, UNDO or ALL ensures that the recoverability of the data set is not undefined. You cannot open files in RLS mode if the LOG parameter of the associated data set is UNDEFINED. If you specify LOG(ALL), you must also specify a forward recovery log stream on the LOGSTREAMID parameter.

  To use backup while open (BWO) for an RLS-accessed sphere, specify the BWO parameter. Specifying BWO(TYPECICS) means that backup while open can be used. All other values for BWO (including undefined) mean backup while open is not allowed. BWO(TYPECICS) is only valid if LOG(ALL) and LOGSTREAMID are also specified.

- Data sets must not specify the IMBED attribute.

  If you have some data sets that specify imbed, you must remove the IMBED option before you can use the data sets in RLS mode. Redefine a new data set without IMBED and use the AMS REPRO function to copy the old data set to the new data set.

Note: The REPLICATE cluster attribute is supported by RLS, but does not provide any performance benefit, and removing it could save DASD space.

Defining sharing control data sets

VSAM RLS requires sharing control data sets. These are used to maintain data integrity in the sharing environment. The sharing control data set is used sysplex-wide by all the SMSVSAM servers, and is always duplexed.

Two active (and at least one spare) sharing control data sets must be available at all times.

The size required depends on the number of MVS images in the sysplex, and on the number of files that are expected to be open concurrently. The *DFSMS/MVS DFSMSdfp Storage Administration Reference* manual gives information about calculating the amount of space needed for the sharing control data sets.

Sharing control data sets are VSAM linear data sets that must reside on volumes which have global connectivity. The data sets may have multiple extents, but only on the same volume. You define them using standard techniques for defining data sets. The names must have SYS1.DFPSHCDS as the first and second qualifiers. See the *DFSMS/MVS DFSMSdfp Storage Administration Reference* manual for other rules relating to the definition of sharing control data sets.

You must not issue RESERVEs on any volumes on which sharing control data sets reside. Any such RESERVEs should be converted to enqueues.

You can check that the data sets are available to the sysplex using the MVS DISPLAY SMS command, on any MVS image, as follows:

```
D SMS,SHCDS
```

This command shows the names of the two active, and the spare data set as in the following example:

Name	Size	%UTIL	Status	Type
ACTIVE1.VP2SS03 7920KB	7920KB	74%	Good	ACTIVE
ACTIVE2.VP2SS03 7920KB	7920KB	74%	Good	ACTIVE
SPARE.VP2SS03 7920KB	7920KB	74%	Good	SPARE

Note: The DISPLAY command shows only the third and fourth qualifiers of the sharing control data set names; the first and second qualifiers are always SYS1.DFPSHCDS.

The first time an SMSVSAM server is started in the sysplex, the sharing control data sets need to be varied online using

```
V SMS,SHCDS,NEW
```

for the active data sets, and

```
V SMS,SHCDS,NEWSPARE
```

for the spare data set (or data sets). The server cannot come up properly if this is not done.

Authorizing CICS userids for VSAM RLS support

Authorize each CICS userid that is to use VSAM RLS support to have read access to a profile in the SUBSYSNUM class which matches the applid. See “Authorizing access to an SMSVSAM server” on page 7 for more information.

You may want to restrict access to the AMS SHCDS LIST and REMOVE commands. The *DFSMS/MVS Access Method Services for ICF* manual gives information about using these commands.

Adding new parameters to SYS1.PARMLIB(IGDSMSxx)

To include RLS support in your system, specify the required parameters in the IGDSMS*xx* member of SYS1.PARMLIB, as follows:

- Specify RLSINIT(YES), otherwise SMSVSAM will not initialize automatically when you IPL MVS. Alternatively, you can start SMSVSAM using the `VARY SMS,SMSVSAM,ACTIVE` command.
- Specify a value for the deadlock detection interval using the DEADLOCK_DETECTION parameter.
- Specify time intervals for the creation and synchronization of VSAM RLS SMF records using the CF_TIME and SMF_TIME parameters.
- Specify the maximum size of the SMSVSAM local buffer pool using the RLS_MAX_POOL_SIZE parameter.

See the *DFSMS/MVS DFSMSdfp Storage Administration Reference* manual for information about these parameters.

Establishing new procedures for VSAM RLS support

New operational procedures may be needed in a number of areas as a result of using VSAM RLS support. Areas to consider include:

- **Integrity of data in CF caches** To make sure that non-IBM products or user programs do not compromise the integrity of data in CF caches when they modify the data on a volume, you should either vary the volume offline to each system in the sysplex, or CF-quiesce the volume using the

  ```
  V SMS,CFVOL(volid),QUIESCE
  ```

  command before running such programs
- **Management of the coupling facility and CF structures**
- **Use of RESERVEs on volumes which contain sharing control data sets** Make sure that this does not happen. Furthermore, you are recommended to convert RESERVEs on other volumes into enqueues.
- **Switching to non-RLS mode in order to run batch update jobs against recoverable data sets** This subject is covered in greater detail in the *CICS Recovery and Restart Guide* for more information.

- **Management of forward recovery and your forward recovery logs** The differences from forward recovery for non-RLS access are:
  - The forward recovery log stream must be named in the ICF catalog.
  - All forward recovery log records for a data set are merged into the same log stream.
  - Your forward recovery procedure needs to use the SHCDS FRSETRR, FRUNBIND, FRBIND and FRRESETRR commands (these commands are issued for you automatically by CICSVR version 2 release 3).

  Refer to the DFSMS/MVS Version 1 Release 3 documentation for more details.

Activating the CF structures

Once defined in the CFRM policy, the CF structures must be activated using the SETXCF START,POLICY command, specifying a TYPE of CFRM and the policy name.

Chapter 19. Console messages

The message domain supports the use of MVS message routing codes in the range 1 to 16 for those messages that are sent to the console. By default, if the issuing module specifies only CONSOLE (without a qualifying number) as the destination, CICS routes the message with MVS route codes 2 and 11 (for the master console – information). This support is available for all domain-type messages of the form DFHxxnnnn, where xx is the domain code, and nnnn is the message number.

CICS issues other messages (of the form DFHnnnn) with either no route code, or route codes other than 2 and 11.

The physical destination of these messages is controlled by the ROUTECODE parameter on the MVS console entries in a SYS1.PARMLIB member, CONSOLEnn. For further information about MVS console definitions, see the *OS/390 MVS Initialization and Tuning Guide* .

Chapter 20. Defining the logger environment for CICS journaling

CICS uses the MVS system logger for all its logging and journaling requirements. Using services provided by the MVS system logger, the CICS log manager supports:

- The CICS system log, which is used for:
  – Dynamic transaction backout
  – Warm and emergency restarts
  – Cold starts, but only if the log contains information required for resynchronizing in-doubt units-of-work
- Forward recovery logs, auto-journals, and user journals.

The MVS system logger is a component of MVS. It provides a programming interface to access records on a log stream. For information about the MVS system logger, see the following MVS publications:

- *OS/390 MVS Setting Up a Sysplex* for:
  – General information about the MVS system logger
  – Information about defining and formatting the LOGR couple data set
  – Information about how to plan the system logger configuration, plan and set up a system logger application, and plan for recovery for system logger applications.
- *OS/390 MVS Programming: Assembler Services Reference* for the syntax of system logger services
- *OS/390 MVS Initialization and Tuning Reference*manual for information about the COUPLExx PARMLIB member.

Requirements planning and checklist

This section summarizes the requirements, and the steps that you need to follow, to set up the CICS logging environment. Some of the steps listed have a pointer to sections that provide more detailed information. These steps cover both MVS and CICS system programmer tasks and some security administrator tasks, and close cooperation between all groups is needed:

Planning

Consider the possible storage options, and choose which of the 3 available hardware options you want to use:

- **Non-volatile coupling facility**, where log stream data is duplexed in the MVS logger data space. Non-volatile storage involves the use of battery backup or an uninterruptible power supply (UPS):
  – When using a UPS, you use a hardware console command to update coupling facility status
  – When using battery backup, batteries must be online and charged.
- **Volatile coupling facility**, where log stream data is duplexed to a staging data set.
- **DASD-only**, where log stream data is duplexed in the MVS logger data space.

See “Coupling facility or DASD-only?” on page 80, to help you decide on one of these or a combination of both.

As part of the planning phase:

- Determine the number CICS regions that require logger support and hence system log streams.
- Determine the number of user journals and autojournals that your regions use.
- Determine the number of forward recovery logs required for VSAM data sets.
- Determine whether any user journal or forward recovery log streams are to be shared between regions (to create merged data automatically).

  Note: The system log streams, DFHLOG and DFHSHUNT, cannot be shared.

  DASD-only log streams can be shared only within the same MVS image.
- Decide on the number and sizes of the coupling facilities to be used.
- Determine the log stream sizes:
  - For coupling facility log streams, see “Coupling facility log streams” on page 81.
  - For DASD-only log streams, see “DASD-only log streams” on page 98.

For information about types of coupling facility, see the *CICS Transaction Server for OS/390 Release Guide*. Note that the minimum level of coupling facility supported by the MVS system logger is CFLEVEL=1, with the appropriate service level of the coupling facility control code that supports CFLEVEL=1.

Maintenance

Ensure that all maintenance affecting the MVS system logger, and the CICS log manager and its utilities, is applied:

- Logger serviceability APARs relating to the MVS system logger are identified with the LOGRSERVICE keyword.
- APARs relating to the CICS log manager are identified with the CICSLOGR keyword.

Run DFHLSCU

If you are migrating from CICS Version 3 or Version 4, run this log stream sizing utility using one or more CICS journal data sets as input:

- Use CICS journal data sets taken from periods of heavy production use.
- In each run of DFHLSCU, use only journal data sets that are to be migrated to the same MVS log stream

See “The log stream sizing utility, DFHLSCU” on page 90 for more information.

Create and format the LOGR couple data sets

In consultation with your MVS system programmer:

- Use MVS utility IXCL1DSU to create and format the primary and alternate LOGR couple data sets.
- Identify the LOGR couple data sets to the sysplex in the COUPLExx member in SYS1.PARMLIB
- Make the LOGR couple data set available to the sysplex.

See “Format the LOGR Couple Data Set and Make it Available to the Sysplex” in the *OS/390 MVS Setting Up a Sysplex* manual for information about these steps.

Notes:

1. For this task you need know the number of log streams and, for coupling facility log streams, the number of structures. Each CICS region needs two system log streams and, optionally:
   - A log stream for the log of logs
   - One or more log streams for forward recovery logs
   - One or more log streams for autojournals
   - One or more log streams for user journals
2. The logging enhancements introduced in OS/390 Release 3 require the sysplex’s LOGR couple data set to be formatted using OS/390 Release 3 or later. Thus, if you are migrating from an earlier release of OS/390 (to meet the OS/390 minimum requirement level for CICS TS) , you will need to reformat your LOGR data sets.

   The removal of the 168 data set limit (described in “General logs” on page 106) also requires the LOGR data set to be formatted with DSEXTENT(nnnnn). This does not apply to LOGR couple data sets formatted for DASD-only logging.

Define coupling facility structures

If you are using the coupling facility for some or all of your log streams, update your CFRM policy and your LOGR couple data set with the required structure definitions.

See “Defining coupling facility structures” on page 82 for details, including a sample job.

Establish the required security authorizations

Ensure that all the userids that are involved with running the system logger, or defining or accessing logger resources, are authorized, and that the required profiles are defined in the LOGSTRM general resource class :

- If the MVS system logger address space (IXGLOGR) is not given SAF privileged or trusted status, ensure you give the required authorization to the userid that runs IXGLOGR. For example, if the userid that runs IXGLOGR (defined in the RACF started procedures table (ICHRIN03), or defined in the RACF STARTED class profile) is SYSTASK:
  - SYSTASK requires ALTER access to IXLSTR structure profiles in the FACILITY general resource class for access to log stream coupling facility structures.
  - SYSTASK requires ALTER access to the data set profiles (*hlq.data_set_name*) in the DATASET general resource class, for each DASD log stream and staging data set.
- To use the MVS system logger IXCMIAPU utility to define, update and delete entries in the LOGR couple data set, you need appropriate authorizations to the relevant RACF profiles in the LOGSTRM and FACILITY general resource classes. See “Authorizations for users of IXCMIAPU” on page 8 for information and examples of how to do this.
- To enable CICS to create log streams dynamically, and to write to log streams, ensure that the CICS region userid has the required authorizations. See “Authorizations for CICS regions” on page 8 for information and examples of how to do this.

For more information about authorizations for the system logger, see the *OS/390 MVS Setting Up a Sysplex* manual

Check sysplex definition in PARMLIB

To use the MVS system logger, each MVS image must be a member of a sysplex. Ensure your sysplex definition, in PARMLIB member IEASYS*xx*, specifies either PLEXCFG(MONOPLEX), for a single-member sysplex, or PLEXCFG(MULTISYSTEM), for a multi-member sysplex. Also ensure that you define a COUPLE*xx* member in PARMLIB.

Note: The value specified on the SYSPLEX parameter in COUPLE*xx* forms part of DASD-only and staging data set names.

Activate the LOGR subsystem

Ensure the LOGR subsystem is active to enable the CICS log manager batch utility, DFHJUP, to format and print log data. The LOGR susbsystem is defined by the following entry in IEFSSN*xx* PARMLIB member:

```
SUBSYS SUBNAME(LOGR) INITRTN(IXGSSINT)
```

Plan staging data set requirements

Staging data sets are used for both DASD-only and coupling facility log streams, and if specified are dynamically allocated by the MVS system logger:

- For DASD-only log streams, staging data sets are the primary (interim) storage.
- For coupling facility log streams, staging data sets are allocated by the system logger to safeguard log data in the event of the log data being in a volatile configuration; that is:
  - There is a loss of the coupling facility battery backup
  - A structure failure that results in the only copy of log data being in MVS local storage buffers.

Consider the following parameters:

- STG_DUPLEX(YES) and DUPLEXMODE(COND) to cause the system logger to use staging data sets if the coupling facility is not failure independent (see “Staging data sets for coupling facility log streams” on page 97 for more information)
- STG_MGMTCLAS to specify the System Managed Storage (SMS) management class to be used for staging data set allocation (valid only when STG_DUPLEX(YES) or DASDONLY(YES) is specified)
- STG_STORCLAS to specify the SMS storage class to be used for staging data set allocation (valid only when STG_DUPLEX(YES) or DASDONLY(YES) is specified)
- STG_SIZE to specify the size of staging data sets
- SHAREOPTIONS(3,3) for log stream data sets and staging data sets (see “VSAM Share Options for System Logger” in *OS/390 MVS Setting Up a Sysplex*)

Plan DASD space and SMS environment for logger secondary storage

System logger secondary storage comprises all log stream (offload) data sets. See “Managing secondary storage” on page 105 for information about size parameters and other attributes relating to secondary storage

Define log streams and log stream models

Define the specific log streams, and log stream models for dynamic creation of log streams, in the LOGR policy.

In particular, consider the following when defining your log streams:

- Set HIGHOFFLOAD no higher than 85% to allow the offload function to be activated before structures reach the 90% level and provide a buffer to enable CICS to continue writing records without filling the logstream before offload completes.
- Set LOWOFFLOAD for DFHLOG and DFHSHUNT in the range 40–60%.

  For user journals and the log of logs, specify LOWOFFLOAD as 0.
- Specify HLQ for the high level qualifier for offload data sets—it is not part of the CICS log stream name. The default is IXGLOGR.
- Specify STG_DUPLEX(YES) and DUPLEXMODE(COND) for log streams in the coupling facility to ensure that staging data sets are used automatically if the CF is volatile or failure dependent.
- Set STG_SIZE to control the size, in 4K blocks, of staging data sets allocated by the system logger. For coupling facility log streams, the staging data set must hold at least as much data as the log stream in the structure, so that offloads are not triggered by the staging data sets. See The log stream sizing utility, DFHLSCU on pages 90 and 102 (for DASD-only).
- Specify LS_DATACLAS and LS_SIZE, for the SMS data class and the number of 4K allocation blocks respectively for log stream off load data sets (see "Managing log data sets" on page 105)
- Specify MODEL(YES) to indicate that a log stream definition is a model only and not an actual log stream. See SDFHINST members DFHILG2 (coupling facility) and DFHILG5 (DASD-only) for samples of model log streams.

Note: Use AUTODELETE(YES) with a suitable retention period (RETPD) for general logs but *not* for CICS system logs (DFHLOG and DFHSHUNT.

See "Defining coupling facility log streams" on page 87 for some sample IXCMIAPU jobs, and see *OS/390 MVS Setting Up a Sysplex* for general information about updating LOGR policies.

Define JOURNALMODEL resource definitions

Define JOURNALMODEL resource definitions in the CICS CSD to enable CICS to map CICS journal names to MVS system logger log stream names. See the *CICS Resource Definition Guide* for information about JOURNALMODEL resource definitions.

Remove JCT definitions

When migrating a CICS region from a CICS/ESA 4.1 region (or earlier), remove all references to journal control tables (JCTs), and any DD statements for CICS journal data sets, from startup JCL.

See the *CICS Transaction Server for OS/390 Migration Guide* for CICS TS Releases 1 and 2 for information about obsolete parameters and function relating to the old CICS journal control function and other migration information

Review AKPFREQ system initialization parameter

When migrating a CICS region from a CICS/ESA 4.1 region (or earlier), review the value specified for AKPFREQ.

This parameter now represents the number of write operations (log records) by CICS log manager to the log stream buffer before an activity keypoint is taken, whereas under the old journal control program it specifies the number of consecutive blocks written to the system log data set.

The parameter has a significant impact on the size of system logger primary (interim) storage, affecting the log tail management that takes place during activity keypoint (AKP) processing. The system logger:

- Deletes records that are no longer of interest to CICS
- Moves records to DFHSHUNT for those tasks that did write any log records within the last ACP.

Update JCL of batch jobs
: When migrating a CICS region from a CICS/ESA 4.1 region (or earlier), update DFHJUP batch job JCL. To process log streams, these jobs require the SUSBSYS keyword on DD statement for the log stream being processed.

Evaluate results after implementation
: After you have implemented the steps necessary to use the MVS system logger for CICS log streams and journals, evaluate the results on a continual basis. The following are aids that you can use:

  - CICS interval statistics. You can collect these at specified intervals and end-of-day to obtain CICS log manager statistics. You can also collect statistics using the DFH0STAT sample program.
  - SMF Type 88 records. These are produced by the MVS system logger, and can be printed using IXGRPT1, which is supplied in SYS1.SAMPLIB. You can also print these records using IXGRPT1J and IXGRPT1L. The latter 2 modules, included in SYS1.SAMPLIB from OS/390 Release 7, are provided by PTFs UW55955 (OS/390 Release 5) and UW55956 (OS/390 Release 6) for APAR OW36423.

The following sections provide more detailed information to help you with the above steps:

- “Coupling facility or DASD-only?” on page 80
- “Coupling facility log streams” on page 81, which contains:
  - “Defining coupling facility structures” on page 82
  - “Planning considerations for the number of log structures” on page 85
  - “Log structure naming conventions” on page 86
  - “Defining coupling facility log streams” on page 87
  - “Sizing considerations for coupling facility log streams” on page 88
  - “Coupling facility requirements in an RLS environment” on page 96
  - “Staging data sets for coupling facility log streams” on page 97.
- “DASD-only log streams” on page 98, which contains:
  - “Defining DASD-only log streams” on page 98
  - “Sizing considerations for DASD-only log streams” on page 100
  - “Converting a DASD-only log stream to use a coupling facility” on page 104.
- “Managing secondary storage” on page 105.

Setting up the environment for CICS log manager

CICS system programmers need to consult with their MVS system programmers to plan for the storage that is required by the log streams needed by the many CICS log managers operating in the sysplex.

Each log stream is a sequence of blocks of data, which the MVS system logger internally partitions over three different types of storage:

1. Primary storage, which holds the most recent records that were written to the log stream. Primary storage can consist of either:
   a. A structure within a coupling facility. Log data written to the coupling facility is also copied to either a data space or a staging data set.
   b. A data space in the same MVS image as the system logger. Log data written to the data space is also copied to a staging data set.

2. Secondary storage—when the primary storage for a log stream becomes full, the older records automatically spill into secondary storage, which consists of data sets managed by the storage management subsystem (SMS). Each log stream, identified by its log stream name (LSN), is written to its own log data sets.
3. Tertiary storage—a form of archive storage that is used as specified in your hierarchical storage manager (HSM) policy. Optionally, older records can be migrated to tertiary storage, which can be either DASD data sets or tape volumes.

See the different levels of log stream storage in Figure 7 and Figure 8 on page 80.

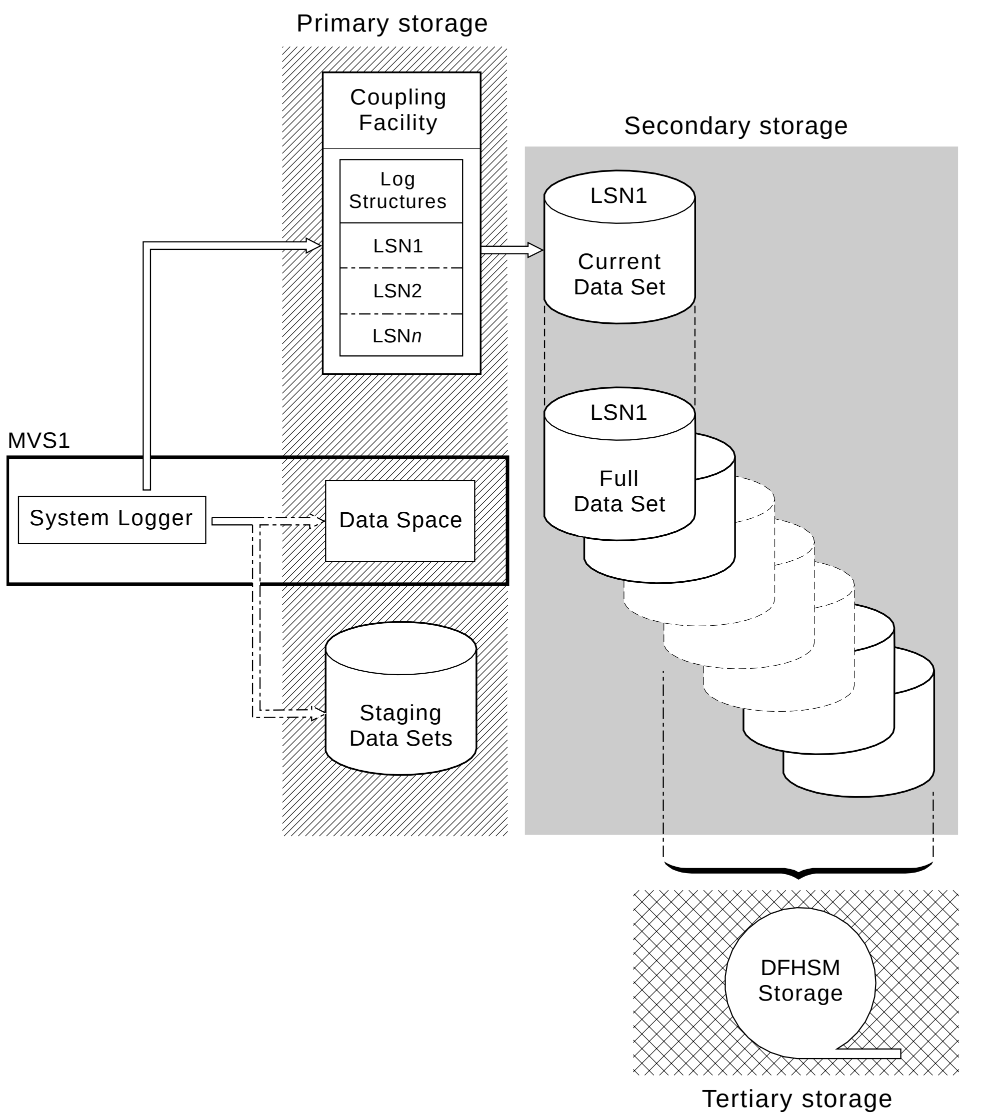

Figure 7. The types of storage used by the MVS system logger. This diagram shows a log stream that uses a coupling facility. Primary storage consists of space in a structure within the coupling facility, and either space in a staging data set or a data space in the same MVS image as the system logger.

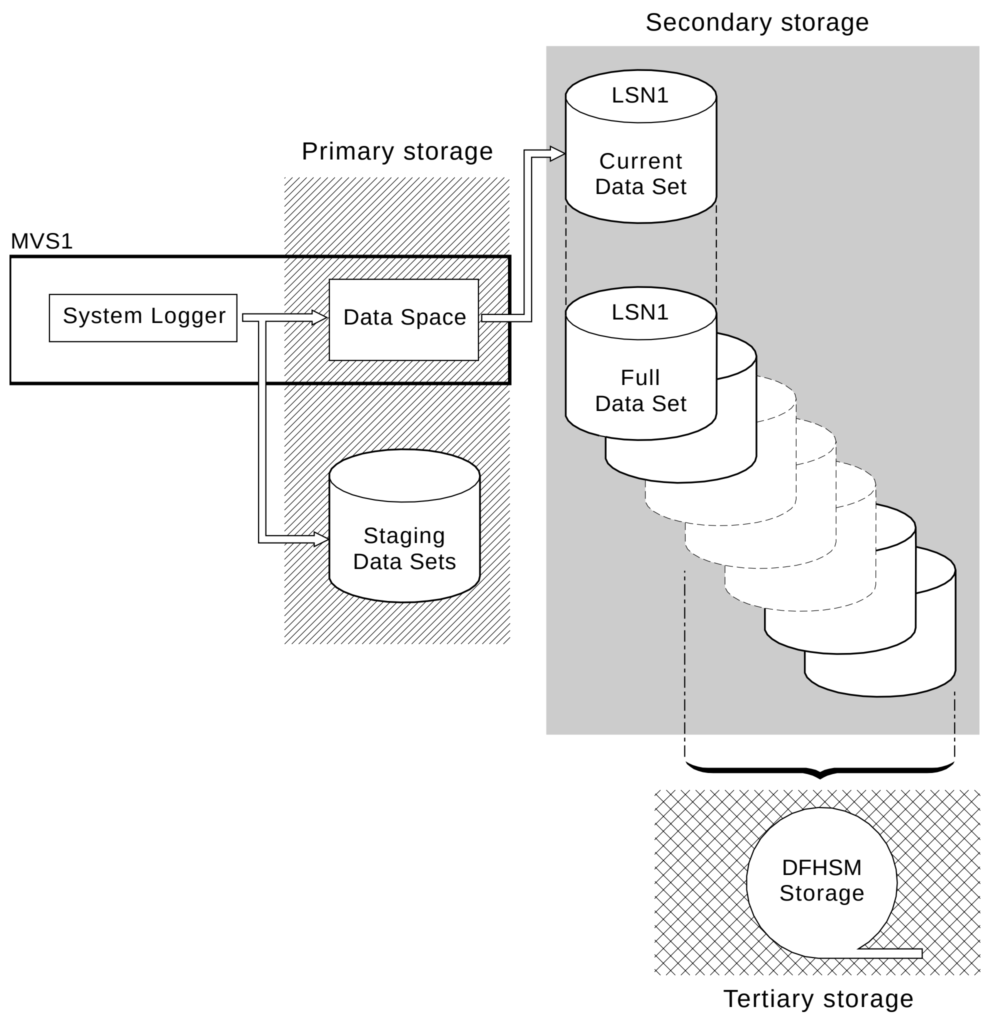

Figure 8. The types of storage used by the MVS system logger. This diagram shows a log stream that uses DASD-only logging. Primary storage consists of a data space in the same MVS image as the system logger, and a single staging data set.

Coupling facility or DASD-only?

In versions of MVS before OS/390 Version 2 Release 4, the MVS system logger requires at least one coupling facility, even if the sysplex consists of a single MVS image. All CICS log streams must use log structures defined in the coupling facility.

In OS/390 Version 2 Release 4, the CICS log manager supports the DASD-only option of the MVS system logger. This means that individual CICS log streams can use either coupling facility log structures or DASD-only logging.

Table 4 shows the choices you have in defining individual log streams, according to the hardware and software you are using.

Table 4. Log stream choices resulting from hardware and software used

Coupling facility?	OS/390 Version 2.4 or later	Log stream possibilities
Yes	No	All must use a coupling facility.

Table 4. Log stream choices resulting from hardware and software used (continued)

Coupling facility?	OS/390 Version 2.4 or later	Log stream possibilities
Yes	Yes	Individual log streams can use either coupling facility or DASD-only.
No	Yes	All must use DASD-only. See 2
No	No	CICS TS Release 2 not supported.

Notes:

1. Without a coupling facility, you cannot share general log streams across MVS images.
2. Define a single-system sysplex (which must use a sysplex couple data set) with PLEXCFG=MONOPLEX. This is required for stand-alone MVS systems that use MVS system logger facilities.
3. Define sysplexes that have two or more MVS images with PLEXCFG=MULTISYSTEM.

If you have a choice (that is, you have both OS/390 Version 2 Release 4 and a coupling facility), take the following points into account when deciding which log streams should be defined to use the coupling facility and which to use DASD-only:

- A coupling facility log stream must be used if you want to allow simultaneous access from CICS regions running in different MVS images. (Simultaneous access to a DASD-only log stream is limited to CICS regions in the same MVS image.)

  For example, assume that you are using RLS and have several CICS application-owning regions (AORs) running on different MVS images. Because the forward recovery log must be accessible from all the AORs, it must be defined as a coupling facility log stream. A CICS system log, on the other hand, is only ever accessed by a single CICS region, and can therefore always be defined as a DASD-only log stream.
- Defining all your CICS log streams to use structures within a *single* coupling facility is not recommended—see “Coupling facility log streams”.
- DASD-only log streams are easier to define and administer than coupling facility log streams.
- The CPU cost of a log write to a DASD-only log stream is greater than that of a write to a coupling facility log stream. For more information, see the *CICS Performance Guide*.
- If the amount of available coupling facility space is limited, you may want to define some DASD-only log streams in order to minimize the amount of space allocated to log structures.

Coupling facility log streams

If you use a coupling facility, the ideal environment is provided by two or more non-volatile coupling facilities that are failure-independent from any of the exploiting MVS images, using dedicated processor resources.

Should one coupling facility fail, or require maintenance, in such an environment, the system logger can rebuild its data in another coupling facility and continue. Running CICS systems would experience only minimal impact.

If you are unable to devote two coupling facilities for the purposes of the MVS system logger, the next most robust environment is provided by one dedicated coupling facility for normal logger and lock structure use, plus a coupling facility LPAR. This environment has the same advantages of rebuilding with minimal impact to running CICS systems. Furthermore, MVS detects that the LPAR coupling facility is not in a failure-independent domain, and causes the system logger to write log stream data to staging data sets for extra security.

Running with a single coupling facility is not recommended since its failure would cause the MVS system logger, and any other users of the coupling facility, to suspend normal operation until access to the coupling facility were restored. CICS would, effectively, be unusable in such a situation.

Unless you specify that the system logger is to use staging data sets, the recovery of log stream data depends on the MVS images remaining active so that the system loggers can use copies of log records held in storage to repopulate the coupling facility when it is again available. If you must run with a single coupling facility, you are recommended to specify **DUPLEXMODE(UNCOND)** to force the use of staging data sets.

Defining coupling facility structures

If you use a coupling facility for your CICS log streams, define the coupling facility structures needed for the log streams in your CFRM policy (in the CFRM data set), and in the LOGR policy (in the LOGR data set).

Updating the CFRM policy

Coupling facility space is divided into structures using the coupling facility resource management (CFRM) policy defined in the CFRM data set. The CFRM policy allows you to define how MVS is to manage coupling facility resources, and you update this using the IXCMIAPU utility. See Figure 9 on page 83 for a sample job to define coupling facility structures in the CFRM policy data set.

Updating the LOGR policy

You define structures in the MVS system logger LOGR policy in the system logger couple data sets using the DEFINE STRUCTURE specification of the ICXMIAPU utility. See Figure 10 on page 84 for a sample job to define coupling facility structures in the LOGR policy data set.

Remember

Before attempting to run any of the IXCMIAPU jobs, ensure that the MVS system logger (IXGLOGR) is running. If IXGLOGR is not running (for example if MVS is running in LOCAL mode), logstream definition jobs fail with rc=0814.

```
//CFRM     JOB (accounting-information),CLASS=A,MSGCLASS=A
//POLICY   EXEC PGM=IXCMIAPU
//STEPLIB  DD DSN=SYS1.MIGLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//*****************************************************************
//*                                                               *
//*  System logger structure definitions should be merged with    *
//*  definitions for other structures required by the sysplex.    *
//*                                                               *
//* Space values are for illustration only -- substitute values   *
//* appropriate to your number of logs and expected activity.     *
//*                                                               *
//* NOTE:  The values in this job are not matched with the other  *
//         sample jobs.                                           *
//*****************************************************************
//SYSIN    DD *
   DATA TYPE(CFRM) REPORT(YES)
   DELETE POLICY NAME(POL1)
   DEFINE POLICY NAME(POL1)
       PREFLIST(cfname) REBUILDPERCENT(1)
   /* Define coupling facilities */
     CF NAME(cfname)
        TYPE(009674)
        MFG(IBM)
        PLANT(00)
        SEQUENCE(000000040032)
        PARTITION(3)
        CPCID(00)
        DUMPSPACE(8192)
   /* Define other structures required by sysplex here . . .      */
 ...
   /* Define logger structures for CICS log streams.              */
   /* - If a choice of facilities is available, use non-volatile  */
   /*     facilities if possible                                  */
   /* - Specify low REBUILDPERCENT so that structures are rebuilt */
   /*     in the event of connectivity failure                    */
   /* - INITSIZE gives initial CF size (based on sizing calcs)    */
   /* - SIZE should be larger to allow for rebuild to a larger    */
   /*     size if INITSIZE proves to be too small                 */
   /*   SIZE and INITSIZE values are for illustration only -      */
   /*   substitute values appropriate for your intended usage.    */

     STRUCTURE NAME(LOG_DFHLOG_001)       /* CICS system logs    */
       INITSIZE(10000) SIZE(16000)
       PREFLIST(cfname) REBUILDPERCENT(1)

     STRUCTURE NAME(LOG_DFHSHUNT_001)     /* CICS secondary logs */
       INITSIZE(10000) SIZE(16000)
       PREFLIST(cfname) REBUILDPERCENT(1)

     STRUCTURE NAME(LOG_USERJNL_001)      /* CICS user journals  */
       INITSIZE(10000) SIZE(16000)
       PREFLIST(cfname) REBUILDPERCENT(1)

     STRUCTURE NAME(LOG_GENERAL_001)    /* Forward recovery logs */
       INITSIZE(10000) SIZE(16000)
       PREFLIST(cfname) REBUILDPERCENT(1)
/*
//
```

Figure 9. Sample policy job to define logger structures to CFRM 1/2

Multiple log streams can write data to a single coupling facility structure. This does not mean that the log data is merged; the log data stays segregated according to log stream. You can specify the number of log streams that use the resources of a single coupling facility structure using the LOGSNUM parameter on the IXCMIAPU service to define a structure.

Each log stream is allocated a proportion of the structure space based on the number of currently connected log streams (up to the limit specified in LOGSNUM).

For example, a structure may be defined to contain a maximum of, say, 30 log streams. If only 10 log streams are connected, each log stream can use one tenth of the space in the structure. As other log streams are connected and disconnected, the MVS system logger adjusts the proportion of space to be used by each log stream.

It is important to plan carefully before specifying a value for LOGSNUM, because this parameter determines how much storage space in the structure is available to each log stream. A number in the range 10 to 20 is optimum in many environments.

The JCL in Figure 10 defines log stream coupling facility structures to the MVS system logger. It is meant for guidance only and you should substitute values appropriate to your requirements.

```
//DEFSTRUC JOB ...
//POLICY   EXEC PGM=IXCMIAPU
//STEPLIB  DD DSN=SYS1.MIGLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//*******************************************************************
//*                                                                 *
//* Define log stream coupling facility structures to the MVS logger  *
//*                                                                 *
//* AVGBUFSIZE and LOGSNUM values are just for illustration,        *
//* substitute values appropriate to your intended usage            *
//*                                                                 *
//*******************************************************************
//SYSIN    DD *
  DATA TYPE(LOGR) REPORT(YES)

  /* System logs           */
  DEFINE STRUCTURE NAME(LOG_DFHLOG_001) LOGSNUM(10)
            MAXBUFSIZE(64000) AVGBUFSIZE(500)

  /* Secondary system logs  */
  DEFINE STRUCTURE NAME(LOG_DFHSHUNT_001) LOGSNUM(10)
            MAXBUFSIZE(64000) AVGBUFSIZE(4096)

  /* User journals with unforced writes  */
  DEFINE STRUCTURE NAME(LOG_USERJRNL_001) LOGSNUM(10)
            MAXBUFSIZE(64000) AVGBUFSIZE(64000)

  /* Fwd recovery logs and user jnls that are forced */
  DEFINE STRUCTURE NAME(LOG_GENERAL_001) LOGSNUM(10)
            MAXBUFSIZE(64000) AVGBUFSIZE(2048)

/*
//
```

Figure 10. Sample JCL to define coupling facility structures to MVS system logger

See the *OS/390 MVS Programming: Assembler Services GuideOS/390 MVS Programming: Assembler Services Guide* for information on planning coupling facility configurations.

Planning considerations for the number of log structures

Bear in mind the following points when planning the definition of your coupling facility structures:

- The CFRM policy allows a maximum of 255 structures for all purposes.
- Allow a maximum of 20 log streams per structure.
- Smaller structures are more quickly allocated, rebuilt, and recovered than larger ones.
- It is good practice to keep the log streams for test CICS systems (and other systems not in regular use) in structures separate from the structures holding the log streams of production CICS systems. This avoids the structure space available to production CICS systems being affected by structure usage of the test CICS systems.
- It is good practice to keep the log streams for terminal-owning regions (TORs) in structures separate to those accommodating log streams for application-owning regions (AORs). In addition, keep log streams for file-owning regions in structures separate to those accommodating log streams for TORs and AORs.
- Share structures between MVS images. If an MVS image or logger address space fails, and a surviving MVS image is using the same log stream structures (although not necessarily the same log streams), the surviving image is notified of the failure and can initiate immediate log stream recovery for the failing MVS.

  Recovery would, otherwise, be delayed until the next time that a system attempts to connect to a log stream in the affected structures, or until the logger address space of the failing system is restarted.

  For example, in a 4-way sysplex comprising MVSA, MVSB, MVSC, and MVSD, you might have the CICS regions that normally run on MVSA and MVSB use structure LOG_DFHLOG_001, and the regions that run on MVSC and MVSD use structure LOG_DFHLOG_002. Thus each MVS image has a partner to recover its log streams in the event of an MVS failure. If a structure fails, the two MVS images using the other structure can take over the workload. Also, if you have more than one coupling facility, allocate the system log structures to different coupling facilities. See Figure 11 on page 86 for an illustration of this example.

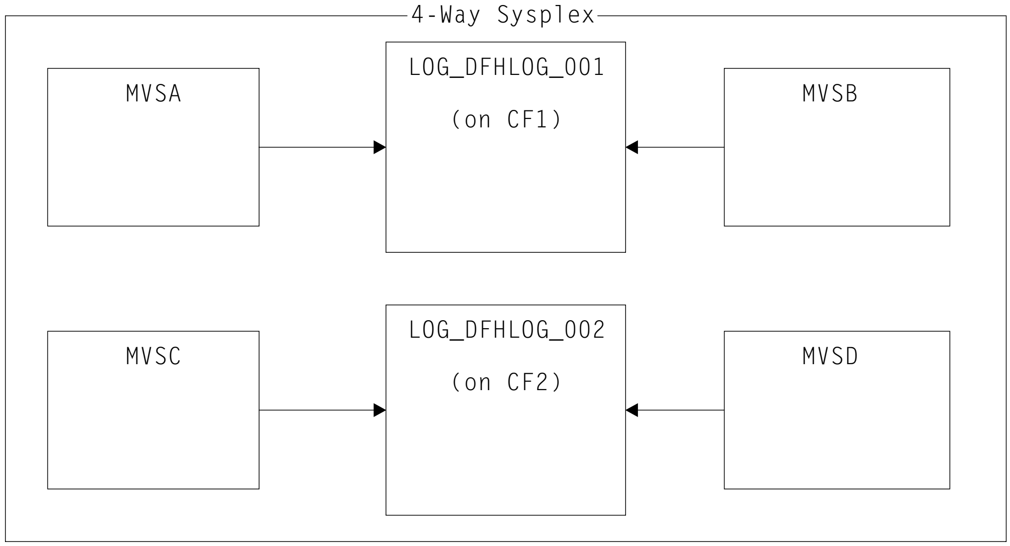

Figure 11. Sharing system logger structures between MVS images

- Use the appropriate buffer size. The average buffer size (AVGBUFSIZE) defined for a structure should be reasonably close to the actual buffer size of the log streams using the structure. If it is not, there is a risk that usable space will be exhausted long before the structure is actually full.

  Important:

  1. If you are running on OS/390 Release 3 or later, the value you specify for AVGBUFSIZE is less important than if you are running on an earlier release of MVS. This is because OS/390 Release 3 or later dynamically tunes the element/entry ratio.
  2. AVGBUFSIZE, like other structure definition attributes such as MAXBUFSIZE and LOGSNUM, cannot be updated unless you first delete the log streams in the structure definition.
- Set MAXBUFSIZE to slightly less than 64K - say, 64000. This allows CICS to write the maximum size user record and allows coupling facility storage to be allocated in 256-byte units. If you allow MAXBUFSIZE to default, coupling facility storage is allocated in 512-byte units. This can be wasteful of storage.

  There is no significant advantage in setting MAXBUFSIZE lower than 64000 as far as the utilization of storage is concerned.
- Set a low value for the REBUILDPERCENT parameter in the CFRM policy for log structures used for CICS system logs.

Log structure naming conventions

It is sensible to adopt a naming convention for your coupling facility structures that helps to identify the purpose of the structure. A format such as LOG_*purpose*_*nnn* is recommended, where:

- *purpose* identifies the type of use of the structure.
- *nnn* is a sequence number to allow for more than one structure for each purpose.

Some examples are:

LOG_DFHLOG_001
For the CICS primary system log. The structure should be large to avoid the

need to write data to DASD. The average buffer size would be small. See the sizing calculations in "Structure size for system log usage" on page 91.

LOG_DFHSHUNT_001
For the CICS secondary system log. The structure should be small but requires a large buffer size. A structure of 150K per log stream may well be sufficient.

LOG_USERJRNL_001
For user journals where block writes are not forced. The average and maximum buffer sizes of these structures should be the same.

LOG_GENERAL_001
For forward recovery logs and user journals where block writes are forced periodically.

See also the section "Develop a naming convention for system logger resources" in the *OS/390 MVS Setting Up a Sysplex* manual.

Defining coupling facility log streams

Use the MVS IXCMIAPU utility to define coupling facility log streams to the LOGR couple data set. The basic syntax to define a coupling facility log stream is as follows:

```
DEFINE LOGSTREAM NAME(log_stream_name)
             STRUCTNAME(structure_name)
             LOWOFFLOAD(low_offload) HIGHOFFLOAD(high_offload)
             STG_DUPLEX(YES|NO) DUPLEXMODE(COND|UNCOND)
```

For detailed information about the full range of log stream attributes, see the *OS/390 Setting Up a Sysplex* manual. Figure 12 shows example definitions for a pair of coupling facility log streams associated with a CICS system log.

```
//DEFLOGS  JOB ...
//LOGDEFN  EXEC PGM=IXCMIAPU
//STEPLIB  DD DSN=SYS1.MIGLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//*****************************************************************
//*                                                               *
//* Define coupling facility log streams for CICS system log.     *
//*                                                               *
//* The LOWOFFLOAD value is for illustration only --              *
//* substitute a value appropriate for your environment.          *
//*                                                               *
//*****************************************************************
//SYSIN    DD *
  DATA TYPE(LOGR) REPORT(NO)
  DEFINE LOGSTREAM NAME(region_userid.applid.DFHLOG)
                 STRUCTNAME(LOG_DFHLOG_001)
                 LOWOFFLOAD(60) HIGHOFFLOAD(80)
                 STG_DUPLEX(YES) DUPLEXMODE(COND)
  DEFINE LOGSTREAM NAME(region_userid.applid.DFHSHUNT)
                 STRUCTNAME(LOG_DFHSHUNT_001)
                 LOWOFFLOAD(0) HIGHOFFLOAD(80)
                 STG_DUPLEX(YES) DUPLEXMODE(COND)
```

Figure 12. Example definitions of coupling facility log streams. The definitions are for the CICS primary and secondary system log streams. The value **region_userid** is the RACF userid under which the CICS address space is running; **applid** is the CICS region's VTAM APPL name (taken from the APPLID system initialization parameter).

Using model log streams

To avoid having to define explicitly each log stream used by each of your CICS regions, you can use model log stream definitions. Using models, log streams are defined to MVS dynamically, on their first usage. Figure 13 shows an example of coupling facility model definitions for CICS primary and secondary system log streams.

```
//DEFLOGS  JOB ...
//LOGDEFN  EXEC PGM=IXCMIAPU
//STEPLIB  DD DSN=SYS1.MIGLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//*****************************************************************
//*                                                               *
//* Define coupling facility model log streams for CICS system log.*
//*                                                               *
//* The LOWOFFLOAD value is for illustration only --              *
//* substitute a value appropriate for your environment.          *
//*                                                               *
//*****************************************************************
//SYSIN    DD *
  DATA TYPE(LOGR) REPORT(NO)
  DEFINE LOGSTREAM NAME(sysname.DFHLOG.MODEL)
                   MODEL(YES)
                   STRUCTNAME(LOG_DFHLOG_001)
                   LOWOFFLOAD(60) HIGHOFFLOAD(80)
                   STG_DUPLEX(YES) DUPLEXMODE(COND)
  DEFINE LOGSTREAM NAME(sysname.DFHSHUNT.MODEL)
                   MODEL(YES)
                   STRUCTNAME(LOG_DFHSHUNT_001)
                   LOWOFFLOAD(0) HIGHOFFLOAD(80)
                   STG_DUPLEX(YES) DUPLEXMODE(COND)
```

Figure 13. Example model definitions for coupling facility system log streams. The value **sysname** is the sysid of the MVS image in which the CICS region or regions are running.

For detailed information about using model log streams, see the *CICS Recovery and Restart Guide*. For information about the mapping of CICS journal definitions to log stream names, see the *CICS System Definition Guide*.

When using model log streams, you need to bear the following in mind:

- For coupling facility log streams, a model log stream definition determines the coupling facility structure in which the new log streams are created. On an MVS image that runs both CICS production and CICS test regions, take care that the system logs for the production regions are kept separate from the system logs for the test regions.
- There are recovery considerations when using model log streams to define CICS system logs—see the *CICS Recovery and Restart Guide*.

Sizing considerations for coupling facility log streams

This section discusses how to size the following types of coupling facility log stream:

- The CICS primary and secondary system log streams
- Forward recovery logs
- User journals and autojournals.

Sizing DFHLOG

For the CICS primary system log stream (DFHLOG), it is important to:

- **Minimize the amount of data that is offloaded to secondary storage:**

The MVS system logger begins the offload process when the high offload threshold (HIGHOFFLOAD) of the log stream is reached. The offload process consists of two steps:

1. The MVS logger physically deletes the data in the log stream that has been marked for deletion by the CICS log-tail deletion process.
2. The MVS logger calculates how much data needs to be offloaded to secondary storage, based on the difference between HIGHOFFLOAD and LOWOFFLOAD, less the amount of data that has been deleted since the last offload event.

To minimize the amount of data offloaded from the CICS primary system log:

– Define a suitably-sized coupling facility structure. For advice, see “Recommendations”.

– Ensure that the log-tail deletion process is working effectively. For detailed information about the log tail deletion process, see the *CICS Recovery and Restart Guide*.

- **Avoid “structure-full” events:**

  A structure-full event occurs when a log stream’s structure space becomes full before the offloading of data has completed.

  For advice on monitoring and avoiding structure-full events, see the *CICS Performance Guide*.

Sizing DFHSHUNT

It is important to size the secondary system log stream (DFHSHUNT) to avoid structure-full events. However, it is normal for some data to be offloaded from DFHSHUNT to secondary storage.

Sizing general logs

It is important to size forward recovery logs, user journals, and autojournals to avoid structure-full events. However, because CICS does not delete data from these log streams, it is normal for data to be offloaded to secondary storage.

Recommendations

Table 5 summarizes how you should decide on the values for various attributes on the structure definition, log stream definition, and system definition.

Table 5. How to decide on the values of attributes

Facility	**Attribute**	**Recommendation**
Structure	INITSIZE	Use the DFHLSCU utility program or the formula on page 91.
	SIZE	Use DFHLSCU or the formula on page 93.
	AVGBUFSIZE	Use DFHLSCU or the formula on page 92. Underestimate rather than overestimate.
	MAXBUFSIZE	64000
Primary system log stream (DFHLOG)	HIGHOFFLOAD	80
	LOWOFFLOAD	Use DFHLSCU or the formula on page 94.
Secondary system log stream (DFHSHUNT)	HIGHOFFLOAD	80
	LOWOFFLOAD	0
General log stream	HIGHOFFLOAD	80
	LOWOFFLOAD	40 – 60

Table 5. How to decide on the values of attributes (continued)

Facility	Attribute	Recommendation
Log stream	STG_SIZE	Use DFHLSCU or the formula on page 98. Overestimate rather than underestimate.
CICS system	AKPFREQ	4000

Note: Startup may take longer than you experienced when using earlier releases. This is due in part to the allocation and formatting of the staging data sets. The increased time that startup takes is dependent on such things as:

- Size of staging data set (STG_SIZE)
- DASD speed
- DASD contention

It can be reduced by avoiding the use of unnecessarily large staging data sets.

The log stream sizing utility, DFHLSCU

If you are migrating from CICS/ESA 3.3 or CICS/ESA 4.1, you are strongly recommended to use the CICS-supplied utility program, DFHLSCU, to help you calculate your space requirements. DFHLSCU takes as input “old-style” (pre-CICS Transaction Server for OS/390 Release 1-format) journal records, and analyzes them to establish values for:

AVGBUFSIZE
The average buffer size, in bytes, of a log stream structure in the coupling facility. It is important, particularly in MVS releases before OS/390 Release 3, that the value you specify for AVGBUFSIZE reflects as accurately as possible the real size of most log blocks written to the structure. This leads to efficient use of the space in the coupling facility and minimum DASD offloading frequency. This is less important in OS/390 Release 3 and later, because OS/390 performs some dynamic tuning.

You define this attribute in your DEFINE STRUCTURE job.

INITSIZE
The initial amount of space, in kilobytes, to be allocated for the log stream structure in the coupling facility. You define this attribute in your CFRM policy.

HIGHOFFLOAD
The point in primary storage (that is, in either the coupling facility structure or the staging data set), as a percentage of space consumed, where the MVS system logger starts its offload process. You define this attribute in your DEFINE LOGSTREAM job.

LOWOFFLOAD
The point in primary storage, as a percentage of space consumed, where the MVS system logger stops offloading data from primary storage to log stream DASD data sets. You define this attribute in your DEFINE LOGSTREAM job.

SIZE The maximum size, in kilobytes, of the log stream structure in the coupling facility. You define this attribute in your CFRM policy. The value of the SIZE attribute is approximately 50% greater than the value of the INITSIZE attribute. You can dynamically increase the log stream structure size up to the value of the SIZE attribute.

STG_SIZE

The size, as a number of 4K blocks, of the staging data set for the log stream. A coupling facility log stream may or may not use a staging data set. For advice on the use of staging data sets with coupling facility log streams, see “Staging data sets for coupling facility log streams” on page 97.

You define this attribute in the DEFINE LOGSTREAM statements of your IXCMIAPU job. If you are using a staging data set and do not specify STG_SIZE, the MVS logger determines the size from

- The STG_SIZE parameter of the log stream defined on the LIKE parameter
- Uses the maximum coupling facility structure size for the structure to which the log stream is defined. This value is obtained from the SIZE parameter of the structure in the CRFM policy.

For details on how to use DFHLSCU, see the *CICS Operations and Utilities Guide*.

If DFHLSCU is inappropriate for use in your environment

If it is inappropriate for you to use DFHLSCU to help you size your coupling facility structures and log streams (perhaps you have no CICS Version 4 or Version 3 journal records to use as input to DFHLSCU, or you are capacity planning for new applications), the following sections will help you to calculate your space requirements.

The formulae provided help you to calculate values for:

- INITSIZE
- AVGBUFSIZE
- SIZE
- LOWOFFLOAD
- STG_SIZE

You must base your calculations on the journaling requirements of your applications. This provides the starting point for the following formulae.

Structure size for system log usage: You are recommended not to place the primary and secondary log streams in the same structure due to the large disparity in data volumes written to the primary and secondary system logs.

Generally, the volume of data that CICS keeps in the primary system log at any one time is slightly greater than the amount written during one activity keypoint interval. This volume is determined by the activity keypoint frequency, which is measured in the number of write requests to the CICS system log stream output buffer, and defined on the AKPFREQ system initialization parameter. Review the value specified on the AKPFREQ system initialization parameter when planning coupling facility structure sizes.

The **INITSIZE** value to be supplied in the CFRM policy can be calculated as follows:

```
    (LOGSNUM *(2000 + (no. entries+ ) * (AVGBUFSIZE * 1.1289 + 195)))
310+ -----------------------------------------------------------------
                                 1024
```

Figure 14. INITSIZE calculation

The value for the number of entries (`no. entries`) can be calculated as follows:

```
               (akpintvl + trandur) * writespersec
no. entries =  -----------------------------------
                               0.9
```

where:

- `akpintvl` is the interval between activity keypoints which varies with workload. It can be calculated as follows:

  ```
                     AKPFREQ
  akpintvl = ---------------------------------
             (N1 * R1) + (N2 * R2) + (Nn * Rn)
  ```

  where:

  – `N1, N2 .... Nn` is the transaction rate for each transaction (transactions per second).

  – `R1, R2 .... Rn` is the number of log records written by each transaction.

- `trandur` is the execution time (between syncpoints) of the longest-running transaction that runs as part of the normal workload.

  If this duration is longer than `akpintvl` value, you can either:

  – Increase the value of AKPFREQ, so increasing the value of `akpintvl` (as long as this does not result in an unacceptably large coupling facility structure size).

  – Change the application logic to cause more frequent syncpoints.

  – Calculate a structure size based on a shorter transaction duration, and accept that DASD offloading occurs when the long-running transaction is used.

- `writespersec = lesser of 25 or ((N1 * R1) + ... (Nn * Rn))`, where:

  – `N1, N2 .... Nn` are the transaction frequencies (transactions per second) of the most frequently executed transactions.

  – `R1, R2 .... Rn` is the number of log records written by each transaction.

You can calculate **AVGBUFSIZE** for DFHLOG from the weighted average of the data logged by the most frequently executed transactions in the system:

```
AVGBUFSIZE = (bytespersec / writespersec) + 48
```

where:

- `bytespersec = (N1 * D1) + (N2 * D2) + ... (Nn * Dn)`, where:

  – `N1, N2 .... Nn` are the transaction frequencies (transactions per second) of the most frequently executed transactions.

  – `D1, D2 .... Dn` are the bytes of data logged by each transaction.

    You can calculate the amount of data (Dn) written to the system log for each transaction:

    ```
    Dn = Ns * syncreclen +
         Nfc * (fcrechdr + fcreclen) +
         Nts * (tsrechdr + tsreclen) +
         Ntd * (tdrechdr + tdreclen) +
         Nur * (urrechdr + urreclen)
    ```

    where:

    - `Ns` is the number of syncpoints per transaction - usually 1.
    - `synreclen` is the syncpoint record length.

- `Nfc`, `fcrechdr`, `fcreclen` are, respectively, the number of recoverable updates made, the length of the record headers, and the length of the records for file control.

  Count only READ UPDATE and WRITE ADD records. `fcrechdr` is **144** (136 bytes of record header plus 8 bytes of file name).

Similarly:

- `Nts`, `tsrechdr`, `tsreclen` are for recoverable temporary storage updates.

  Count only TS PUT and TS UPDATE records.

  For TS PUT records, `tsrechdr` is **108**, and `tsreclen` is **88**.

  For TS UPDATE records, `tsrechdr` is **108**, and `tsreclen` is **52**.
- `Ntd`, `tdtrechdr`, `tdreclen` are for recoverable transient data updates.

  `tdrechdr` is **108**, and `tdreclen` is **380**.
- `Nur`, `urrechdr`, `urreclen` are for user records written to DFHLOG.

  `urrechdr` is **125**.

• See page 92 for details of how to calculate `writespersec`

If the result of the calculation shows a value for `AVGBUFSIZE` that is greater than the value defined for MAXBUFSIZE, then the value defined for MAXBUFSIZE is taken as the value for `AVGBUFSIZE`, and `writespersec` is calculated as follows:

```
writespersec = bytespersec / (MAXBUFSIZE - 48)
```

Round the final result of the INITSIZE formula up to the next multiple of 256.

The **SIZE** value to be supplied in the CFRM policy can be calculated as follows:

```
     LOGSNUM *(2500 + (no. entries + 5) * (AVGBUFSIZE * 1.6821 + 289)))
480+-----------------------------------------------------------------
                                  1024
```

Figure 15. SIZE calculation

Calculate the value for the number of entries as in the INITSIZE formula.

Round the final result of the SIZE formula up to the next multiple of 256. The formula for SIZE gives a result that is approximately fifty percent greater that the INITSIZE value.

DFHLSCU recommends a value of 40% for DFHLOG's LOWOFFLOAD parameter. In practice, a good empirical range for this value is between 40% and 60%. Too low a value may result in physical offloading of log data from primary to secondary storage once the MVS Logger offload process has completed physical deletion of any unwanted log data during offload processing. Conversely, too high a value may mean that subsequent offload processing occurs more frequently, as less space is freed up from primary storage during an offload operation.

If the results of the calculation from the formula given above do not lie within the range of 40% to 60%, it may be that your workload has atypical values for trandur or akpintvl. It should be noted that log stream definition values (such as LOWOFFLOAD) should be reviewed after analysis of information such as statistics from MVS Logger SMF 88 records.

Generally, the secondary system log stream needs to be only a fraction of the size of the primary log stream. Use the following formulae to calculate coupling facility space for **DFHSHUNT**:

```
INITSIZE = (150 * LOGSNUM) + 310
SIZE = (230 * LOGSNUM) + 480
```

You can calculate a suitable value for **LOWOFFLOAD** for DFHLOG using the following formula:

```
                 trandur * 90
LOWOFFLOAD = ------------------ + 10  (where RETPD=0 specified)
             akpintvl + trandur
```

or

```
                 trandur * 90
LOWOFFLOAD = ------------------       (where RETPD=dddd specified)
             akpintvl + trandur
```

where:

- akpintvl is the interval between activity keypoints. See page 92 for the formula to calculate it.
- trandur is the execution time (between syncpoints) of the longest-running transaction that runs as part of the normal workload.

  If this duration is longer than akpintvl value, you can either:

  – Increase the value of AKPFREQ, so increasing the value of akpintvl (as long as this does not result in an unacceptably large coupling facility structure size).
  – Change the application logic to cause more frequent syncpoints.
  – Calculate a structure size based on a shorter transaction duration, and accept that DASD offloading occurs when the long-running transaction is used.

Structure size for forward recovery log usage: You can merge the forward recovery logs written by many CICS regions onto the same log stream. You can also use the same log stream for forward recovery data for multiple data sets.

See Figure 14 on page 91 and Figure 15 on page 93 for the formulae to calculate values for the **INITSIZE** and **SIZE** attributes.

Calculate a value for number of entries as follows:

```
no. entries = writespersec * 12.5
```

where:

```
writespersec = lesser of 25 or (N1 + ... + Nn)
```

where N1 .... Nn is the number of transactions per second writing to each data set.

You can calculate **AVGBUFSIZE** as follows:

```
AVGBUFSIZE = (bytespersec / writespersec) + 36
```

where:

- bytespersec = (N1 * Wr1 * (D1 + rechdr) +.. (Nn * Wrn * (Dn + rechdr)))
- writespersec = lesser of 25 or (N1 + ... + Nn), where:
  – N1 .... Nn is the number of transactions per second writing to each data set.

– `Wr1 ... Wrn` is the number of write requests per transaction.
– `D1 .... Dn` is the average record length for each data set.
- `rechdr` is the record header length of each record.

If the records are WRITE ADD, WRITE ADD COMPLETE, or WRITE ADD DELETE records, `rechdr` is **84** and is followed by the record key, and the record data (including its key).

If the result of the calculation shows a value for `AVGBUFSIZE` that is greater than the value defined for MAXBUFSIZE, then the value defined for MAXBUFSIZE is taken as the value for `AVGBUFSIZE`, and `writespersec` is calculated as follows:

```
writespersec = bytespersec / (MAXBUFSIZE - 36)
```

Structure size for user journal and autojournal usage: See Figure 14 on page 91 and Figure 15 on page 93 for the formulae to calculate values for the **INITSIZE** and **SIZE** attributes.

Calculate a value for number of entries as follows:

```
no. entries = writespersec * 12.5
```

See the explanation of `writespersec` below.

For journals where the log blocks are not forced to the log stream, the average block size tends to be slightly less than the MAXBUFSIZE value defined for the coupling facility structure.

For journals where the log blocks are forced to the log, (via the EXEC CICS WAIT JOURNALNAME or EXEC CICS WAIT JOURNALNUM commands, or via the WAIT option of the EXEC CICS WRITE JOURNALNAME or EXEC CICS WRITE JOURNALNUM commands), you can calculate **AVGBUFSIZE** from the weighted average of the data logged for each journal logging to the same log stream for a given CICS system.

```
AVGBUFSIZE = (bytespersec / (writespersec) + 36
```

where:

- `bytespersec = (N1 * Wr1 * (D1 + rechdr) + ... (Nn *Wrn * (Dn + rechdr)))`
- `writespersec = lesser of 25 or ((N1 * Wa1) + ... + (Nn * Wan))` where:
  – `N1, .... Nn` is the number of transactions per second writing to the journal.
  – `Wr1 .... Wrn` is the number of write requests per transaction.
  – `Wa1 .... Wan` is the number of wait requests per transaction.
  – `D1 .... Dn` is the average record length of each journal record.
  – `rechdr` is the record header length of each record.

Autojournal records are issued from file control. They may be DATA SET NAME records which consist of a **204-**byte record header, and no further data. Alternatively, they may be READ ONLY, READ UPDATE, WRITE UPDATE, WRITE ADD, or WRITE ADD COMPLETE records In this case, `rechdr` is **84** and is followed by the file control record itself.

User journal records consist of a **68-**byte record header, followed by the user prefix, and the user data.

If the result of the calculation shows a value for AVGBUFSIZE that is greater than the value defined for MAXBUFSIZE, then the value defined for MAXBUFSIZE is taken as the value for AVGBUFSIZE, and writespersec is calculated as follows:

```
writespersec = bytespersec / (MAXBUFSIZE - 36)
```

Coupling facility requirements in an RLS environment

When you move to an RLS environment from an environment in which multiple AORs have been accessing data sets in an FOR, the logging activity of the FOR is distributed across the AORs. As a consequence, the coupling facility structure size required by each AOR increases.

You can use the formulae for INITSIZE and SIZE, given in Figure 14 on page 91 and Figure 15 on page 93. However, you need to calculate values for:

- avgbufize
- number of entries
- akpintvl.

using formulae which are different to those already described.

Use either reports produced by DFHLSCU for the CICS/ESA 4.1 AOR and FOR system logs, or log stream statistics from CICS Transaction Server for OS/390, to calculate

- The number of log write operations, and
- The amount of data written

in a reporting interval for the AORs and the FOR.

Calculating increased AOR coupling facility storage requirements

Use the following formulae to calculate:

- avgbufize
- number of entries
- akpintvl.

for the AORs in the new RLS environment.

Calculate the AOR AVGBUFSIZE value required by the INITSIZE and SIZE formulae as follows:

```
AOR AVGBUFSIZE = AOR_bytes + (FOR_bytes / no. of AORs)
                 -------------------------------------
                        intvlen * 25
```

where:

- AOR_bytes is the number of bytes written to the system log by an AOR in the sampling interval.
- FOR_bytes is the number of bytes written to the system log by an FOR in the sampling interval.
- no of AORs is the number of cloned AORs using the FOR.
- intvlen is the length (in seconds) of the sampling interval (statistics or DFHLSCU).

Calculate the AOR 'number of entries' value required by the INITSIZE and SIZE formulae as follows:

```
AOR no. entries = ((AOR_akpintvl + trandur) * 25)
                  ------------------------------
                                0.9
```

where:

- ```
  AOR_akpintvl =        AKPFREQ * intvlen
                        ------------------------------------
                        AOR_recs + (FOR_recs / no. of AORs)
  ```

  where:

  – `intvlen` is the length (in seconds) of the sampling interval (statistics or DFHLSCU).

  – `AOR_recs` is the number of records written to the system log by an AOR in the sampling interval.

  – `FOR_recs` is the number of records written to the system log by an FOR in the sampling interval.

  – `no of AORs` is the number of cloned AORs using the FOR.

- `trandur` is the execution time (between syncpoints) of the longest-running transaction that runs as part of the normal workload.

  If this is longer than `AOR_akpintvl`, use `AOR_akpintvl` as the duration or consider increasing AKPFREQ.

Once you have calculated the values for AOR AVGBUFSIZE and AOR no. entries, use the formulae for INITSIZE and SIZE, as described in Figure 14 on page 91 and Figure 15 on page 93.

Staging data sets for coupling facility log streams

MVS normally keeps a second copy of the data written to the coupling facility in a data space, for use when rebuilding a coupling facility log in the event of an error. This is satisfactory as long as the coupling facility is failure-independent (in a separate CPC and non-volatile) from MVS.

Where the coupling facility is in the same CPC, or uses volatile storage, the MVS system logger supports staging data sets for copies of log stream data that would otherwise be vulnerable to failures that impact both the coupling facility and the MVS images.

The following **recommendations** are for guidance when defining log streams:

- Define STG_DUPLEX(YES) and DUPLEXMODE(COND) for those log streams associated with the system log. This ensures that the MVS system logger automatically copies to staging data sets if it detects that the coupling facility is not failure-independent and a single point of failure, and is therefore vulnerable to permanent log data loss. ′

  A connection to a log stream contains a single point of failure if the coupling facility is volatile or it resides on the same CPC as the MVS system connecting to it. For example, if you have two CPCs, CPC1 and CPC2, and CPC2 has an MVS LPAR and a coupling facility, while CPC2 has only MVS LPARs, the connections from the MVS LPAR in CPC1 to the coupling facility are failure dependent—if you lose CPC1 you lose both MVS and its local buffers and the coupling facility. On the other hand, the connections from CPC2 are failure independent, because the system logger local storage and buffers are in a physically separate CPC from the coupling facility, and you would have to lose both to lose data. With DUPLEXMODE(COND), failure dependent connections result in staging sets, while failure independent connections are not allocated staging data sets.

- If you are operating with only a single coupling facility, you should define STG_DUPLEX(YES) and DUPLEXMODE(UNCOND) for those log streams associated with the system log.
  ```

- Define STG_DUPLEX(YES) and DUPLEXMODE(COND) for those log streams associated with forward recovery logs. If you do not, and there is a failure which causes loss of data from the log stream, you would need to take a new image copy of the associated VSAM data sets. There would be a consequent period of time until this was complete when the data sets would not be fully protected.
- If you operate a non-volatile, stand-alone coupling facility for normal logging, with a PR/SM LPAR configured as a coupling facility acting as backup, define all log streams with STG_DUPLEX(YES) and DUPLEXMODE(COND).
- Define each staging data set to be at least the same size as the log stream share of the coupling facility, but round the average block size up to 4K.

  For example, the staging data set size corresponding to the basic coupling facility space requirement for each CICS system log stream (DFHLOG) can be calculated by the following formula:

```
                                   avgbufsize (rounded up to 4K)
staging data set size = entries *  -----------------------------
                                              4096
```

  See page on page 92 for the formula to calculate `no. entries`.

DASD-only log streams

In OS/390 Version 2 Release 4 and above, the CICS log manager supports the DASD-only option of the MVS system logger. Individual CICS log streams can use either coupling facility log structures or DASD-only logging. Reasons for defining a log stream to use DASD-only logging include:

- You do not have a coupling facility.
- You want to preserve coupling facility space for other uses.
- You do not need to share the log stream across MVS systems. (The CICS system log can never be shared.)

If you have a choice (that is, you have both OS/390 Version 2 Release 4 and a coupling facility), see page 81 for advice about defining individual log streams to use coupling facility or DASD-only logging, based on their usage.

Defining DASD-only log streams

Use the MVS IXCMIAPU utility to define DASD-only log streams to the LOGR couple data set. The basic syntax to define a DASD-only log stream is as follows:

```
DEFINE LOGSTREAM NAME(log stream_name)
            DASDONLY(YES)
            MAXBUFSIZE(max_bufsize)
            STG_SIZE(stg_size)
            HIGHOFFLOAD(high_offload)
            LOWOFFLOAD(low_offload)
```

For detailed information about the full range of log stream attributes, see the *OS/390 Setting Up a Sysplex* manual. Figure 16 shows example definitions for a pair of log streams associated with a DASD-only system log.

```
//DEFLOGS  JOB ...
//LOGDEFN  EXEC PGM=IXCMIAPU
//STEPLIB  DD DSN=SYS1.MIGLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//*****************************************************************
//*                                                               *
//* Define DASD-only log streams for CICS system log.             *
//*                                                               *
//* The LOWOFFLOAD and STG_SIZE values are for illustration       *
//* only -- substitute values appropriate for your environment.   *
//*                                                               *
//*****************************************************************
//SYSIN    DD *
  DATA TYPE(LOGR) REPORT(NO)
  DEFINE LOGSTREAM NAME(region_userid.applid.DFHLOG)
                   DASDONLY(YES)
                   MAXBUFSIZE(64000) STG_SIZE(3000)
                   LOWOFFLOAD(60) HIGHOFFLOAD(80)
  DEFINE LOGSTREAM NAME(region_userid.applid.DFHSHUNT)
                   DASDONLY(YES)
                   MAXBUFSIZE(64000) STG_SIZE(500)
                   LOWOFFLOAD(0) HIGHOFFLOAD(80)
```

Figure 16. Example definitions of DASD-only log streams. The definitions are for the CICS primary and secondary system log streams. The value **region_userid** is the RACF userid under which the CICS address space is running; **applid** is the CICS region's VTAM APPL name (taken from the APPLID system initialization parameter).

Using model log streams

To avoid having to define explicitly each log stream used by each of your CICS regions, you can use model log stream definitions. Using models, log streams are defined to MVS dynamically, on their first usage. Figure 17 on page 100 shows example DASD-only model definitions for CICS primary and secondary system log streams.

```
//DEFLOGS  JOB ...
//LOGDEFN  EXEC PGM=IXCMIAPU
//STEPLIB  DD DSN=SYS1.MIGLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//*****************************************************************
//*                                                               *
//* Define DASD-only model log streams for CICS system log.       *
//*                                                               *
//* The LOWOFFLOAD and STG_SIZE values are for illustration       *
//* only -- substitute values appropriate for your environment.   *
//*                                                               *
//*****************************************************************
//SYSIN    DD *
  DATA TYPE(LOGR) REPORT(NO)
  DEFINE LOGSTREAM NAME(sysname.DFHLOG.MODEL)
                   MODEL(YES)
                   DASDONLY(YES)
                   MAXBUFSIZE(64000)
                   STG_SIZE(3000)
                   LOWOFFLOAD(60) HIGHOFFLOAD(80)
  DEFINE LOGSTREAM NAME(sysname.DFHSHUNT.MODEL)
                   MODEL(YES)
                   DASDONLY(YES)
                   MAXBUFSIZE(64000)
                   STG_SIZE(500)
                   LOWOFFLOAD(0) HIGHOFFLOAD(80)
```

Figure 17. Example model definitions for DASD-only system log streams. The value **sysname** is the sysid of the MVS image in which the CICS region or regions are running.

For information about the mapping of CICS journal definitions to log stream names, see the *CICS System Definition Guide.*

When using model log streams you need to bear in mind that, if you specify a STG_SIZE on the model definition, all new log streams created from the model will have the same-sized staging data set.

Sizing considerations for DASD-only log streams

This section discusses how to size the following types of DASD-only log stream:
- The CICS primary and secondary system log streams
- Forward recovery logs
- User journals and autojournals.

Sizing DFHLOG

For the CICS primary system log stream (DFHLOG), it is important to:

- **Minimize the amount of data that is offloaded to secondary storage:**

  The MVS system logger begins the offload process when the high offload threshold (HIGHOFFLOAD) of the log stream is reached. The offload process consists of two steps:

  1. The MVS logger physically deletes the data in the log stream that has been marked for deletion by the CICS log-tail deletion process.
  2. The MVS logger calculates how much data needs to be offloaded to secondary storage, based on the difference between HIGHOFFLOAD and LOWOFFLOAD, less the amount of data that has been deleted since the last offload event.

  To minimize the amount of data offloaded from the CICS primary system log, you must:

– Define a suitably-sized staging data set. For advice, see “Recommendations”.

Note: It is possible to alter the size of a staging data set without deleting the log stream. To do this, use the UPDATE LOGSTREAM request of the MVS IXCMIAPU utility to change the value of the STG_SIZE parameter.

– Ensure that the log-tail deletion process is working effectively. For detailed information about the log tail deletion process, see the *CICS Recovery and Restart Guide*.

- **Avoid “staging-data-set-full” events:**

  A staging-data-set-full event occurs when a log stream’s staging data set becomes full before the offloading of data has completed.

  For advice on monitoring and avoiding staging-data-set-full events, see the *CICS Performance Guide*.

Sizing DFHSHUNT

It is important to size the secondary system log stream (DFHSHUNT) to avoid staging-data-set-full events. However, it is normal for some data to be offloaded from DFHSHUNT to secondary storage.

Sizing general logs

It is important to size forward recovery logs, user journals, and autojournals to avoid staging-data-set-full events. However, because CICS does not delete data from these log streams, it is normal for data to be offloaded to secondary storage.

Recommendations

Table 6 summarizes how you should decide on the values for various attributes on the log stream definition, and system definition.

Table 6. How to decide on the values of attributes

Facility	Attribute	Recommendation
Primary system log stream (DFHLOG)	HIGHOFFLOAD	80
	LOWOFFLOAD	Use DFHLSCU or the formula on page 103.
	MAXBUFSIZE	64000
	STG_SIZE	Use DFHLSCU or the formula on page 103.
Secondary system log stream (DFHSHUNT)	HIGHOFFLOAD	80
	LOWOFFLOAD	40 – 60
	MAXBUFSIZE	64000
	STG_SIZE	500 (4K blocks)
General log stream	HIGHOFFLOAD	80
	LOWOFFLOAD	0
	MAXBUFSIZE	64000
	STG_SIZE	Use DFHLSCU or the formula on page 98.
CICS system	AKPFREQ	4000

Note: Startup may take longer than you experienced when using earlier releases. This is due in part to the allocation and formatting of the staging data sets. The increased time that startup takes is dependent on such things as:

- Size of staging data set (STG_SIZE)
- DASD speed

- DASD contention

It can be reduced by avoiding the use of unnecessarily large staging data sets.

The log stream sizing utility, DFHLSCU

If you are migrating from CICS/ESA 3.3 or CICS/ESA 4.1, you are strongly recommended to use the CICS-supplied utility program, DFHLSCU, to help you define your DASD-only log streams. DFHLSCU takes as input “old-style” (pre-CICS Transaction Server for OS/390 Release 1-format) journal records, and analyzes them to produce a sample log stream definition containing suggested values for:

DASDONLY(YES)
: Specifies that this log stream is not to be associated with a coupling facility list structure, but is to use DASD-only logging. If you specify DASDONLY(YES), you cannot use the STRUCTNAME(log_structure_name) keyword. The default is DASDONLY(NO).

HIGHOFFLOAD(high_offload)
: Specifies the point in primary storage, as a percentage of space consumed, at which the MVS system logger starts its offload process.

LOWOFFLOAD(low_offload)
: Specifies the point in primary storage, as a percentage of space consumed, at which the MVS system logger stops offloading data to secondary storage.

MAXBUFSIZE(max_bufsize)
: Specifies the size, in bytes, of the largest block of data that can be written to the log stream. The value must be in the range 1–65532. The default value is 65532.

STG_SIZE(stg_size)
: Specifies, as a number of 4K blocks, the size of the staging data set for the log stream. A DASD-only log stream, by definition, always uses a staging data set as part of its primary storage.

  If you do not specify STG_SIZE for a DASD-only log stream, the MVS system logger does one of the following, in the order listed, to allocate space for staging data sets:

  1. Uses the STG_SIZE of the log stream specified on the LIKE parameter, if LIKE is specified
  2. Uses the size defined in the SMS data class for the staging data sets
  3. If SMS is not available, uses dynamic allocation rules for allocating data sets.

  For more information about managing staging data sets for DASD-only log streams, see the *Setting Up a Sysplex* manual.

For details on how to use DFHLSCU, see the *CICS Operations and Utilities Guide*.

If DFHLSCU is inappropriate for use in your environment

If it is inappropriate for you to use DFHLSCU to help you size your log streams (perhaps you have no CICS Version 4 or Version 3 journal records to use as input to DFHLSCU, or you are capacity planning for new applications), the following sections will help you to calculate your space requirements.

The formulae provided help you to calculate values for:
- LOWOFFLOAD

- STG_SIZE

You must base your calculations on the journaling requirements of your applications. This provides the starting point for the following formulae.

Primary system log (DFHLOG): You can calculate **LOWOFFLOAD** for DFHLOG using the following formula:

```
                 trandur * 90
LOWOFFLOAD = ------------------ + 10  (where RETPD=0 specified)
              akpintvl + trandur
```

or

```
                 trandur * 90
LOWOFFLOAD = ------------------       (where RETPD=dddd specified)
              akpintvl + trandur
```

where:

- `akpintvl` is the interval between activity keypoints. It can be calculated as follows:

  ```
                        AKPFREQ
  akpintvl = ---------------------------------
              (N1 * R1) + (N2 * R2) + (Nn * Rn)
  ```

  where:

  - `N1, N2 .... Nn` is the transaction rate for each transaction (transactions per second).
  - `R1, R2 .... Rn` is the number of log records written by each transaction.
- `trandur` is the execution time (between syncpoints) of the longest-running transaction that runs as part of the normal workload.

  If this duration is longer than `akpintvl` value, you can either:

  - Increase the value of AKPFREQ, so increasing the value of `akpintvl` (as long as this does not result in an unacceptably large staging data set size).
  - Change the application logic to cause more frequent syncpoints.
  - Calculate a staging data set size based on a shorter transaction duration, and accept that offloading to secondary storage occurs when the long-running transaction is used.

You can calculate **STG_SIZE** for DFHLOG using the following formula:

```
Staging DS size    =  (AKP duration)  *  No. of log writes per second
for system log (no. of 4k blocks)
where AKP duration = (CICS TS 390 AKPFREQ)/(No. buffers per second)
```

The values for the number of log writes per second and buffer puts per second can be taken from your CICS/ESA 4.1 statistics. (The value for log writes per second should not exceed 30.)

DFHLSCU recommends a value of 40% for DFHLOG's LOWOFFLOAD parameter. In practice, a good empirical range for this value is between 40% and 60%. Too low a value may result in physical offloading of log data from primary to secondary storage once the MVS Logger offload process has completed physical deletion of any unwanted log data during offload processing. Conversely, too high a value may mean that subsequent offload processing occurs more frequently, as less space is freed up from primary storage during an offload operation.

If the results of the calculation from the formula given above do not lie within the range of 40% to 60%, it may be that your workload has atypical values for trandur or akpintvl. It should be noted that log stream definition values (such as LOWOFFLOAD) should be reviewed after analysis of information such as statistics from MVS Logger SMF 88 records.

Converting a DASD-only log stream to use a coupling facility

You can upgrade a DASD-only log stream to use a coupling facility structure, without having to delete and redefine the log stream. To do this:

1. Make sure that there are no connections (neither active nor failed) to the log stream.
2. Use the UPDATE LOGSTREAM request of the MVS IXCMIAPU utility. Specify the STRUCTNAME keyword, and let the DASDONLY keyword default to 'NO'. For example:

```
//LOGUPDT  JOB ...
//LOGUPDT  EXEC PGM=IXCMIAPU
//SYSPRINT DD SYSOUT=A,DCB=RECFM=FBA
//*************************************************************
//*                                                           *
//* Convert DSAD-only log stream to coupling facility log stream.*
//*                                                           *
//*************************************************************
//SYSIN    DD *
  DATA TYPE(LOGR) REPORT(NO)
  UPDATE LOGSTREAM NAME(region_userid.applid.DFHLOG)
                   STRUCTNAME(LOG_DFHLOG_001)
                   STG_DUPLEX(YES) DUPLEXMODE(COND)
```

Figure 18. Converting a DASD-only log stream to use a coupling facility structure. This example shows the CICS primary system log stream. The value **region_userid** is the RACF userid under which the CICS address space is running; **applid** is the CICS region's VTAM APPL name (taken from the APPLID system initialization parameter).

Notes:

1. If you want to upgrade a DASD-only log stream to a coupling facility log stream that does *not* use a staging data set, you must explicitly specify STG_DUPLEX(NO). (This is because the DASD-only log stream by definition uses a staging data set; unless you specify STG_DUPLEX(NO), this is retained by the coupling facility log stream.)
2. You cannot use UPDATE LOGSTREAM to convert a log stream that uses a coupling facility structure to one that uses DASD-only. To do this, you must delete and redefine the log stream.

Analyzing SMF Type 88 records

When reviewing the output from the system logger reports produced by IXGRPT1, IXGRPT1J, and IXGRPT1L, look at the following key fields for CICS system logs:

- The number of bytes deleted from primary storage should be close to the number of bytes written
- The number of bytes deleted from the system log *after* writing to offload data sets should be very low:
  - If this number is high, overhead is being incurred to move data to the offload data set only to be later deleted.
  - This is a key indicator that log tail deletion is not working as effectively as it should.

- Check the MVS system log for any DFHRM0205 and DFHLG0743 messages from the affected CICS region.
- Look for long running tasks (using CICS monitoring data or a system monitoring package), or check if AKPFREQ is too high.

- In general offloads are acceptable, but offloads triggered by NTRY FULL indicators are not a good sign:
  - NTRY FULL indicates that the entry to element ratio is too high
  - It is probably the result of having unlike logstreams defined in the same structure
  - The offloads are being triggered by all the entries being used rather than triggered by the HIGHOFFLOAD value.
- TYPE3 I/O counts should not appear in the statistics for coupling facility log streams, because these indicate that I/O is being initiated when over 90% of the elements for the log stream are in use.
- Average buffer size is important because:
  - If over 4K, the writes are asynchronous, with a greater overhead, rather than synchronous
  - Buffer size is used to determine the entry to element ratio.
  - If MAXBUFSIZE specified on the log stream definition is *less than* 65532 bytes, the element size is 256 bytes.
  - If MAXBUFSIZE is 65532 bytes, the element size is 512 bytes.
  - The entry to element ratio is calculated as (average-buffer-size plus 4 divided by 4)

Managing secondary storage

This section contains advice on how to manage secondary storage—that is, log stream data sets.

Managing log data sets

You are recommended to use System Managed Storage (SMS) to manage log stream data sets. You can specify the SMS characteristics of log data sets in a number of ways, depending on your installation:

Using automatic class selection (ACS) routines
You can use installation-written automatic class selection (ACS) routines to assign log data sets to SMS classes.

Using the LOGR policy,
When you define or update a log stream definition in the LOGR policy, you can assign the SMS storage class, data class, and management class for both the DASD log data sets and staging data sets.

- Use LS_DATACLAS to specify the SMS data class to be used for log stream data set allocation.
- Use LS_STORCLAS to specify the SMS storage class to be used for log stream data set allocation.
- Use LS_SIZE to specify the size, in 4K blocks, of the log stream DASD data sets. Specify a size so that each data set can contain multiple offloads of the primary storage: this is particularly important where *all* the data is offloaded for a log stream, as in the case of user journals and forward recovery logs. The MVS system logger issues message IXG256I is you specify less than 64K.

If you omit the size parameter, the size is taken from the ALLOC*xx* member of PARMLIB (the default is 2 tracks, which leads to a high number of new data set allocations). Specify a size that is large enough to avoid a high frequency of new data set allocations—aim for a new data set to be allocated less often than once an hour.

SHAREOPTIONS(3,3)
Always define logger data sets with SHAREOPTIONS(3,3), whether the system is a part of a multiple-member sysplex or a monoplex. The common symptoms of not having SHAREOPTIONS(3,3) is a return code 84A or 403 from the logger.

For more information about managing log data sets, see the *OS/390 MVS Setting Up a Sysplex* manual.

Log tail management

Redundant data should be deleted from log streams periodically, to conserve storage, and because the MVS system logger imposes a limit on the number of data sets per log stream.

The system log

CICS manages the system log by deleting records, for completed units of work, during activity keypoint processing (log-tail deletion). With an appropriately sized log stream, the system log data remains in primary storage, so avoiding the overhead of data spilling to DASD.

Note that:

- **The CICS system log should be used only for short-lived data required for recovery purposes**. You should not write user records for such things as audit trails to it.
- **You should allow CICS to manage the size of the system log**.

However, if historically you have used the system log for such things as audit trails, you may need to preserve system log data beyond the time it would normally be deleted by CICS. You can use the RETPD MVS parameter to preserve system log data. Define DFHLOG and DFHSHUNT to MVS with AUTODELETE(NO) and RETPD(dddd). The default values are AUTODELETE(NO) and RETPD(0).) Specifying AUTODELETE(NO) means that CICS, rather than MVS, retains control of the log-tail trimming process; dddd is the number of days for which data is to be retained. This causes the MVS logger to physically delete an entire log data set when *all* of the data in the data set:

1. Has been marked for deletion by the CICS log-tail trimming process
2. Is older than the retention period specified for the log stream.

You can view log data that has been marked for deletion by CICS but not yet physically deleted by MVS, using the DFHJUP utility program or the VIEW=ALL option of the MVS IXGBRWSE macro.

General logs

The number of data sets per log stream recognized by the MVS logger is several million. This means that, in general, you do not need to be concerned about the limit being reached.

You can cause redundant data to be deleted from log streams automatically, after a specified period. To arrange this for general log streams, define the logs to MVS with AUTODELETE(YES) and RETPD(dddd), where dddd is the number of days for which data is to be retained. This causes the MVS system logger to delete an entire log data set when all the data in it is older than the retention period (RETPD) specified for the log stream.

Note: Support for the removal of the 168 data set limit, which applied only in early releases of OS/390, and support for the AUTODELETE and RETPD parameters, requires the sysplex's LOGR couple data set to have been formatted using OS/390 Release 3 or later. The removal of the 168 data set limit also requires the LOGR data set to have been formatted with DSEXTENT(nnnnn).

Reporting on SMF Type 88 records

The MVS System Logger writes SMF Type 88 records containing statistics for each connected log stream. MVS supplies in SYS1.SAMPLIB a sample reporting program, IXGRPT1, that can be used as supplied, or modified to meet specific user requirements. Alternatively, another SMF reporting program may be used. For information about the SMF Type 88 records and the sample reporting program, see the *OS/390 MVS System Management Facilities (SMF)* manual.

Chapter 21. Applying service to CICS Transaction Server for OS/390

Service material for CICS Transaction Server for OS/390 is distributed as APAR fixes and PTFs. [1]Both types of change are called SYSMODs (SYStem MODifications).

Using SMP/E control statements, you can process SYSMODs in three stages:

1. The **RECEIVE** control statement moves the SYSMOD into the PTF temporary store (PTS) data set. This operation is reversed by the **REJECT** control statement.
2. The **APPLY** control statement moves the SYSMOD into the target libraries. This operation is reversed by the **RESTORE** control statement.

At this point you can test the modified system.

3. The **ACCEPT** control statement moves the SYSMOD into the distribution libraries. This operation is not easily reversed.

When you are dealing with APAR fixes, you should APPLY the SYSMOD, but not accept it. If you later obtain a PTF that solves the problem in a different way, you may be asked to RESTORE (that is, remove) the APAR fix and APPLY the PTF instead.

When you are dealing with PTFs, you should APPLY the SYSMOD, then test it. Afterwards you can ACCEPT it.

For background information about SMP/E operations, see the *System Modification Program Extended: General Information* manual. For more detailed information, see the *System Modification Program Extended: Reference* manual.

Load library secondary extents

CICS supports load library secondary extents that are created while CICS is executing. If you define libraries in the DFHRPL concatenation with primary and secondary extents, and secondary extents are added while CICS is running, as a result of link-editing into the DFHRPL library, the CICS loader detects the occurrence and closes then reopens the library. This means that you can introduce new versions of programs by using the CEMT NEWCOPY command, even if the new copy of the program has caused a new library extent.

However, you should not attempt to apply service to data sets that are used by executing CICS TS components.

1. An APAR (Authorized Program Analysis Report) is raised when you and your IBM programming service representative agree that there is a CICS problem. You may then be given an APAR fix. When the problem has been analyzed, all users are sent a PTF (Program Temporary Fix) to correct the problem permanently on the current release. PTFs are incorporated into any future CICS release.

The CICS TS-supplied SMP/E procedure

There is a CICS TS-supplied procedure for applying service to the CICS and CICSPlex SM components of CICS TS, called DFHSMPE. This procedure is tailored to your environment and stored in the *hlq*.XDFHINST library when you run the DFHISTAR job.

For information about how to apply corrective service with SMP/E, see the *System Modification Program Extended: User's Guide*.

Whenever you do any SMP/E processing on CICS or CICSPlex SM software, and you use any of the examples quoted in the *System Modification Program Extended: User's Guide*, you should specify DFHSMPE as the name of the SMP/E procedure on the EXEC statement (that is, in place of SMPPROC, as used in the examples). The DFHSMPE procedure includes the following DD statement for supplying SMP/E control statements:

```
//SMPCNTL DD DSN=&&SETBDY,DISP=(OLD,DELETE)
//        DD DDNAME=DFHSMPIN
```

The ZNAME parameter of the DFHSMPE procedure generates a SET BDY command for the zone that is identified by the parameter. The command is stored in the temporary data set, SETBDY. The ZNAME parameter is set to the value of *zonename* that you specify for the TZONE parameter. If you do not specify any value for *zonename* for the TZONE parameter of the DFHISTAR job, *zonename* (and the ZNAME value) defaults to TZONE.

Note: The ZNAME parameter also generates a SET BDY command in DFHAUPLE, the CICS TS procedure supplied for assembling and link-editing CICS control tables.

If you supply an ***override*** SMPCNTL DD statement in the job that executes DFHSMPE, remember that it must come ***before*** any DD statements that are additional to the procedure. Furthermore, if you provide an override, you will get the following MVS system message:

```
IEF686I DDNAME REFERRED TO ON DDNAME KEYWORD IN PRIOR STEP WAS NOT RESOLVED
```

You receive this message because the DD statement for DFHSMPIN is missing as a result of the SMPCNTL DD override. However, the message is not a JCL error, and does not prevent the step from running successfully with a return code of 0.

If you supply any SMP/E control statements in your job via the DFHSMPIN ddname, they are prefixed by a SET BDY for the zone that you specify on the ZNAME parameter. It does not matter if you are running SMP/E with a command that does not need this SET BDY statement; it does not affect the execution of your job.

APAR fixes

Generally, you should ***not*** ACCEPT APAR fixes into distribution libraries. Subsequent PTFs may not include the APAR fix, and you may need to reapply the APAR fix.

If two APAR fixes are dependent on one another, and each is a prerequisite of the other, you must apply them both in the same SMP/E APPLY processing step.

PTFs

PTFs are intended for all users to install to avoid possible problems.

A PTF may contain fixes for several different problems. This means that several APAR fixes reported in RETAIN® may all be superseded by the more permanent PTF, which:

- Provides card-image changes that are functionally equivalent to those in the APAR fix.
- Contains object-module replacements for preassembled CICS TS programs.

For further information about using SMP/E to apply service, see the *System Modification Program Extended: User's Guide*.

CICS service considerations

If you use the CICS TS-supplied SMP/E usermod to install a module into the LPA (for example, into the *hlq*.SDFHLPA library), and later apply service to that module, it is the LPA-resident version of the module that is serviced. If you have not used the SMP/E usermod to install the module into the LPA, it is the original version in the *hlq*.SDFHAUTH library or *hlq*.SDFHLOAD library that is serviced.

Once you have installed CICS, and before you start the post-installation tasks described in this book, you should change the TEMPLIB parameter and the SYSPROC DD statement of the DFHISTAR job to refer to the *hlq*.SDFHINST library. This ensures that if you need to apply service to any of the skeleton jobs, the changes (applied to the *hlq*.SDFHINST library) are used in subsequent runs of DFHISTAR. In any such subsequent runs of DFHISTAR , you can use the SELECT parameter to select any jobs, affected by service, to be regenerated.

Notes:

1. If DFHISTAR is serviced, you should add the service changes to your DFHISTAR module in the *hlq*.TDFHINST library (to preserve your current installation parameters) or respecify your current installation parameters in the serviced DFHISTAR module (which you can copy from the *hlq*.SDFHINST library to the *hlq*.TDFHINST library).
2. Linkage editor messages IEW0461, IEW2454, IEW2646 and IEW2651 are produced during the APPLY stage for unresolved external references. These are issued, giving a return code of 4, when some CICS load modules are link-edited during PTF installation. You can ignore these IEWxxxx messages because they are produced for component object modules of executable CICS load modules.
3. JCI530D and JCI530E PTFs to ship Java service are often significantly larger than those for the base CICS product and may require more system resources during APPLY processing. To avoid errors caused by insufficient storage, it is recommended that the SMP/E APPLY step for such PTFs does not have a restricted region size. If a region size limit is used and the APPLY fails with errors relating to insufficient storage, it may be necessary to increase or remove the limit for the SMP/E job. In some cases a region size of 500M or more may be required.

CICSPlex SM service considerations

When you are preparing to run the EYUISTAR job after completing the basic installation of CICSPlex SM, you should verify that the TEMPLIB parameter and the SYSPROC DD statement of the EYUISTAR job refer to the CICSTS13.CPSM.SEYUINST library. This ensures that if you need to apply service to any of the skeleton jobs, the changes (applied to the CICSTS13.CPSM.SEYUINST library) are used in subsequent runs of the EYUISTAR job. For additional information, see “Sample JCL editing considerations” on page 393.

If you use the CICS TS- supplied SMP/E USERMOD to install modules into the LPA (for example, into the CICSTS13.CPSM.SEYULPA library), and later apply service to that module, it is the LPA-resident version of the module that is serviced. If you have not used the SMP/E USERMOD to install the module into the LPA, it is the original version in the CICSTS13.CPSM.SEYUAUTH library or CICSTS13.CPSM.SEYULOAD library that is serviced.

Servicing the CICS messages data set

Some IBM-supplied service may include changes to CICS messages, and associated changes to the CICS messages data set, DFHCMACD, used by the CICS-supplied transaction CMAC. When you have received and applied the service, you can update the CICS messages data set by running the job DFHCMACU. DFHCMACU is tailored to your CICS environment and stored in the *hlq*.XDFHINST library when you run the DFHISTAR job.

If a PTF contains an update to the DFHCMACD data set, you will see a ++HOLD statement during the APPLY processing of the PTF to notify you that the DFHCMACD data set needs to be updated. The PTF will include a member called DFHxxxxx, where xxxxx is the APAR number that is associated with the PTF. You should amend the DFHCMACU job so it refers to the appropriate service member of the target library *hlq*.SDFHMSGS (that is, DFHxxxxx on the SYS01 card corresponds to the DFHxxxxx part shipped by the PTF). When you submit the DFHCMACU job, it updates the entries in the DFHCMACD data set for all messages that are changed by the IBM supplied service.

If you are applying more than one PTF which changes the DFHCMACD data set, you should either run the DFHCMACU job for each PTF, or alternatively, you may include all the PTFs within one job run, by altering the DFHCMACU job as follows:

```
//CMACUPD  EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//AMSDUMP  DD SYSOUT=*
//SYS01    DD DSN=CICSTS13.CICS.SDFHMSGS(DFHXXXXX),DISP=SHR
//SYS02    DD DSN=CICSTS13.CICS.SDFHMSGS(DFHYYYYY),DISP=SHR
.
.
//DFHCMACD DD DSN=&DSINDEX.DFHCMACD,DISP=SHR
//SYSIN    DD *
  REPRO INFILE (SYS01)                    -
  REPLACE                           -
        OUTFILE (DFHCMACD)
  REPRO INFILE (SYS02)                    -
        REPLACE                           -
        OUTFILE (DFHCMACD)
.
.
/*
```

Part 2. Getting ready to run CICS

This part describes how to tailor the CICS-supplied skeleton jobs, apply service to CICS and create the CICS data sets. It also describes how you can use DL/I support with CICS, how to include MRO and ISC in your CICS region, and how to use the CICS-supplied installation verification procedures (IVPs) to confirm that CICS is operational. It contains the following chapters:

Chapter 22. Tailoring the CICS-supplied skeleton jobs

If you have installed CICS using CBPDO, edit and run the DFHISTAR job to tailor the CICS-supplied skeleton jobs that you can use to create the CICS data sets and run the CICS-supplied IVPs.

If you have installed CICS using the ServerPac, the DFHISTAR job will have been edited dynamically, during the install, in the SDFHINST library.

If you have installed CICS from the distribution tape, as described in the *CICS Transaction Server for OS/390 Program Directory*, you would normally have tailored the skeleton jobs already, and should now be able to proceed to "Chapter 23. Creating the CICS data sets" on page 119.

Which ever method you used to install CICS, you can edit and run the DFHISTAR job several times, to create different copies of the skeleton jobs (for example, to create several copies of the DFHDEFDS job to define data sets unique to several CICS regions) or subsequently to change them (for example, if you have to apply service to any of the installation-related jobs). This enables you to tailor the jobs to your CICS environment after you have loaded the CICS software into the SMP/E-supported CICS libraries.

The CICS installation libraries

When you install CICS TS using CBPDO, you use the installation libraries shown in Figure 19. The names and use of these libraries are defined after the figure.

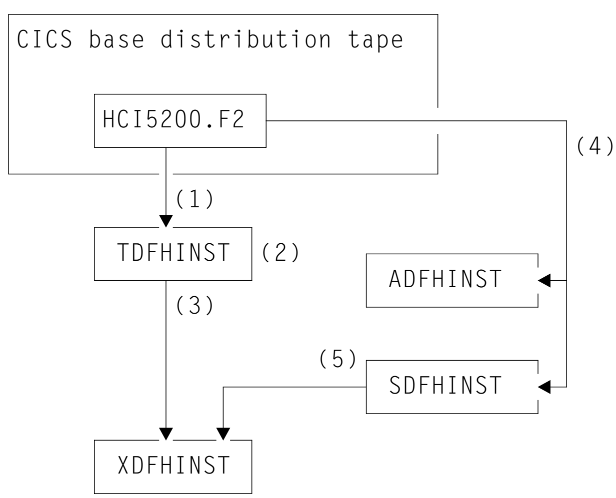

Figure 19. Installation libraries for this release

The CICS installation libraries are used as follows:

1. Skeleton installation-related jobs are copied from the distribution tape into *hlq*.TDFHINST.

   ***hlq*.TDFHINST**
   : is used to store the DFHISTAR job that you edit and run to tailor the skeleton installation-related jobs to your CICS environment. Until you have installed the CICS software into the SMP/E-supported CICS libraries, this library also stores the skeleton jobs to be tailored.

2. You edit the DFHISTAR job in the *hlq*.TDFHINST library, to specify CICS installation parameters specific to your CICS environment.
3. When you run the DFHISTAR job, the tailored copies of the skeleton *hlq*.XDFHINST library.

   ***hlq*.XDFHINST**
   : is used to store the tailored, executable, copies of the skeleton jobs that are to be run.

4. To install CICS, you run the CICS-supplied installation jobs to transfer the CICS software from the distribution tape to the *hlq*.ADFHINST and *hlq*.SDFHINST libraries.

   ***hlq*.ADFHINST**
   : is the SMP/E-supported distribution installation library.

   ***hlq*.SDFHINST**
   : is the SMP/E-supported target installation library. After you have installed the CICS software into this and other SMP/E-supported libraries (named SDFHxxxx and ADFHxxxx), the skeleton jobs that you should use on any later runs of the DFHISTAR job are stored in the SDFHINST library.

Note: The actual names of the TDFHINST and XDFHINST libraries, and the prefix for those and other CICS libraries, are defined in the DFHISTAR job, which you edit as described in this chapter.

What you should do

To tailor the skeleton jobs you must run DFHISTAR. For information on how to do this, and the parameters involved, see *CICS Transaction Server for OS/390 Program Directory*.

Running the DFHISTAR job

When you have edited the DFHISTAR job with the values for installation parameters for your CICS environment, submit the DFHISTAR job.

When you run the DFHISTAR job, it tailors the skeleton post-installation jobs selected in the DFHISTAR input (by the SCOPE or SELECT parameter) to your environment and adds them to the library that you specified on the LIB parameter (by default, *hlq*.XDFHINST). If necessary, the DFHISTAR job creates the library specified on the LIB parameter. Table 7 on page 117 lists those skeleton jobs installed in the *hlq*.SDFHINST library that you can tailor by running the DFHISTAR job.

Note: You must specify the full name of the installation library from which the skeleton jobs are obtained, on the TEMPLIB parameter and SYSPROC DD statement of the DFHISTAR job (by default, *hlq*.TDFHINST). For the post-installation tasks described in this book, you should specify TEMPLIB SDFHINST.

The DFHISTAR job produces a job log and, if necessary, an error code:

- The output job log lists the values that were actually used for the parameters of the DFHISTAR job.
- If any error occurs when running the DFHISTAR job, an error code of 4 or 12 is returned. For error code 4, the skeleton jobs are tailored and added to the *hlq*.XDFHINST library. For error code 12, the skeleton jobs are not tailored or copied. To resolve the cause of the error, examine the output job log and, if necessary edit and submit the DFHISTAR job again.

Table 7. Skeleton post-installation jobs

Job	Function
DFHAUPLE	Create CICS tables
DFHBPXPA	MOUNT statement for the HFS dataset
DFHBPXP0	MOUNT statement for the HFS dataset
DFHBPXP1	MOUNT statement for the HFS dataset
DFHCDBMI	CDBM group file definition JCL
DFHCMACI	Create CICS messages data set
DFHCMACU	Update (service) CICS messages data set
DFHCOMDS	Create data sets common to all CICS regions
DFHDEFDS	Create data sets for each CICS region (not XRF alternate CICS regions)
DFHIHFSA	Create an additional HFS target zone
DFHIHFS0	Create CICSTS HFS dataset and directory
DFHIHFS1	Create the HFS for this installation of CICSTS
DFHIJVMJ	Customize the DFHJVMEV member of the SDFHENV dataset containing the CICS JVM environment variables.
DFHILG1	Defines four coupling facility structures to the MVS system logger (CF logging)
DFHILG2	Defines the log stream models for DFHLOG and DFHSHUNT (CF logging)
DFHILG3	Creates the log stream model for general log streams (CF logging)
DFHILG4	Creates a log stream for logs shared between related regions (CF logging)
DFHILG5	Defines the log stream models for DFHLOG and DFHSHUNT (DASD-only logging)
DFHILG6	Creates the log stream model for general log streams (DASD-only logging)
DFHILG7	Creates a log stream for logs shared between related regions (DASD-only logging)
DFHINSTA	Create additional set of target libraries
DFHINSTJ	Load feature from distribution tape (see note)
DFHINST1	Install job 1
DFHINST2	Install job 2

Table 7. Skeleton post-installation jobs (continued)

Job	**Function**
DFHINST3	Install job 3
DFHINST4	Install job 4
DFHINST5	SMP Receive job
DFHINST6	SMP Apply/Accept job
DFHIONCD	Defines LE/370 and TCP/IP libraries for link-editing modules DFHRPRP and DFHWBWB
DFHIONCL	Relinks DFHRPRP
DFHIPUBS	Load books from publications distribution tape
DFHISMKD	Creates the required OMVS directories for this intallation of CICSTS
DFHIVPBT	IVP (batch) to verify CICS startup
DFHIVPDB	IVP to verify CICS-DBCTL interface
DFHIVPOL	Online IVP
DFHLPUMD	Receive and apply sample SMP/E USERMOD DFH$UMOD
DFHOPSRC	Install optional source tapes (see note)
DFHSMPE	Service CICS
DFHSTART	Start up CICS
DFH0JCUS	Define and load sample applications details data set
DFH0JHLP	Define and load sample applications help data set
DFH99BLD	Create dynamic allocation sample program

Note: The jobs DFHINSTJ and DFHOPSRC are described in the *CICS Transaction Server for OS/390 Program Directory* .

Chapter 23. Creating the CICS data sets

After you have installed CICS, and applied any necessary service, you can run the DFHCOMDS, DFHDEFDS, and DFHCMACI jobs to create the CICS data sets.

Data sets

The data sets created by the jobs described in this chapter are required by the IVPs described in “Chapter 28. Running the installation verification procedures” on page 141.

Job	Function
DFHCOMDS	Deletes and recreates data sets common to all CICS regions.
DFHDEFDS	Deletes and recreates copies of data sets used only by one CICS region. You run a separate copy of this job to create the data sets for each CICS region.
DFHCMACI	Deletes and recreates the CICS messages data set, dsindex.DFHCMACD, and loads it with the data from the CICS-supplied file, DFHCMACD, in the *hlq*.SDFHMSGS target library.
DFH0JCUS	Deletes and recreates the sample applications details data set, dsindex.SAMPLE.DFHCTCUS (and its associated alternate index and path), and loads it with the data from the CICS-supplied file, DFH0DCUS, in the *hlq*.ADFHAPD2 library.
DFH0JHLP	Deletes and recreates the sample applications help data set, dsindex.SAMPLE.DFHCTHLP, and loads it with the data from the CICS-supplied file, DFH0DHLP, in the *hlq*.ADFHAPD1 library.

When you ran the DFHISTAR job, these jobs were tailored to your environment and stored in the library that you specified on the LIB parameter of the DFHISTAR job (by default, *hlq*.XDFHINST). If you have not yet run DFHISTAR, you should do so before running any of the CICS post-installation jobs.

You can generate several copies of these jobs by rerunning the DFHISTAR job, selecting the jobs that you want to copy. To generate new copies of these jobs, edit the DFHISTAR job to specify new values for the DSINFO and SELECT parameters. Only those jobs that you name by the SELECT parameter are regenerated.

Data set naming conventions

There are no restrictions on the data set names you choose for CICS data sets, other than MVS constraints. In the examples in this book, *hlq* is used as the high-level qualifier, and the DD name as the lowest level. If you are running multiple CICS regions, and especially if you are running CICS with XRF, you can use the CICS APPLID as a third level qualifier.

You are recommended to use the *CTGI* naming convention, as described in the *System/390 MVS Sysplex Application Migration*. For example, if CICSHTH1 is the APPLID, the data set name for the CSD would be:

```
DFHCSD   DD  DSN=CICSTS13.CICS.CICSHTH1.DFHCSD,DISP=SHR
```

The *CTGI* naming convention is a recommended example of a naming convention that you can use for CICS 4-character names, and is based on the 4-character *CTGI* symbol, where:

C identifies an entire CICSplex
T identifies the type of region
G identifies a group of regions
I identifies iterations of regions within a group

Where names are allowed to be up to eight characters long, as for CICS APPLIDs, the general recommendation is that the letters CICS are used for the first four characters, particularly for production regions.

If the data set is shared between an active CICS region and an alternate CICS region, use the generic APPLID, but if the data set is unique to either the active or the alternate CICS region, use the specific APPLID. For information about actively and passively shared data sets, see the *CICS System Definition Guide*.

Creating data sets common to all CICS regions, DFHCOMDS job

You can use the DFHCOMDS job to delete and recreate the following data sets common to all CICS regions:

Name	**Data set**
DFHCSD	CICS system definition.
SYSIN	SYSIN data set.

Note: The CICS-supplied DFHCOMDS job creates one of each of these data sets common to all CICS regions. If you use separate copies of any of these data sets for each CICS region, you should move and edit the appropriate statements into the DFHDEFDS job. For further information about creating multiple copies of these data sets, see “Creating several copies of the DFHCSD and SYSIN data sets” on page 121.

The DFHCOMDS job comprises three job steps:

1. **DELETE** deletes the data sets.
2. **DEFCSD** defines the VSAM cluster for the CICS system definition data set, dsindex.DFHCSD, where dsindex is defined by the DSINFO parameter of the DFHISTAR job.
3. **DEFSYSIN** creates the SYSIN PDS and copies the following modules from the *hlq*.SDFHSAMP library:

DFH$SIPA	DFH$SIPD	DFH$SIPT	DFH$SIP1
DFH$SIP2	DFH$SIP3	DFH$SIP4	DFH$SIP5
DFHRCNO	DFHRCYES		

Creating several copies of the DFHCSD and SYSIN data sets

The CICS-supplied DFHCOMDS job creates one of each of the DFHCSD and SYSIN data sets common to all CICS regions. If you use separate copies of any of these data sets for each CICS region, you should:

- Move the statements that define the data set from the DFHCOMDS job to the DFHDEFDS job.
- Edit the statements in the DFHDEFDS job to specify the symbol ∧REGNAME for the region qualifier in the name of the data set.

You should move and edit the appropriate data set statements before you create copies of the DFHDEFDS job for each CICS region. When you run the DFHISTAR job to create the new copies of the DFHDEFDS job, it substitutes your values for the CICS region qualifier (∧REGNAME) and index (∧INDEX) into the data set names.

For example: If you intend using a copy of the DFHCSD data set for each CICS region, you should copy the job steps DELCSD, DEFCSD, and INITCSD from the DFHCOMDS job to the DFHDEFDS job. You should also add the symbol ∧REGNAME for the qualifier to the name of the DFHCSD data set to give `∧DSINDEX.CICS∧REGNAME.DFHCSD`. If you edit the DFHISTAR job to select the DFHDEFDS job to be copied, and specify the following DSINFO parameter:

```
DSINFO userid.CICSTS13.CICS H3P060 3390 IDA .
```

when you run the DFHDEFDS job, it creates the DFHCSD data set called `userid.CICSTS13.CICS.CICSIDA.DFHCSD` for the CICS region identified by the qualifier IDA. If you change the SELECT and DSINFO parameters of the DFHISTAR job (to specify an appropriate new job name and qualifier for another CICS region), you can create several copies of the DFHDEFDS job to create DFHCSD and SYSIN data sets for each CICS region.

Creating data sets unique to each CICS region, DFHDEFDS job

You can use the DFHDEFDS job to delete and recreate copies of the following data sets for each CICS region.

Name	Data set
DFHAUXT	Non-VSAM auxiliary trace (A).
DFHBUXT	Non-VSAM auxiliary trace (B).
DFHDMPA	Non-VSAM dump (A).
DFHDMPB	Non-VSAM (B) dump.
DFHGCD	Global catalog.
DFHINTRA	Intrapartition transient data.
DFHLCD	Local catalog.
DFHTEMP	Temporary storage.
FILEA	Sample program data.

Use the DFHISTAR job to create a copy of the DFHDEFDS job for each CICS region. Edit the DFHISTAR job, specifying the parameters DSINFO and SELECT, and run it once for each region.

In the DFHISTAR job, specify the following parameters:

- **SELECT DFHDEFDS newname** to specify the new name by which the copy of the DFHDEFDS job is to be known.
- **DSINFO** to specify the following details of the data sets for each CICS region:
  – The high-level index (*dsindex*)
  – The serial number of the volume (*volume*)
  – The unit type of the volume (*disktype*)
  – The region qualifier (*qualifier*)

The format of the data set names is:

```
dsindex.CICSqualifier.dsname
```

dsindex
is the high-level index for the data sets, specified on the DSINFO parameter of the DFHISTAR job. The default is *hlq*.

qualifier
is the region qualifier for the data sets used by this CICS region, specified on DSINFO parameter of the DFHISTAR job. The default is no qualifier.

dsname
is the name of the data set being defined.

For example, the default name for the CICS local catalog is *hlq*.CICS.DFHLCD.

The DFHDEFDS job comprises the following job steps:

1. **DELETE** any existing copies of the data sets.
2. **DEFINE** defines the clusters for the data sets.
3. **INITGCD** initializes the CICS global catalog for this region.
4. **INITLCD** initializes the CICS local catalog for this region.
5. **DEFTRACE** defines the trace data sets for this region.
6. **DEFDUMP** defines the dump data sets for this region.
7. **LOADFILE** loads the sample data into the FILEA data set for this region.

Creating the CICS messages data set, DFHCMACI job

You can use the DFHCMACI job to delete and recreate the CICS messages data set DFHCMACD. This data set is used by the CICS messages facility (CICS-supplied transaction CMAC).

The DFHCMACI job comprises the following job steps:

1. **DELETE** deletes any existing copies of the DFHCMACD data set.
2. **DEFINE** defines the VSAM cluster for the CICS message data set dsindex.DFHCMACD, where dsindex is defined by the DSINFO parameter of the DFHISTAR job.
3. **CMACLOAD** loads the CICS message data set with data from the CICS-supplied file, DFHCMACD, in the *hlq*.SDFHMSGS target library.

Defining the DFHCMACD file and associated CICS resources

You can use the CICS messages facility to provide the CICS messages and codes descriptions online. Before you can use this facility (to access the DFHCMACD data set), you must define the resources needed by the facility, and make them available to your CICS region.

The DFHCMACD data set is accessed by the file DFHCMACD, managed by CICS file control. You must create a definition for this file in the CSD or FCT. The CICS-supplied definition for the DFHCMACD file and other resources needed by the CICS messages facility are in the CSD group DFHCMAC. The CICS startup procedure, DFHSTART, has a DD statement for the DFHCMACD file, but for dynamic allocation you should copy the supplied resource definition for the DFHCMACD file and add the DSNAME option.

To use the CICS messages facility in your CICS region, you must create your own CSD group list(s) to include the DFHCMAC group for the CICS messages facility and any other groups of resources that your CICS region needs. You must specify your new group list(s) on the GRPLIST system initialization parameter when you start up your CICS region. If the DFHLIST of resource groups are not included in your new group list(s), you must specify DFHLIST on the GRPLIST system initialization parameter as well as your group lists. For example, GRPLIST=(DFHLIST,MYLIST,CICSHT#1), where MYLIST and CICSHT#1 are customer-created group lists.

You should specify the DFHCMAC group of resources for the CICS messages facility only in those CICS regions that need to use the facility; for example on some terminal-owning regions, but perhaps not on data-owning regions.

Defining the sample applications data sets

CICS provides a range of samples that you can use to help develop your own applications, and to test various CICS functions (for example, as an aid to verifying that CICS has installed correctly). These programs are described in the *CICS 4.1 Sample Applications Guide* and the *CICS Application Programming Primer (VS COBOL II)*.

Before you can use some of these samples, you must create the data sets that they use, and make them available to your CICS region, as described below. You do not need to create these data sets, unless you intend using the associated sample applications.

The CUA text level application

You can use this sample application to demonstrate BMS support for the Common User Access (CUA) interface. The application uses an action bar, with associated pull-downs, pop-ups, and help panels. The application programs demonstrate how to code VS COBOL II programs to display, overlay, and remove CUA style windows.

Creating the data sets: To create the data sets needed by the CUA® text level application, submit the following jobs: DFH0JCUS and DFH0JHLP, installed in the *hlq*.XDFHINST library.

Making the data sets available to CICS: You can cause CICS to dynamically allocate the files for these data sets and open them after CICS initialization by installing the sample resource definitions in the group DFH$CTXT. If no DD statement exists for these data sets in the CICS startup job stream, the files are allocated to the data sets with DSNAMEs specified in the resource definitions: *hlq*.SAMPLE.DFHCTCUS, *hlq*.SAMPLE.DFHCTHLP, and *hlq*.SAMPLE.DFHCTAIX, for the data sets and the alternate index. Alternatively, you can add DD statements for the data sets to your CICS startup job, which causes CICS to use the DSNAMEs specified on the DD statements instead of those in the resource definitions.

For information about this sample application, see the *CICS 4.1 Sample Applications Guide*.

The FILEA sample application programs

This comprises four sets of command-level application programs that operate on the sample VSAM file FILEA. There is one set for each of the four programming languages supported, (Assembler, C/370, VS COBOL II, and PL/I). These programs show basic functions, such as inquire, browse, add, and update, that can serve as a framework for your own first programs. They were all written prior to the publication of the Common User Access® guidelines.

Creating the data set: A copy of the data set needed by the FILEA application is created when you submit the DFHDEFDS job, installed in the *hlq*.XDFHINST library.

Making the data set available to CICS: When you tailor the CICS installation-related jobs, as described in “Chapter 22. Tailoring the CICS-supplied skeleton jobs” on page 115, a DD statement for the FILEA data set is added to the CICS IVP jobs and the DFHSTART procedure. If you want CICS to dynamically allocate the data set and open the file, you should remove the DD statement and install a FILE resource definition with an appropriate DSNAME. (For example, as supplied in the group DFH$FILA.)

For information about this sample application, see the *CICS 4.1 Sample Applications Guide*.

The CICS Application Programming Primer sample application

You can use this sample application to demonstrate the design and programming of a traditional CICS application. It provides online inquiry and maintenance facilities for a sample customer credit file in a department store. The application uses VSAM files, and 3270 display and printer terminals. It was written before the publication of Common User Access guidelines, and provides similar function (without CUA support) as the CUA sample application.

Creating the data sets: To create the data sets needed by the Primer sample application, edit and submit the sample job shown in Figure 20 on page 125.

Making the data sets available to CICS: You can cause CICS to dynamically allocate the files for these data sets and open them on first reference by installing the sample resource definitions in the group DFH$ACCT. If no DD statement exists for these data sets in the CICS startup job stream, the files are allocated to the data sets with DSNAMEs specified in the resource definitions: *hlq*.ACCTFILE and *hlq*.ACIXFILE. Alternatively, you can add DD statements for the data sets to your CICS startup job, which causes CICS to use the DSNAMEs specified on the DD statements instead of those in the resource definitions.

For information about this sample application, see the *CICS Application Programming Primer (VS COBOL II)*.

```
//DEFACCTF JOB (accounting parameters),MSGCLASS=A,MSGLEVEL=(1,1),
//         CLASS=A,NOTIFY=userid
//*
//*********************************************************************
//*     CICS/ESA sample jobs to define ACCT files
//*
//* This job deletes and defines the following data sets for the
//* ACCT sample described in the CICS Application Programming Primer
//*
//*  STEPS:
//*  . DELETE AND DEFINE
//*      - DELETE/DEFINE THE CLUSTERS FOR:
//*          . CICSTS13.CICS.ACCTFILE
//*          . CICSTS13.CICS.ACIXFILE
//*
//*  THE HIGH-LEVEL-QUALIFIER(S) OF THE DATASETS: CICSTS13.CICS
//*  THE VOLUME SERIAL                            CICS12
//*  THE UNIT TYPE                                3390
//*
//*********************************************************************
//DELETE    EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 DELETE CICSTS13.CICS.ACCTFILE
 DELETE CICSTS13.CICS.ACIXFILE
 SET MAXCC=0
/*
//DEFINE    EXEC PGM=IDCAMS,REGION=1M
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 /*                              */
 DEFINE CLUSTER(NAME(CICSTS13.CICS.ACCTFILE)-
          KEYS(5 0)-
          INDEXED -
          RECORDSIZE(383 383)-
          REC(80)-
          SHR(2 3)-
          VOLUMES(CICS12)) -
        DATA(NAME(CICSTS13.CICS.ACCTFILE.DATA)-
          UNIQUE)-
       INDEX(NAME(CICSTS13.CICS.ACCTFILE.INDEX)-
          UNIQUE)
          /*                             */
 DEFINE CLUSTER(NAME(CICSTS13.CICS.ACIXFILE)-
          KEYS(17 0)-
          INDEXED -
          RECORDSIZE(63 63)-
          REC(80)-
          SHR(2 3)-
          VOLUMES(CICS12)) -
        DATA(NAME(CICSTS13.CICS.ACIXFILE.DATA)-
          UNIQUE)-
       INDEX(NAME(CICSTS13.CICS.ACIXFILE.INDEX)-
          UNIQUE)
/*
//*
```

Figure 20. Example JCL to create the Primer sample data sets

Chapter 24. DL/I support

CICS support for access to DL/I databases using the IBM Information Management System (IMS) product is included in the base product, and no specific installation is required.

Using DL/1 Support

There are two ways through which you can use DL/I support with CICS:

- Remote DL/I support, also known as **function shipping**
- Data Base Control (DBCTL), through an IMS/DM subsystem

Remote DL/I support

CICS provides **remote DL/I support**, which allows application programs to access remote databases by function shipping requests to another CICS region. The databases can be IMS™ (DL/I) databases associated with a remote CICS/ESA, CICS/MVS, or CICS/OS/VS region, or DL/I DOS/VS databases associated with a remote CICS/VSE with a remote CICS/VSE® or CICS/DOS/VS region.

An IMS DB database can be associated with a remote CICS region that either:

- Is generated with local DL/I support, and which owns the database (CICS 4.1 and below)

or

- Uses DBCTL to access the database; typically a CICS region that is running in another MVS image

This support enables the database to be updated from either CICS region, with full integrity.

The modules providing remote DL/I support are automatically loaded by CICS during startup when a DL/I PSB directory is specified via the PDIR= system initialization parameter. A PDIR is mandatory for remote DL/I support, but is not required for database control support.

Database control

CICS provides a CICS-DBCTL interface which enables DBCTL, or IMS/ESA or IMS/ESA® DM/TM, to satisfy DL/I requests issued from the CICS region. This method is recommended for new users because it is simpler to install than local DL/I and provides additional function. Details of installing and using DBCTL are covered in the *CICS IMS Database Control Guide*.

Global user exits for DL/I

The following global user exits, if enabled, can be invoked when you have DL/I applications:

XDLIPRE and XDLIPOST
: These exits are invoked following the issue of an EXEC DLI command or DL/I call. Exit XDLIPRE is invoked before the request is processed and XDLIPOST is invoked after the request is processed. If you are running CICS with remote DL/I support, these exits are invoked in both the CICS

region executing the DL/I transactions (the AOR) and the CICS region to which the DL/I requests are function shipped (the DOR). However there are restrictions on what actions can be performed by an exit program running at exit point XDLIPRE or XDLIPOST when running in a DOR.

XRMIIN and XRMIOUT

You can use these exits to monitor activity across the resource manager interface (RMI). For example, you can monitor control being passed to and from DFHEDP for EXEC DLI requests, DFHDBAT for DBCTL requests, or DSN2EXT1 for DB2 for DB2® commands. XRMIIN is invoked just before control is passed from the RMI to a task-related user exit. XRMIOUT is invoked just after control is passed back to the RMI.

For programming information about these exits, see the *CICS Customization Guide*.

Chapter 25. Java support

CICS support for Java® application programs is included in the base product, and no specific installation is required. CICS Java application programs can be executed in two ways:

- Using the VisualAge for Java, Enterprise ToolKit for OS/390 (ET/390) to bind the Java byte-code into a Java program object that is loaded into CICS and executed in an LE run-unit similarly to C++. ET/390 is provided in the HPO.SHPOMOD PDSE during the installation of ESA. Further information about the use of ET/390 can be found in the *CICS Application Programming Guide*.
- Using a Java Virtual Machine within CICS.

Supplied components

The following components are unloaded from the distribution tapes during the standard installation process described in the CICS Transaction Server for OS/390 Program Directory. Note that **full function** OS/390 UNIX System Services must be running during this process as some files are stored in the HFS.

.jar files

The following jar files are stored in the OS/390 UNIX System Services HFS in the directory **$CICS_HOME/classes** :

dfjcidl.jar
The CICS IDL compiler to be used in building the IIOP server application.

dfjcorb.jar
The CICS ORB classes, required to build the IIOP server application.

dfjcics.jar
The JCICS API classes, required for compilation of a Java application program that uses JCICS to access CICS services.

dfjwrap.jar
Used internally by CICS to support the JCICS interface in a JVM environment.

CICS_HOME is an environment variable defining the installation directory prefix:

```
/usr/lpp/cicsts/<username>
```

Where **username** is a name you can choose during the installation of CICS, defaulting to `cicsts13`.

IIOP and JCICS support

The following programs are stored in the MVS PDSE libraries **SDFJLOD1** and **SDFJLOAD** during installation. Note that SDFJLOAD is maintained at a level compatible with the current release of the VisualAge for Java, Enterprise ToolKit for OS/390, and SDFJLOD1 is maintained at a level compatible with Release 1. You will only require one of these libraries and should choose the one that is compatible with the release of ET/390 that you are using.

DFJCICS	JCICS run-time support
DFJCICSB	JCICS run-time support
DFJCORB	Non-workstation dlls
DFJCZDTC	The JCICS native library.
DFJDESN	JCICS run-time support
DFJGFAC	The Generic Factory
DFJIIOP	The CICS ORB run-time support

Note: Further information about the JCICS classes can be found in the *CICS Customization Guide* and further information about IIOP can be found in the *CICS Internet Guide.*

The following programs are stored in the CICS LOADLIB PDS library during installation:

DFHIIOP	The IIOP receiver program.
DFHIIOPA	The IIOP sender and application context handler.

Sample programs

Sample programs to demonstrate the use of IIOP and the JCICS classes are stored in the HFS in the $CICS_HOME/samples directory and in SDFHSAMP.

JCICS reference documentation

The JCICS classes are documented in JAVADOC HTML. This is stored in the OS/390 UNIX System Services HFS in the directory **$CICS_HOME/docs** . You can download this file in binary mode to a workstation, to a file system that can support long names, such as OS/2 HPFS or FAT32, unzip it and read the contents using a web browser, starting at index.htm. This file also contains a tutorial example of using VisualAge for Java to develop CICS Java applications and run them using ET/390. The following file is supplied:

dfjcics_docs.zip

JVM environment variables

Default values of the environment variables that control the initialization of the JVM are supplied in a partitioned dataset called SDFHENV. A DD statement for this dataset must be included in your CICS startup job stream if you intend to run CICS Java applications that execute in the JVM. Such programs have JVM(YES) in their PROGRAM resource definition. The following DD statement is included in the sample startup job stream described in the *CICS System Definition Guide*:

```
//DFHJVM   DD DSN=CICSTS13.CICS.SDFHENV(DFHJVM),DISP=SHR
```

The member name (default DFHJVM) can be defined using the JVMNAME parameter to tailor the DFHISTAR post-installation job. See the *CICS Transaction Server for OS/390 Program Directory* for information about tailoring the DFHISTAR job.

You can edit this file with TSO to change the default values. The user replaceable module DFHJVMAT can also be called at JVM initialization to examine and reset the values. See the *CICS Customization Guide* for a description of DFHJVMAT.

JVM directory

You can define the directory for the JVM using the JAVADIR parameter of the DFHISTAR post-installation job. The default for JAVADIR is **java/J1.1**. The full JVM directory pathname is made up as follows:

```
/usr/lpp/javadir
```

Hence the default pathname for the JVM directory is :

```
/usr/lpp/java/J1.1
```

Chapter 26. The hlq.SDFJLPA library

This library is currently empty, but is supplied to allow those CICS modules that support the Java / IIOP environment, and that are LPA eligible, being included in the LPA. DFJCICS, DFJGFAC and DFJIIOP may be considered as good candidates for the LPA in any MVS image where multiple CICS systems are using the Java / IIOP function. There are no CICS-supplied Java / IIOP modules that must reside in the LPA, therefore the library is currently empty.

Note: This library is a partition data set /extended (PDS/E). PDS/Es cannot be loaded into the LPA at MVS IPL time, because MVS Nucleus Initialization Processing does not recognize them. The MVS SETPROG command can be used after an IPL to dynamically add members of a PDS/E into the LPA.

Chapter 27. Installing MRO and ISC support

This chapter describes what you have to do to include the following communication facilities in your CICS region:

- Multiregion operation (MRO)
- Intersystem communication (ISC)

The information about ACF/VTAM and MVS that is given in this chapter is for guidance only. Always consult the current ACF/VTAM or MVS publications for the latest information. See "Books from related libraries" on page xviii.

Installing MRO support

This section describes how to install support for multiregion operation (MRO) in your CICS regions.

CICS multiregion operation (MRO) enables CICS regions that are running in the same MVS image, or in the same MVS sysplex, to communicate with each other. MRO does not support communication between a CICS system and a non-CICS system such as IMS.[2]

MRO does not require ACF/VTAM or SNA networking facilities. The support within CICS that enables region-to-region communication is called **interregion communication** (**IRC**). IRC is implemented in three ways:

1. Through support in CICS terminal control management modules and by use of a CICS-supplied interregion program, DFHIRP, loaded in the MVS link pack area. DFHIRP is invoked by a type 3 supervisory call (SVC).
2. By MVS cross-memory services, which you can select as an alternative to the CICS type 3 SVC mechanism. Here, DFHIRP only opens and closes the interregion links.
3. By the cross-system coupling facility (XCF) of MVS. XCF/MRO is required for links between CICS regions in different MVS images of an MVS sysplex. CICS selects XCF/MRO dynamically for such links, if available.

For information about the design and implementation of interregion communication, and about the benefits of cross-system MRO, see the *CICS Intercommunication Guide*.

To install support for MRO, complete the following steps (outlined in more detail in this chapter):

1. Define CICS as an MVS subsystem.
2. Install the current versions of the DFHIRP and DFHCSVC modules in the LPA.
3. If you give the SVC a new number, and you have CICS Version 1 or Version 2 regions that use MRO, regenerate the CICS modules DFHCRC and DFHDRPA for those CICS versions, specifying the SVC number.
4. Specify appropriate system initialization parameters to enable MRO for each CICS region startup.

2. The external CICS interface (EXCI) uses a specialized form of MRO link to support DCE remote procedure calls to CICS programs, and communication between MVS batch programs and CICS .

If you intend using cross-system MRO (XCF/MRO) you must also:

5. Install the required sysplex hardware and software.
6. Define the MVS images as systems in an XCF sysplex.

To use the MRO support, you must also:

7. Define and install the MRO connections appropriate to your CICS environment.

Providing you complete the above steps, you can use MRO to communicate:

- Between CICS Transaction Server for OS/390 Release 3 regions.
- Between CICS Transaction Server for OS/390 Release 3 and CICS Transaction Server for OS/390 Release 2, CICS/ESA Version 4, CICS/ESA Version 3, CICS/MVS Version 2, and CICS/OS/VS 1.7 regions.

Furthermore, earlier release levels of CICS can use MRO to communicate (for example, between CICS/ESA 3.3 and CICS/OS/VS 1.7).

If you use MRO between different releases of CICS, for example between the current release and CICS/MVS 2.1.2, the function provided on any connection is that of the lower-level release.

Defining CICS as an MVS subsystem

Multiregion operation with CICS requires MVS Subsystem Interface (SSI) support, and to obtain this you must define CICS as an operating system subsystem, as described in “Chapter 5. Defining CICS as an MVS subsystem” on page 17.

Installing the modules DFHIRP and DFHCSVC in the LPA

To enable your regions to communicate by MRO, you must:

1. Install the current versions of the DFHIRP and DFHCSVC modules into the LPA, as described in “Chapter 9. Installing CICS modules in the MVS link pack area” on page 35.

   Note: If you are running CICS with MRO at different release levels, all communicating CICS regions must use the latest DFHIRP module and the latest SVC module, DFHCSVC, on the same MVS image.
2. Define the SVC module, DFHCSVC, to MVS, as described in “Chapter 6. Installing the CICS Type 3 SVC” on page 25.

Regenerating CICS Version 1 or Version 2 modules

If a region and CICS Version 1 or Version 2 regions in the same MVS image use MRO, all the regions must use the SVC. If you have given that SVC a new number, you must regenerate the following modules on any CICS Version 1 and Version 2 regions, and specify the new SVC number:

- The interregion clean-up program, DFHCRC.
- The batch region initialization module, DFHDRPA, (if you use IRC support for CICS shared database.)

For information on regenerating modules refer to a pre-Version 3 *Installation Guide*.

Installing required hardware and software for XCF/MRO

To be able to use the cross-systems MRO to communicate between CICS regions on different MVS images, those MVS images must be running with appropriate hardware and software. The hardware and software that are required for MVS systems in a sysplex are in the *CICS Transaction Server for OS/390 Program Directory*.

Defining MVS images as systems in an XCF sysplex

To use XCF/MRO, all participating MVS images must be defined as part of the same sysplex, as in “Chapter 15. MVS cross-system MRO definitions” on page 59.

Note: Within a parallel sysplex, where MRO communication between MVS images is by XCF/MRO, the DFHIRP programs installed in the different MVS images can be at different release levels. However, DFHIRP must be installed from the highest release of CICS running in an MVS image. For example, a CICS Version 4 DFHIRP can communicate with a DFHIRP across XCF/MRO, but the CICS regions running in the MVS with the Version 4 DFHIRP cannot be later than CICS/ESA Version 4.

Defining MRO connections

Before you can use MRO, you must define and install connections with attributes appropriate to your CICS environment. For information about defining connections, see the *CICS Intercommunication Guide*.

Enabling MRO for CICS startup

For each CICS region that is to use MRO, you must specify ISC=YES to include the intersystem communication program DFHISP.

If you want a CICS region to establish MRO communication during startup, you should also specify YES on the IRCSTART system initialization parameter.

Alternatively, once your CICS region is running, you can establish MRO communication by using the CEMT SET IRC OPEN command or the EXEC CICS SET IRC OPENSTATUS(cvda) command.

Either method establishes MRO communication with every CICS region that is:

1. Currently active.
2. Defined to your region by CONNECTION and SESSIONS definitions that are installed from the CSD. (To establish MRO communication between two CICS regions, the installed CONNECTION definition must specify INSERVICE(YES) in both regions.)

To ensure that this IRC failure doesn't happen, a CONNECTION definition that specifies ACCESSMETHOD=XM must be installed before the DB2 CICS-attachment is started. However, before deciding on the method you will use to start IRC, read the section "MRO restriction when running with DB2 support".

MRO restriction when running with DB2 support

If you are running CICS with DB2 support, there is a restriction that affects the start of interregion communication in the CICS region. The restriction applies only if your CICS region is using both of the following facilities:

1. Multiregion operation, where any of the installed MRO resource definitions specify ACCESSMETHOD(XM).
2. The DB2 CICS-attachment to run DB2 applications.

In this situation, ensure that you start interregion communications before you start the DB2 adaptor. The best way to do this is to start both during system initialization (with IRCSTRT=YES and DB2CONN=YES). If you start them after initialization, make sure that you open IRC before you run the DSNC start transaction.

To help you get started with CICS interregion communication, CICS supplies a job and startup procedure for some MRO starter systems from which you can build your own MRO configurations. For information about these starter systems, see the *CICS System Definition Guide*.

Adding ISC support

For communication between CICS regions that are in different MVS images, you can use a SNA access method, such as ACF/VTAM, to provide the necessary communication protocols. This form of communication between regions through SNA is called **intersystem communication** (ISC). (You can also use ISC in the same CPC, through the application-to-application facilities of ACF/VTAM.)

This section outlines how to include ISC in a CICS region.

For information about the design and implementation of intersystem communication facilities, see the *CICS Intercommunication Guide*.

Unlike MRO, there are no special MVS operating system requirements for CICS intersystem communication.

Running a CICS region with ISC

You must include the following management programs in your CICS regions, (by specifying the system initialization parameters that are given in parentheses):

- DFHISC – the intersystem communication program (ISC=YES).
- DFHTCP – the terminal control program (TCP=YES is the default).

Establishing ISC

Intersystem communication requires VTAM support, and you must specify VTAM=YES as a system initialization parameter. If VTAM is running during CICS initialization, CICS opens the VTAM ACB. If VTAM is started after CICS, opening the VTAM ACB fails, and you must open it using the CEMT SET VTAM OPEN command when VTAM is available. CICS regions cannot communicate until they have established the VTAM connection.

Defining ISC connections

Before you can use ISC, you must define and install connections with attributes appropriate to your CICS (and VTAM) environment. If you intend using APPC for your ISC communications, you can take advantage of the autoinstall for APPC connections function. For information about defining connections, and about using the autoinstall for APPC connections function, see the *CICS Resource Definition Guide*.

Chapter 28. Running the installation verification procedures

After you have installed CICS, and applied any necessary service, you can use the CICS-supplied installation verification procedures (IVPs) to confirm that CICS is operational.

Before you run the IVP jobs

See “Overview of the IVP jobs” on page 146. Perform the following steps in preparation for the IVPs.

Preparation for running the IVPs

Perform the following steps:

- Create the CICS data sets for the IVP jobs
- Install the CICS SVC for the IVP jobs
- Define and activate the CICS applids
- Authorize the IVP userid
- Review security requirements for the IVP jobs
- Define log streams
- Specify system initialization parameters for the IVP jobs

Create the CICS data sets for the IVP jobs

Before you can run any of the CICS-supplied IVP jobs, you must create the data sets that they use. For further information about creating the data sets for the IVP jobs, see “Chapter 23. Creating the CICS data sets” on page 119.

Install the CICS SVC for the IVP jobs

All the IVP jobs require the CICS Type 3 SVC, which must be installed in the LPA. If you have not already installed the CICS SVC in the LPA (as described under “Chapter 9. Installing CICS modules in the MVS link pack area” on page 35), do so now before attempting to run any of the IVP jobs. The IVP jobs do not use the Type 6 SVC (DFHHPSVC).

Define and activate the CICS applids

If you want to use VTAM with a CICS region started by any of the CICS IVP jobs, you must create and activate a VTAM APPL definition for the CICS regions’s application identifier (applid). The applid defined to VTAM must match the applid specified on the APPLID system initialization parameter used by the IVP job. For example, to be able to logon to the CICS region started by the DFHIVPOL job, you must do one of the following:

- Create and activate an APPL definition for your own applid, which you specify on the APPLID parameter of the DFH$SIP1 member of the SYSIN data set.
- Define and activate an APPL definition for the default applid DBDCCICS, which you specify on the APPLID parameter of the DFH$SIP1 member of the SYSIN data set.

For more information about creating and activating VTAM APPL definitions for CICS, see “Chapter 8. Defining CICS regions as applications to VTAM” on page 31 and “Data set naming conventions” on page 119.

Further, if you want to use VTAM cross-domain services to communicate between CICS regions on separate MVS images, you must create and activate VTAM CDRSC definitions in both MVS images involved in the communication. For more information about creating and activating VTAM CDRSC definitions for CICS, see “Cross-domain considerations” on page 33.

Authorize the IVP userid

To run the IVP jobs with external security, you must define to RACF an IVP default CICS userid that has authority to run the transactions used as part of the IVP jobs. These transactions include the CICS-supplied transactions listed in Table 8. The level of authority required by the IVP userid depends on what security you want to use for the IVP jobs. For more information, see “Review security requirements for the IVP jobs”.

Note: On a production system the default user should ***not*** have access to any CICS-supplied transactions except those you need in your CICS environment. The resource access authorizations that you give to the default user should clearly be limited to those resources that you intend should be universally available, and therefore do not need to be restricted in any way.

For information about the security requirements for CICS-supplied transactions, and about CICS security in general, see the *CICS RACF Security Guide*.

Table 8. Transactions used as part of the IVP jobs

Application	Transactions
DFH$BTCH	CWTO, CEMT, CEOT, CSFE
FILEA samples	
DFH$MNU	AMNU, MENU, PMNU, DMNU
DFH$ALL	AINQ, INQY, PINQ, DINQ AADD, ADDS, PADD, DADD AUPD, UPDT, PUPD, DUPD
DFH$xBRW	ABRW, BRWS, PBRW, DBRW
DFH$REN	AORD, OREN, PORD, DORD
DFH$xCOM	AORQ, OREQ, PORQ, DORQ
DFH$REP	AREP, REPT, PREP, DREP
Other functions	CETR, CEDA, CMAC, CMSG, CSGM

Review security requirements for the IVP jobs

You can run the IVP jobs with or without external security.

As supplied, the system initialization table, DFHSIT, used by the IVP jobs specifies that external security is to be used. However, the IVP jobs have been set up with SEC=NO, indicating that external security is not to be used. DFHSIT also specifies that the IVP jobs are subject to transaction security (XTRAN=YES), resource security (Xyyy=YES), and command security (XCMD=YES).

Note: As supplied, the DFH$SIP2 member of the SYSIN data set used by the DFHIVPBT job specifies the SIT override SEC=NO, so that you can run this job without external security.

If you choose to run the IVP jobs with external security, you must:

- Define CICS resource profiles to RACF.
- Define an IVP default CICS userid to RACF.
- Specify the IVP userid on the DFLTUSER=userid system initialization parameter.

You must also give the IVP userid sufficient authority to use the transactions and resources needed to run the IVP jobs. That is, you must:

- Authorize the IVP userid to run the transactions used as part of the IVP jobs. (See Table 8 on page 142.) To do this you must add the IVP userid, with READ access, to the access list of the RACF profiles for the transaction member class (TCICSTRN) or the transaction group class (GCICSTRN).

  If you define the transactions as prefixed resources, you must also specify the system initialization parameter SECPRFX=YES for the IVP jobs.
- Authorize the IVP userid to access the resources used by the transactions. To do this you must add the IVP userid, with appropriate authority, to the access list for the resource class profiles.
- Authorize the IVP userid to issue SP-type commands using the CEMT master terminal transaction. To do this, you must add the IVP userid, with appropriate authority, to the access list of the RACF profiles for the resource member class (CCICSCMD) or the resource group class (VCICSCMD). You must give the IVP userid UPDATE access for the SHUTDOWN resource class, otherwise the userid will not be able to terminate the IVP jobs. You should also give the IVP userid UPDATE access for the DUMPDS and SYSTEM resource classes, if the DFHIVPBT job is to be run with external security.

For information about implementing external security, see the *CICS RACF Security Guide*. Alternatively, you can run the IVP jobs with limited security, for example:

- Without command security (XCMD=NO), the IVP userid would be able to run the IVP jobs without the need for authority to use the CEMT SP-type commands and the resources that they access.
- With only transaction security (Xyyy=NO including XCMD=NO), the IVP userid would be able to run the IVP jobs if authorized only to use the transactions used as part of the IVP jobs.

Define log streams

CICS automatically attempts to connect to its system log stream, unless you define a journal model resource definition to define the log stream as TYPE(DUMMY). This means you need to decide whether you want to run the IVPs with system logs, or to run with dummy logging.

If you decide to run with actual log streams, see “Chapter 20. Defining the logger environment for CICS journaling” on page 73 for information about defining log streams.

Alternatively, you can define a CICS JOURNALMODEL resource definition with TYPE(DUMMY) to avoid having to define log streams. If you want to run the IVPs with the minimum effort, here is what to do:

- Define JOURNALMODEL resource definitions in the CSD for the primary and secondary system logs, DFHLOG and DFHSHUNT respectively, specifying TYPE(DUMMY); see Figure 21 for a sample job.
- Add the CSD group containing your dummy system log journal models to your own group list, and include your group list on the GRPLIST system initialization parameter.

  Note that your group list must *follow* the IBM-supplied list DFHLIST. DFHLIST includes group DFHLGMOD (which contains DFHLOG and DFHSHUNT JOURNALMODEL definitions) but concatenating your list after DFHLIST ensures that your DUMMY definitions replace the IBM definitions.

```
//CSDLGSTR JOB 1,BELL,MSGCLASS=A,MSGLEVEL=(1,1),CLASS=A
//CSDUP    EXEC PGM=DFHCSDUP,REGION=1M,PARM='CSD(READWRITE)'
//STEPLIB  DD DSN=&libpfx;.SDFHLOAD,DISP=SHR
//DFHCSD   DD DSN=&libpfx;.CICSH###.DFHCSD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//CSDUP    EXEC PGM=DFHCSDUP,REGION=1M,PARM='CSD(READWRITE)'
//STEPLIB  DD DSN=&libpfx;.SDFHLOAD,DISP=SHR
//DFHCSD   DD DSN=&libpfx;.CICSH###.DFHCSD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSABOUT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN    DD *
*
*   DEFINE JOURNAL MODELS FOR CICS LOG STREAMS AS DUMMY
*
DEFINE JOURNALMODEL(DFHLOG) GROUP(LOGTEST)
DESCRIPTION(DEFINE SYSTEM LOG AS DUMMY)
       JOURNALNAME(DFHLOG)
       TYPE(DUMMY)
*
DEFINE JOURNALMODEL(DFHSHUNT) GROUP(LOGTEST)
DESCRIPTION(DEFINE SYSTEM LOG AS DUMMY)
       JOURNALNAME(DFHSHUNT)
       TYPE(DUMMY)
```

Figure 21. Sample job to define DUMMY JOURNALMODELs for CICS system logs

Specify system initialization parameters for the IVP jobs

All the IVP jobs use the system initialization parameters specified in the associated DFH$SIPn member of the SYSIN data set. The DFH$SIPn members, as supplied by CICS, default to the unsuffixed SIT, DFHSIT, and the resources defined to CICS are adequate only for a basic CICS region. For example, in the case of the DFHIVPOL job, the resources defined limit the number of terminals you can use.

The DFH$SIPn members of the SYSIN data set also contain some system initialization parameters to exclude CICS resources not required by the IVP jobs, or to include some not specified by the default SIT.

One such parameter is TCT=5$, specifying the CICS sample terminal control table, in the *hlq*.SDFHLOAD library. This TCT defines the pair of sequential input and output devices, CARDIN and PRINTER. (These are the only devices defined in DFHTCT5$.)

The DFH$SIPn members of the SYSIN data set may need to be edited for:

- The default SVC number is 216. To use a different SVC number, specify CICSSVC=nnn in the appropriate DFH$SIPn member. For more information about defining CICS SVCs, see “Defining the CICS SVCs to your MVS” on page 26.

  The IVP jobs do not require the Type 6 SVC.
- The applid used is CICSIVP1. To use a different applid, change the system initialization parameter (APPLID=CICSIVP1) in the appropriate DFH$SIPn member.
- The IVP jobs were run with external security switched off. To run with security (SEC=YES), define a suitable default userid (for example IVPUSER) with the required authority to run the IVP transactions. Add DFLTUSER=IVPUSER in the appropriate DFH$SIPn member. For more information about defining the IVP userid, see “Authorize the IVP userid” on page 142.

  Transactions can be defined as prefixed resources using the IVP userid, IVPUSER, as the prefix (for example, IVPUSER.CEMT). Add SECPRFX=YES in the appropriate DFH$SIPn member for the IVP job.

  This enables transactions to be run as part of the IVP jobs without affecting other CICS regions. For example, when the DFH$BTCH batch stream is run, CICS sends authorization requests to RACF for the transactions and identifies them as IVPUSER.*xxxx*, where *xxxx* is the transaction ID (CWTO, CEMT, and so on).
- Language Environment (LE) support, for all the high-level language sample programs, was added as described in the *CICS System Definition Guide* . CICS requires either pre-defined CSD definitions, for the LE modules, to be installed or Program autoinstall to be active.

  The IVP jobs include the required DD statements for the LE libraries as comments.
- The resources for the CICS messages facility were defined, as described in “Resources for the CICS messages facility, CMAC”, and the DFHCMAC resource group added to a group list used for the IVP jobs.
- The IVP jobs run with auxiliary trace switched on (AUXTR=ON), and the auxiliary trace data set switching facility set to switch once only (AUXTRSW=NEXT).

Other notes about changes to the system initialization parameters for the IVP jobs, and about the IVP jobs generally, are provided in the sections describing the IVP jobs.

If you want to use system initialization parameters to modify or enhance the scope of the IVP jobs, see the *CICS System Definition Guide* for details about the parameters.

Resources for the CICS messages facility, CMAC

You can use the CICS messages facility (CICS-supplied transaction CMAC) to provide the messages and codes descriptions online. Before you can use this facility, you must create and initialize the CICS messages data set DFHCMACD, define the resources needed by the facility, and make them available to your CICS region.

For information about creating and initializing the DFHCMACD data set, see “Creating the CICS messages data set, DFHCMACI job” on page 122.

The DFHCMACD data set is accessed by the file DFHCMACD, managed by CICS file control. You must create a definition for this file in the CSD or FCT. The CICS-supplied definition for the DFHCMACD file and other resources needed by the CICS messages facility are in the CSD group DFHCMAC. The CICS startup procedure (in the IVP jobs) has a DD statement for the CMAC file, but for dynamic allocation you should copy the supplied resource definition for the DFHCMACD file and add the DSNAME option.

You should specify the DFHCMAC group of resources for the CICS messages facility only in those CICS regions that need to use the facility; for example on some terminal-owning regions, but perhaps not on data-owning regions.

Overview of the IVP jobs

There are two IVP jobs:

1. DFHIVPBT (verify batch)

This job starts up CICS, specifying a pair of sequential input and output devices (CARDIN and PRINTER) to be used instead of an ordinary terminal. It then executes a number of CICS transactions that are read from CARDIN. The last transaction in the input stream shuts down CICS.

2. DFHIVPOL (verify online)

This job can run CICS with either XRF=NO, or XRF=YES. It is generated with XRF=NO specified as an override, which you change when you are ready to verify CICS with XRF.

You can use this CICS region to automatically install (**autoinstall**) an IBM 3270 Information Display System terminal, with which you can:

- Use the master terminal transaction, CEMT. You can also use CEMT from the MVS system console. For information about using CEMT, see the *CICS Supplied Transactions* manual.
- Use the resource definition online transaction, CEDA. For information about using CEDA, see the *CICS Resource Definition Guide*.
- Use the sample application transaction AMNU, to access the sample VSAM file, FILEA. For a description of the FILEA sample applications, see the *CICS 4.1 Sample Applications Guide*.

The CICS startup procedure, DFHSTART

All the IVP jobs include a procedure to start up CICS. You can use this procedure as a basis for your own CICS startup procedures. This procedure, DFHSTART, comprises the following steps:

1. CICSCNTL—determine whether CICS is to be started
2. DTCNTL—determine whether dump and trace analysis is to be performed
3. CICS—execute CICS
4. PRTDMPA—print any contents of the CICS DFHDMPA dump data set
5. PRTDMPB—print any contents of the CICS DFHDMPB dump data set
6. PRTAUXT—print any contents of the auxiliary trace DFHAUXT data set
7. PRTBUXT—print any contents of the auxiliary trace DFHBUXT data set.

The following symbolic parameters are defined in the IVP jobs:

INDEX1
: is the high-level index of the CICS run-time data sets, as specified on the DSINFO parameter of the DFHISTAR job. ***Default:*** INDEX1=*hlq*

INDEX2
: is the high-level index of the CICS load libraries, as specified on the INDEX parameter of the DFHISTAR job. ***Default:*** INDEX2=*hlq*

REGNAME
: is the REGION name for a single or MRO region. ***Default:*** REGNAME=TR

REG
: defines the MVS region size for the CICS step. ***Default:*** REG=32M

START
: is the type of CICS startup to be performed. ***Default:*** START=AUTO

DUMPTR
: specifies whether dump and trace analysis is required. ***Default:*** DUMPTR=YES

RUNCICS
: specifies whether CICS is to be started. ***Default:*** RUNCICS=YES

OUTC
: is the output print class. ***Default:*** OUTC='*'

SIP
: is the suffix of the DFH$SIP member (in the SYSIN data set) to be used during CICS startup. ***Default:*** SIP=T

Notes:

1. The step CICS (to start up CICS) is executed only if you code RUNCICS=YES (the default). Code RUNCICS=NO if you want to perform dump and trace analysis without starting CICS.
2. The steps PRTDMPA, PRTDMPB, DFHAUXT, and DFHBUXT are executed only if you specify DUMPTR=YES (the default).
3. When you run the DFHISTAR job, it overrides the default values in the IVP jobs with the values you specified in the DFHISTAR job.

DD statements for CICS data sets

The startup job step contains DD statements for the CICS data sets listed in Table 9.

Table 9. DD statements for CICS data sets in the DFHSTART procedure

ddname	Description
SYSIN	SYSIN data set, containing the DFH$SIPn members that specify system initialization parameter overrides.
DFHCMACD	Messages data set, needed for the CICS messages transaction, CMAC.
FILEA	Sample VSAM data set, needed by the FILEA sample applications.
DFHTEMP	Auxiliary temporary storage data set, needed by the FILEA sample applications.
DFHINTRA	Transient data intrapartition data set, needed by the FILEA sample applications.

Table 9. DD statements for CICS data sets in the DFHSTART procedure (continued)

ddname	Description
DFHAUXT DFHBUXT	First auxiliary trace (A) data set. Second auxiliary trace (B) data set. The auxiliary trace data sets, DFHAUXT and DFHBUXT, are needed because the IVP jobs run with auxiliary trace switched on, and the auxiliary trace data set switching facility set to switch once only.
DFHLCD	(Mandatory) CICS local catalog data set (VSAM), used by the CICS domains to save some of their information between CICS runs, and to preserve this information across a cold start.
DFHGCD	(Mandatory) CICS global catalog data set (VSAM), has a variety of uses, including: during a CICS run, holding resource definitions that are installed; and, during a controlled shutdown, recording part of the warm keypoint information.
DFHCXRF	Transient data extrapartition data set, used by CICS as the target for messages sent to any transient data destination before CICS has completed intrapartition transient data initialization.
DFHLRQ	The local request queue data set is used to store pending BTS requests;for example, timer requests or requests to run activities. It is recoverable and used to ensure that, if CICS fails, no pending requests are lost. For more information, see the *CICS Business Transaction Services*.
DFHCJVM	Must be set to DD DUMMY. Required for support of the CICS Java Virtual Machine (JVM).
DFHJVM	Defines the member of SDFHENV containing the environment variables required to initialize the JVM.
LOGUSR	Data set for the extrapartition transient data destination, LOGA, used by the CICS sample programs.
MSGUSR	Data set for the extrapartition transient data destination, CSSL, used by a number of CICS services.
PLIMSG	Data set for the extrapartition transient data destinations used by PL/I application programs. This data set is the destination for PL/I statistics and messages (CPLI) and, indirectly, PL/I dumps (CPLD).
COUT	Data set for the extrapartition transient data destinations used by C/370 application programs. This data set is the destination for the C/370 output data streams, stdout (CCSO) and, indirectly, stderr (CCSE).
DFHDMPA DFHDMPB	First transaction dump (A) data set. Second transaction dump (B) data set. The dump data sets are included because CICS always tries to open a transaction dump data set, and issues a warning message if it is unable to do so for any reason.
DFHCSD	(Mandatory) CICS system definition data set (VSAM).

Verify batch job, DFHIVPBT

The CICS-supplied verify batch job, DFHIVPBT, is tailored to your CICS environment and stored in the *hlq*.XDFHINST library when you run the DFHISTAR job.

Note: Before submitting the DFHIVPDB job, run the DFHRMUTL program to reset the global catalog control record to perform an INITIAL start on the next CICS startup.

This IVP comprises the following job steps:

1. **Job step GENINPT** unloads the member DFH$BTCH from the *hlq*.SDFHSAMP library into the CARDIN data set (using the MVS utility program, IEBGENER).
2. **Job step DFHSTART** invokes the CICS initialization program, DFHSIP, to startup CICS. The DFHSIP program reads startup system initialization parameters from the DFH$SIP2 member of the SYSIN data set.

   The DFH$BTCH data set (see Figure 22) is used as terminal input, and this should produce a printout similar to the sample output shown in Figure 24 on page 153.

```
CWTO START OF BATCH STREAM DFH$BTCH\
CEMT S TIME(120)\                     EXIT TIME INTVL TO 120 MILLISEC
CEMT S DUMPDS SWITCH\                 SWITCH FROM DUMP A TO B
CEOT\                                 INQUIRE TERMINAL STATUS
CSFE\                                 F. E. TERMINAL TEST REQUEST
PRINT\                                TO SEND ALL CHARACTERS
THIS MESSAGE HAS BEEN RECEIVED FROM THE TERMINAL AND IS BEING SENT BACK\
END\                                  TO END THE TEST
CSXX\                                 INVALID TRANSACTION IDENT.
CWTO END OF BATCH STREAM DFH$BTCH - SHUTTING DOWN CICS\
CEMT P SHUT\                          NORMAL TERMINATION OF CICS

    where \ is the End Of Data Input character X'E0'.
```

Figure 22. DFH$BTCH data set, input to the DFHIVPBT job

Sample job log for the DFHIVPBT job

When you run the DFHIVPBT job, your job log should look like the example shown in Figure 23 on page 150.

```
1                J E S 2  J O B  L O G  --  S Y S T E M  M V 2 D  --  N O D E  W I N M V S 2 C
0
16:18:37 JOB01830 ---- FRIDAY,    08 AUG 1997 ----
16.18.37 JOB01830  IRR010I  USERID DOBROWN  IS ASSIGNED TO THIS JOB.
16.18.43 JOB01830  ICH70001I DOBROWN  LAST ACCESS AT 16:04:25 ON FRIDAY, AUGUST 8, 1997
16.18.43 JOB01830  $HASP373 DFHIVPBT STARTED - INIT 8    - CLASS A - SYS MV2D
16.18.43 JOB01830  IEF403I DFHIVPBT - STARTED - TIME=16.18.43
16.18.44 JOB01830  -                                        --TIMINGS (MINS.)--            ---PAGING COUNTS---
16.18.44 JOB01830  -JOBNAME  STEPNAME PROCSTEP    RC   EXCP    CPU    SRB  CLOCK   SERV  PG  PAGE   SWAP    VIO SWAPS
16.18.44 JOB01830  -DFHIVPBT          GENINPT     00     23    .00    .00     .0   1913  11     0      0      2     0
16.18.45 JOB01830  -DFHIVPBT CICS     CICSCNTL    01     13    .00    .00     .0   2178  11     0      0      0     0
16.18.46 JOB01830  -DFHIVPBT CICS     DTCNTL      01     10    .00    .00     .0   2241  11     0      0      0     0
16.18.50 JOB01830  DFHPA1101  CICSIVP1 DFHSIT   IS BEING LOADED.
16.18.50 JOB01830  DFHPA1108  CICSIVP1 DFHSIT   HAS BEEN LOADED. (GENERATED AT: MM/DD= 07/19 HH:MM= 14:06).
16.18.50 JOB01830  DFHPA1100  CICSIVP1 OVERRIDE PARAMETERS FROM JCL EXEC STATEMENT: START=AUTO,SYSIN
16.18.50 JOB01830  DFHPA1102  CICSIVP1 OVERRIDE PARAMETERS FROM SYSIN:  1
16.18.50 JOB01830  DFHPA1927  CICSIVP1 TCT=5$,      SEQUENTIAL DEVICES
16.18.50 JOB01830  DFHPA1927  CICSIVP1 TS=(,0),
16.18.50 JOB01830  DFHPA1927  CICSIVP1 AUXTR=ON,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 AUXTRSW=NEXT,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 FCT=NO,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 XRF=NO,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 SEC=NO,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 SRT=NO,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 TRTABSZ=64,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 APPLID=CICSIVP1,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 CICSSVC=212,
16.18.50 JOB01830  DFHPA1927  CICSIVP1 .END
16.18.50 JOB01830  DFHPA1103  CICSIVP1 END OF FILE ON SYSIN.
16.18.52 JOB01830  +DFHTR0103 TRACE TABLE SIZE IS 64K
16.18.53 JOB01830  +DFHSM0122I CICSIVP1 Limit of DSA storage below 16MB is 5,120K.  2
16.18.53 JOB01830  +DFHSM0123I CICSIVP1 Limit of DSA storage above 16MB is 20M.
16.18.53 JOB01830  +DFHSM0113I CICSIVP1 Storage protection is not active.
16.18.53 JOB01830  +DFHSM0126I CICSIVP1 Transaction isolation is not active.
16.18.53 JOB01830  +DFHDM0101I CICSIVP1 CICS is initializing.
16.18.54 JOB01830  +DFHLG0101I CICSIVP1 Log manager domain initialization has started.
16.18.54 JOB01830  +DFHSI1500 CICSIVP1 CICS startup is in progress for CICS Transaction Server Version 1.3.0
16.18.54 JOB01830  +DFHXS1100I CICSIVP1 Security initialization has started.
16.18.54 JOB01830  +DFHXS1102I CICSIVP1 Security is inactive.  3
16.18.55 JOB01830  +DFHSI1501I CICSIVP1 Loading CICS nucleus.
16.18.55 JOB01830  +DFHDU0304I CICSIVP1 Transaction Dump Data set DFHDMPA opened.
16.18.55 JOB01830  +DFHTR0113 CICSIVP1 Auxiliary trace is being started on data set DFHAUXT.
16.19.03 JOB01830  IEC031I D37-04,IFG0554P,DFHIVPBT,CICS,DFHAUXT,2C15,P2DA17,INST.CICSTS12.CICS.DFHAUXT
16.19.03 JOB01830  +DFHTR0110 - AUXILIARY TRACE DATA SET DFHAUXT  FULL - SWITCHING TO DFHBUXT
16.19.05 JOB01830  +DFHXS1101I CICSIVP1 Security initialization has ended.
16.19.06 JOB01830  +DFHRM0140 CICSIVP1 Recovery manager autostart override found with value: 'AUTOINIT'.
16.19.06 JOB01830  +DFHRM0149I CICSIVP1 Recovery manager autostart override record will be deleted.
16.19.06 JOB01830  +DFHMN0105I CICSIVP1 Using default Monitoring Control Table.
16.19.06 JOB01830  +DFHMN0110I CICSIVP1 CICS Monitoring is inactive.
16.19.08 JOB01830  +DFHSI1502I CICSIVP1 CICS startup is Initial.
16.19.08 JOB01830  +DFHTS0100I CICSIVP1 Temporary Storage initialization has started.
16.19.09 JOB01830  +DFHTS0101I CICSIVP1 Temporary Storage initialization has ended.
16.19.09 JOB01830  +DFHLG0102I CICSIVP1 Log manager domain initialization has ended.
16.19.10 JOB01830  +DFHSI1503I CICSIVP1 Terminal data sets are being opened.
16.19.10 JOB01830  +DFHSI1592 CICSIVP1 CICS applid not (yet) active to VTAM.
16.19.10 JOB01830  +DFHSI1572 CICSIVP1 Unable to OPEN VTAM ACB - RC=00000008, ACB Code=5A.
16.19.11 JOB01830  +DFHKE0406I CICSIVP1
                    CICS is about to wait for predecessors defined in the MVS automatic
                    restart management policy for this region.
16.19.12 JOB01830  +DFHCP0101I CICSIVP1 CPI initialization has started.
16.19.12 JOB01830  +DFHPR0104I CICSIVP1 Partner resource manager initialization has started.
16.19.12 JOB01830  +DFHAI0101I CICSIVP1 AITM initialization has started.
16.19.13 JOB01830  +DFHTD0100I CICSIVP1 Transient Data initialization has started.
16.19.14 JOB01830  +DFHFC0100I CICSIVP1 File Control initialization has started.
16.19.16 JOB01830  IEC161I 080-053,DFHIVPBT,CICS    CICS,DFHINTRA,,,
```

Figure 23. Sample job log for the DFHIVPBT job (Part 1 of 2)

```
16.19.16 JOB01830  IEC161I INST.CICSTS12.CNTL.CICS.DFHINTRA,
16.19.16 JOB01830  IEC161I INST.CICSTS12.CNTL.CICS.DFHINTRA.DATA,
16.19.16 JOB01830  IEC161I ICFCAT.SYSPLEX2.CATALOGB
16.19.20 JOB01830  +DFHTD0101I CICSIVP1 Transient Data initialization has ended.
16.19.22 JOB01830  +DFHFC0101I CICSIVP1 File Control initialization has ended.
16.19.22 JOB01830  IEC031I D37-04,IFG0554P,DFHIVPBT,CICS,DFHBUXT,2C0E,P2DA66,INST.CICSTS12.CICS.DFHBUXT
16.19.22 JOB01830  +DFHTR0109 - AUXILIARY TRACE DATA SET DFHBUXT  FULL - AUXILIARY TRACE HAS BEEN STOPPED
16.19.22 JOB01830  +DFHCP0102I CICSIVP1 CPI initialization has ended.
16.19.22 JOB01830  +DFHPR0105I CICSIVP1 Partner resource manager initialization has ended.
16.19.22 JOB01830  +DFHAI0102I CICSIVP1 AITM initialization has ended.
16.19.23 JOB01830  +DFHFC0208I CICSIVP1
                    LSR pool 1 is being built dynamically by CICS because all of the
                    necessary parameters have not been supplied. Either there is no
                    LSRPOOL definition or it is incomplete. The following are not
                    defined:  'CI SIZE' 'STRINGS' 'MAXKEYLENGTH'. A delay is possible.
16.19.23 JOB01830  +DFHSI1511I CICSIVP1 Installing group list DFHLIST. 4
16.19.29 JOB01830  +DFHLG0103I CICSIVP1 System log (DFHLOG) initialization has started.
16.19.29 JOB01830  IXG231I IXGCONN REQUEST=CONNECT TO LOG STREAM DOBROWN.CICSIVP1.DFHLOG
                   DID NOT SUCCEED FOR JOB DFHIVPBT.  RETURN CODE: 00000008  REASON CODE:  5
                   0000080B  DIAG1: 00000000  DIAG2: 00000000  DIAG3: 00000000  DIAG4:
                   00000000
16.19.34 JOB01830  +DFHLG0104I CICSIVP1 System log (DFHLOG) initialization has ended.  6
16.19.34 JOB01830  +DFHLG0103I CICSIVP1 System log (DFHSHUNT) initialization has started.
16.19.34 JOB01830  IXG231I IXGCONN REQUEST=CONNECT TO LOG STREAM
                   DOBROWN.CICSIVP1.DFHSHUNT DID NOT SUCCEED FOR JOB DFHIVPBT.  RETURN
                   CODE: 00000008  REASON CODE: 0000080B  DIAG1: 00000000  DIAG2:  5
                   00000000  DIAG3: 00000000  DIAG4: 00000000
16.19.38 JOB01830  +DFHLG0104I CICSIVP1 System log (DFHSHUNT) initialization has ended.  6
16.19.38 JOB01830  +DFHWB1007 CICSIVP1 Initializing CICS Web environment.
16.19.39 JOB01830  +DFHWB1008 CICSIVP1 CICS Web environment initialization is complete.
16.19.39 JOB01830  +DFHSI1517 CICSIVP1 Control is being given to CICS.
16.19.40 JOB01830  +DFHIVPBT SAMA      START OF BATCH STREAM DFH$BTCH
16.19.42 JOB01830  +DFHDU0303I CICSIVP1 Transaction Dump Data set DFHDMPA closed.
16.19.42 JOB01830  +DFHDU0304I CICSIVP1 Transaction Dump Data set DFHDMPB opened.
16.19.42 JOB01830  +DFHDU0305I CICSIVP1 Transaction Dump Data set switched to DFHDMPB
16.19.47 JOB01830  +DFHIVPBT SAMA      END OF BATCH STREAM DFH$BTCH - SHUTTING DOWN CICS
16.19.48 JOB01830  +DFHTM1715 CICSIVP1 CICS is being quiesced by userid CICSUSER in transaction
                    CEMT at terminal SAMA.
16.19.48 JOB01830  +DFHDM0102I CICSIVP1 CICS is quiescing.
16.19.48 JOB01830  +DFHTM1782I CICSIVP1 All non-system tasks have been successfully terminated.
16.19.48 JOB01830  +DFHCESD  CICSIVP1 SHUTDOWN ASSIST TRANSACTION CESD STARTING. SHUTDOWN IS NORMAL.
16.19.50 JOB01830  +DFHRM0204 CICSIVP1 There are no indoubt, commit-failed or backout-failed UOWs.
16.19.51 JOB01830  +DFHRM0130 CICSIVP1 Recovery manager has successfully quiesced.
16.19.52 JOB01830  +DFHDU0303I CICSIVP1 Transaction Dump Data set DFHDMPB closed.
16.19.53 JOB01830  +DFHKE1799 CICSIVP1 TERMINATION OF CICS IS COMPLETE.
16.19.54 JOB01830  -DFHIVPBT CICS     CICS       00   1879    .18    .01    1.1   743K  11    0     0     0     0
16.19.56 JOB01830  -DFHIVPBT CICS     PRTDMPA    00     12    .00    .00     .0   2851  11    0     0     0     0
16.19.57 JOB01830  -DFHIVPBT CICS     PRTDMPB    00     12    .00    .00     .0   2207  11    0     0     0     0
16.20.42 JOB01830  -DFHIVPBT CICS     PRTAUXT    00   1399    .33    .00     .7   573K  11    0     0     0     0
16.21.18 JOB01830  -DFHIVPBT CICS     PRTBUXT    00   1411    .34    .00     .6   592K  11    0     0     0     0
16.21.18 JOB01830  IEF404I DFHIVPBT - ENDED - TIME=16.21.18
16.21.18 JOB01830  -DFHIVPBT ENDED.  NAME-DOBROWN            TOTAL CPU TIME=   .87  TOTAL ELAPSED TIME=   2.5
16.21.18 JOB01830  $HASP395 DFHIVPBT ENDED
```

Figure 23. Sample job log for the DFHIVPBT job (Part 2 of 2)

Notes:

1 For information about the system initialization parameters used by the IVP jobs, see page 144. (See also **2** below.)

2 The DFHSM0122 and DFHSM0123 messages inform you of the limits available for the dynamic storage areas below and above the 16MB boundary. For information about these storage areas, see the *CICS System Definition Guide.*

Note: Storage for the extended read-only DSA, ERDSA, is obtained from read-only key 0 protected storage, because the sample SIT specifies RENTPGM=PROTECT (the default).

3 The DFHIVPBT job was run without external security active, because SEC=NO is specified as a SIT override parameter.

4 The default group list, DFHLIST, is used for this run of the DFHIVPBT job. Non-default functions (for example, the CICS messages facility) are not available, because their CICS resources are not defined in this group list.

5 These messages are issued when CICS is initialized and the log streams do not exist. CICS issues a request to create the log stream dynamically using MVS define log stream services.

6 If system log initialization fails, CICS abends. (See also **1** in Figure 24 on page 153.)

Output from the DFHIVPBT job

Output from the DFHIVPBT job (see Figure 24 on page 153) includes CICS messages written to one of the extrapartition destinations, responses to the transactions in the DFH$BTCH data set, and an auxiliary trace.

```
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFFE has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFF1 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFF2 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFF3 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFF4 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFF5 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFF6 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFF7 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUCAFP has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUMSGCS has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUTABM has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUXD UMM has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUXITI1 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUXITM1 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUXITO1 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for CAUXITX1 has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CAFB has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CAFF has been added.
DFHAM4893 I 08/08/97 16:19:28 CICSIVP1 Install for group DFHAUGRP has completed successfully.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWB0 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWB0H has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFH$WB1A has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFH$WB1C has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBA has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBADX has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBAHX has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBALX has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBAOX has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBA1 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBC00 has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBENV has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBIMG has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBIP has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBLT has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBM has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBPA has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBRA has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBST has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBTC has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBTL has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBTRU has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBTTA has been added.
DFHPG0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY PPT entry for DFHWBWB has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWBA has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWBC has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWBM has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWB1 has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWB2 has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWB3 has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWB4 has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWB5 has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWB6 has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWB7 has been added.
DFHXM0101 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TRANSACTION definition entry for CWB8 has been added.
DFHTD0402 08/08/97 16:19:28 CICSIVP1  CICSUSER CSSY TDQUEUE entry for CWBO has been added.
DFHAM4893 I 08/08/97 16:19:28 CICSIVP1 Install for group DFHWEB has completed successfully.
DFHFC0204 08/08/97 16:19:29 CICSIVP1  CICSUSER CSSY FCT entry for DFHCSD has been updated.
DFHLG0502 08/08/97 16:19:31 CICSIVP1 Log stream DOBROWN.CICSIVP1.DFHLOG defined to MVS using model stream    1
           MV2D.DFHLOG.MODEL.
DFHLG0302 08/08/97 16:19:34 CICSIVP1 Journal name DFHLOG has been installed.  2
          Journal type: MVS DOBROWN.CICSIVP1.DFHLOG.
DFHLG0502 08/08/97 16:19:36 CICSIVP1 Log stream DOBROWN.CICSIVP1.DFHSHUNT defined to MVS using model stream  1
           MV2D.DFHSHUNT.MODEL.
DFHLG0302 08/08/97 16:19:38 CICSIVP1 Journal name DFHSHUNT has been installed. Journal type: MVS  2
           DOBROWN.CICSIVP1.DFHSHUNT.
DFHLG0744 08/08/97 16:19:38 CICSIVP1 All records in log stream DOBROWN.CICSIVP1.DFHLOG have been deleted.
DFHLG0744 08/08/97 16:19:38 CICSIVP1 All records in log stream DOBROWN.CICSIVP1.DFHSHUNT have been deleted.
DFHRM0205 08/08/97 16:19:50 CICSIVP1 An activity keypoint has been successfully taken.
```

Figure 24. Sample job log for the DFHIVPBT job (Part 1 of 3)

```
DFHLG0743 08/08/97 16:19:50 CICSIVP1 Tail of log stream DOBROWN.CICSIVP1.DFHLOG
          deleted at block id X'0000000000000001'.
MESSAGE HAS BEEN SENT
Aging( 32768 )
Akp( 04000 )
Cdsasize(00262144)
Cicstslevel(010200)
Cmdprotect(Cmdprot)
Db2conn()
Dfltuser(CICSUSER)
Dsalimit( 05242880 )
Dtrprogram( DFHDYP   )
Dumping( Sysdump )
Ecdsasize(0002097152)
Edsalimit( 0020971520 )
Erdsasize(0005242880)
Esdsasize(0000000000)
Eudsasize(0001048576)
Maxtasks( 005 )
Mrobatch( 001 )
Oslevel(020400)
Progautoctlg( Ctlgnone )
Progautoexit( ........ )
Progautoinst( Autoinactive )
Rdsasize(00262144)
Reentprotect(Reentprot)
Release(0520)
Runaway( 0005000 )
Scandelay( 0500 )
Sdsasize(00262144)
Sdtran(CESD)
Sosstatus(Notsos)
Storeprotect(Inactive)
Time( 0001000 )
Tranisolate(Inactive)
Udsasize(00000000)
TIME < SCANDELAY
RESPONSE: 1 ERROR TIME:  16.19.42  DATE: 08.08.97
SYSID=CICS APPLID=CICSIVP1

Dumpds
Currentdds(B)
Openstatus( Open )
Switchstatus(              )
NORMAL
RESPONSE: NORMAL TIME:  16.19.43  DATE: 08.08.97
SYSID=CICS APPLID=CICSIVP1

Ter(SAMA) Tra(CEOT) Pri(000) Aut Ins     Tti
 CEOT SYNTAX:
 < PAgeable | AUtopageable >
 < ATi | NOAti >
 < TTi | NOTti >
RESPONSE: NORMAL TIME:  16.19.43  DATE: 08.08.97
 SYSID=CICS APPLID=CICSIVP1
 DFHFE3304 Enter PRINT for character set, END to terminate.  All other data will
be echoed.
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789
$@<>%+*()_-=#¬|"&;,:.?/
THIS MESSAGE HAS BEEN RECEIVED FROM THE TERMINAL AND IS BEING SENT BACK
DFHFE3301 Transaction complete
DFHAC2001 08/08/97 16:19:46 CICSIVP1 Transaction 'CSXX' is not recognized.
 Check that the transaction name is correct.
 MESSAGE HAS BEEN SENT
DFHTM1715 CICSIVP1 CICS is being quiesced by userid CICSUSER in transaction CEMT at terminal SAMA.
```

Figure 24. Sample job log for the DFHIVPBT job (Part 2 of 3)

```
1CICS - AUXILIARY TRACE FROM 08/08/97 - APPLID CICSIVP1  PAGE 00001
 SELECTIVE TRACE PRINT PARAMETERS:

 ALL

1CICS - AUXILIARY TRACE FROM 08/08/97 - APPLID CICSIVP1  PAGE 00002

KE 0101 KETI  ENTRY - FUNCTION(INQ_LOCAL_DATETIME_DECIMAL)
TASK-DM    KE_NUM-001B TCB-008C1D08 RET-8EAB79AA TIME-16:18:55.3964488   757 INTERVAL-**.**********    =000001=
1-0000  00580000 00000043 00000000 00000000  A7040000 00000000 0500000   0 00000000
*................x...............*
0020  00000000 00000000 00000000 00000000  00000000 00000000 00000000    00000000
*................................*
0040  00000000 00000000 00000000 00000000  00000000 00000000
*........................        *

KE 0102 KETI  EXIT  - FUNCTION(INQ_LOCAL_DATETIME_DECIMAL) RESPONSE(OK)  DECIMAL_DATE(08081997) DECIMAL_TIME(161855)
              DECIMAL_MICROSECONDS(396458) FULL_DATE_FORMAT(MMDDYYY      Y)
TASK-DM    KE_NUM-001B TCB-008C1D08 RET-8EAB79AA TIME-16:18:55.3967362   507 INTERVAL-00.0002873750    =000002=
1-0000  00580000 00000043 00000000 00000000  A7040000 00000000 0500010   0 00000000
*................x...............*
  0020  00000000 F0F8F0F8 F1F9F9F7 F1F6F1F8  F5F5F3F9 F6F4F5F8 00000000  00000000
*....08081997161855396458........*
  0040  00000000 00000000 00000000 00000000  00000500 00000000
*........................        *

KE 0401 KEGD  ENTRY - FUNCTION(INQUIRE_KERNEL)

TASK-DM    KE_NUM-001B TCB-008C1D08 RET-8EAB7A44 TIME-16:18:55.3967570   007 INTERVAL-00.0000207500    =000003=
1-0000  00680000 0000000D 00000000 00000000  B8000000 00000000 0100000   0 00000000
*................................*
  0020  00000000 00000000 00000000 00000000  00000000 00000000 00000000  00000000
*................................*
  0040  00000000 00000000 00000000 00000000  00000000 00000000 00000000  00000000
*................................*
  0060  00000000 00000000
*........                        *
*........................*
```

Figure 24. Sample job log for the DFHIVPBT job (Part 3 of 3)

Note:

1 CICS messages issued when the log stream is created.

2 This message is sent to the CRDI destination.

Verify interactive job, DFHIVPOL

The verify interactive job, DFHIVPOL, is tailored to your CICS environment and stored in the *hlq*.XDFHINST library when you run the DFHISTAR job. You can use the DFHIVPOL job to start up a CICS region and try out the current facilities; for example you can use the master terminal transaction, CEMT, and the resource definition transaction, CEDA. You can also run some CICS sample application programs (for example, the FILEA applications).

You need either an IBM 3270 Information Display System terminal or a **console device** You can use both if you wish.

If you use an IBM 3270 Information Display System terminal with this IVP, you can try CEDA, CEMT and the sample applications.

From a console device, the CEDA transaction can be used only to INSTALL resource definitions. The sample programs cannot be executed from a console device.

If you want to communicate with CICS from an MVS console, you must define a console in the CSD before starting the IVP. (You cannot define a console in the TCT.) For more information, see “Defining an MVS console” on page 158.

If you want to communicate with CICS from a TSO session, you must define the TSO user as a console device in the CSD before starting the IVP. For more information, see “Defining a TSO user as a console device” on page 159.

The DFHIVPOL job invokes the CICS initialization program DFHSIP to start up CICS. The DFHSIP program reads system initialization parameters from the DFH$SIP1 member of the SYSIN data set.

TCT=NO is specified as a SIT override which causes CICS to use the dummy terminal control table, DFHTCTDY. This dummy TCT contains only the CICS and VTAM control blocks that you need for use with VTAM terminals: there are no terminal entries.

For information about system initialization parameters specified as overrides for the run of the DFHIVPOL job, see “Specify system initialization parameters for the IVP jobs” on page 144.

Defining a terminal for the online IVP

You can define a VTAM terminal by either of the following two methods:

1. Use the autoinstall facility, which is the recommended method, avoiding the need to define terminals to CICS explicitly before they can be used.
2. Define a terminal explicitly in the CSD, using the DEFINE command of DFHCSDUP, the batch utility for updating the CSD.

Using autoinstall for a VTAM terminal

If you use the autoinstall function of CICS, you avoid the need for each VTAM terminal that requires access to CICS being explicitly defined in the CSD. With autoinstall, the resource definitions you create using RDO can act as models or templates for many resources of the same type. You then leave CICS to match real resources with one of the models. CICS installs table entries for these real resources dynamically, as and when they are needed.

When using autoinstall, you should be aware that when CICS processes an autoinstall request, it uses data from the VTAM logmode table. This is an important consideration. An autoinstall request will succeed only when the logmode data (which is passed to CICS in the BIND image) matches one of the model terminal definitions recorded in the autoinstall model table (AMT) from the CSD. For programming information about the LOGMODE definitions that match the CICS-supplied model definitions for autoinstall, see the *CICS Customization Guide*. Before attempting to start CICS and autoinstall a terminal for this IVP, check your VTAM definitions with those given in the *CICS Customization Guide*. If CICS fails to match model and logmode data, you receive message DFHZC6987I. For information about the suggested course of action if you receive message DFHZC6987I, see the *CICS Messages and Codes* manual.

CSD resource definitions for autoinstall: The CSD is defined and initialized for all the IVP jobs when you run the DFHCOMDS job (see “Chapter 23. Creating the CICS data sets” on page 119), and includes some IBM-supplied definitions for use with autoinstall. These are defined in the following groups:

Group Name **Description**

DFHTERM Model terminal definitions for use with the autoinstall facility. For example, two of the TERMINAL definitions are 3270 and LU2.

DFHTYPE Partial terminal definitions (TYPETERMs) defining common terminal properties, or attributes. For example, two of the TYPETERM definitions are DFH3270 (to define a non-SNA 3270 terminal) and DFHLU2E2 (to define a SNA 3270 model 2 terminal). The DFHLU2E2 resource definition matches the VTAM-supplied logmode SNX32702.

The DFHTERM and DFHTYPE groups are included in the CICS-defined group list called DFHLIST, which is defined in the GRPLIST operand in the sample SIT. If the CICS-supplied definitions are not suitable for your installation, you can create additional TYPETERM and model TERMINAL definitions in the CSD, but without a terminal you will have to do this offline, using the DFHCSDUP utility program. For information about autoinstall definitions, see the *CICS Resource Definition Guide*.

Autoinstall also requires a user program to assign terminal identifiers, and, if necessary, to control access to the system. When you run the online IVP, you are unlikely to have any special requirements for terminal identifiers, or to control access, in which case you can use the IBM-supplied autoinstall user program, DFHZATDX. (If you are using autoinstall for APPC connections and terminals, the sample autoinstall user program is called DFHZATDY.)

Defining a VTAM terminal in the CSD

If you want to use an explicitly defined terminal, rather than let CICS autoinstall a terminal, you will need to define it offline using the DFHCSDUP utility program. The normal way to create resource definitions in the CSD is to use the CEDA DEFINE command from a CICS master terminal, but without a terminal you can only do this using the DFHCSDUP utility program. For an example of a DFHCSDUP job to define a VTAM terminal in the CSD, see Figure 25. For information about the keywords and operands of the DFHCSDUP DEFINE commands, see the *CICS Resource Definition Guide*.

```
//DEFTERM  JOB (accounting information),MSGCLASS=A,
//         MSGLEVEL=(1,1),CLASS=A,NOTIFY=userid
//VTAMDEF  EXEC PGM=DFHCSDUP
//STEPLIB  DD DSN=CICSTS13.CICS.SDFHLOAD,DISP=SHR
//DFHCSD   DD DSN=CICSTS13.CICS.DFHCSD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
*
```

Figure 25. Defining a terminal by using the DFHCSDUP utility program (Part 1 of 2)

```
DEFINE TERMINAL(trmidnt)   NETNAME(vtamname)  GROUP(grpname)
       TYPETERM(name)      INSERVICE(NO)      AUTINSTMODEL(NO)
*
APPEND LIST(DFHLIST) TO(yourlist)
*
ADD GROUP(grpname) LIST(yourlist)
*
LIST   LIST(yourlist)  OBJECTS
/*
//
```

Figure 25. Defining a terminal by using the DFHCSDUP utility program (Part 2 of 2)

You must substitute your own values for the operands that are coded in lowercase in the DEFTERM job shown in Figure 25 on page 157:

TYPETERM
: Specify a unique name to identify the resource definition that matches the properties of the type of terminal you are using. For example, to define a SNA 3270 model 2 terminal, specify the CICS-supplied TYPETERM definition DFHLU2E2. For a list of the CICS-supplied TYPETERM definitions, or for information about creating your own definitions, see the *CICS Resource Definition Guide*.

GROUP
: Code a unique name for the group to which the terminal resource definition is to belong.

TERMINAL
: Code a unique 4-character terminal identifier as the name by which CICS is to know the terminal.

NETNAME
: Code the 8-character VTAM name that identifies this terminal to your VTAM system.

TO(yourlist) and LIST(yourlist)
: Code a unique name for *yourlist*. If your new group list does not include all the CICS-supplied resources as well as your own, you must specify DFHLIST and yourlist on the GRPLIST system initialization parameter of your CICS startup job.

To include the CICS-supplied list of resources in a new group list, create a new list by copying the CICS-supplied list, DFHLIST, using the APPEND command. (The CICS-supplied group list, DFHLIST, is a protected group that you cannot modify.) You can then add your resource definition groups to the new list. Before you run the IVP, make sure you define your new group list to CICS, by adding a SIT override to the SYSIN data set in the DFHIVPOL job stream.

Defining the CICS APPLID to VTAM

You must ensure that either:

- VTAM knows the CICS application identifier (APPLID)

  or

- You change the CICS APPLID to one that is already known to your VTAM system.

If you use the default APPLID (DBDCCICS), define this to VTAM as described in “VTAM definitions required for CICS” on page 32, before starting the DFHIVPOL job.

Defining an MVS console

If you want to use an MVS console with the DFHIVPOL job, CICS requires an installed definition for the console. You can achieve this using one of the following:

- An autoinstall model definition, in conjunction with autoinstall support for consoles. The model definition can specify any CONSNAME value, and references a TYPETERM definition that specifies DEVICE(CONSOLE).
- A predefined TERMINAL resource definition for a console, which specifies the console name on the CONSNAME attribute, and references a TYPETERM definition that specifies DEVICE(CONSOLE).

You define these resources using the DFHCSDUP utility program. The CICS-supplied TYPETERM group, DFHTYPE, contains a typeterm definition called DFHCONS, which is predefined with the required console properties. The DFHTERM group, however, does not contain any corresponding terminal entries for MVS consoles. You identify the console by the CONSNAME(*name*) attribute, even if the TERMINAL definition is an autoinstall model (the console name on an autoinstall model is a dummy value, and replaced by the real console name at install-time).

For an example of the DEFINE command required to define a console, see Figure 26 on page 160.

For information about defining MVS consoles to CICS, see the *CICS System Definition Guide*.

Defining a TSO user as a console device

A TSO user can enter MODIFY commands from terminals logged on to TSO, using either the TSO CONSOLE command or from SDSF. MVS activates a console using, by default, the user’s TSO user ID as the console name. To CICS, the console name passed on the MODIFY command is treated like an MVS system console, and requires an entry in the CICS system definition (CSD) file.

As in the case of the MVS system console, you can achieve this using one of the following:

- An autoinstall model definition, in conjunction with autoinstall support for consoles. The model definition can specify any CONSNAME value, and references a TYPETERM definition that specifies DEVICE(CONSOLE)
- A predefined TERMINAL resource definition for a console, which specifies the console name on the CONSNAME attribute, and references a TYPETERM definition that specifies DEVICE(CONSOLE).

You are recommended to define consoles to CICS with preset terminal security, using the USERID attribute on the TERMINAL definition. This avoids the TSO user having to sign on using the CESN transaction. Otherwise, the TSO user’s CICS signon password is displayed when entered on the CESN transaction.

For an example of a DEFINE command to define a TSO user, see Figure 26 on page 160.

```
//DEFTERM  JOB (accounting information),MSGCLASS=A,
//         MSGLEVEL=(1,1),CLASS=A,NOTIFY=userid
//CONSDEF  EXEC PGM=DFHCSDUP
//STEPLIB  DD DSN=CICSTS13.CICS.SDFHLOAD,DISP=SHR
//DFHCSD   DD DSN=CICSTS13.CICS.DFHCSD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *

*  Define a console
DEFINE TERMINAL(trmidnt)   GROUP(grpname)     TYPETERM(DFHCONS)
       CONSNAME(consname)   DESCRIPTION(MVS CONSOLE consname)
       USERID(tsouser)

*  Define a TSO user as a console device
DEFINE TERMINAL(trmidnt)   GROUP(grpname)     TYPETERM(DFHCONS)
       CONSNAME(tsouser)   DESCRIPTION(TSO USER tsouser)
       USERID(tsouser)
*

APPEND LIST(DFHLIST) TO(yourlist)
*
ADD GROUP(grpname) LIST(yourlist)
*
LIST   LIST(yourlist)  OBJECTS
/*
//
```

Figure 26. Defining a console and a TSO user by using the DFHCSDUP utility program

Note: Substitute your own values for the operands that are shown in italics in the DEFTERM job shown in Figure 26.

To include the CICS-supplied list of resources at startup, specify DFHLIST on the GRPLIST system initialization parameter, as well as your own group list name. For example, specify GRPLIST=(DFHLIST,*userlista,userlistb)*in the CICS SYSIN data set member.

Running the DFHIVPOL job

The DFHIVPOL job includes a procedure, DFHSTART, to start up CICS. When you have successfully logged on to CICS, you can carry out any of the interactive operations described on page 163.

While logged on to CICS, you should perform a CEMT SET DUMPDS SWITCH to ensure that both dump data sets are initialized before DFHDU530 is run when you shut down CICS.

Finally, you can shut down CICS.

Sample job log for the DFHIVPOL job

When you run the DFHIVPOL job, your job log should look like the sample log shown in Figure 27 on page 161.

```
1                 J E S 2  J O B  L O G  --  S Y S T E M  M V 2 D  --  N O D E  W I N M V S 2 C
0
17:03:12 JOB01847 ---- FRIDAY,    08 AUG 1997 ----
17.03.12 JOB01847  IRR010I  USERID DOBROWN  IS ASSIGNED TO THIS JOB.
17.03.15 JOB01847  ICH70001I DOBROWN  LAST ACCESS AT 16:18:43 ON FRIDAY, AUGUST 8, 1997
17.03.15 JOB01847  $HASP373 DFHIVPOL STARTED - INIT 6    - CLASS A - SYS MV2D
17.03.15 JOB01847  IEF403I DFHIVPOL - STARTED - TIME=17.03.15
17.03.16 JOB01847  -                                          --TIMINGS (MINS.)--            ---PAGING COUNTS---
17.03.16 JOB01847  -JOBNAME  STEPNAME PROCSTEP    RC   EXCP    CPU    SRB  CLOCK   SERV  PG  PAGE   SWAP    VIO SWAPS
17.03.16 JOB01847  -DFHIVPOL CICS     CICSCNTL    01     11    .00    .00     .0   2115  11     0      0      0     0
17.03.16 JOB01847  -DFHIVPOL CICS     DTCNTL      01     10    .00    .00     .0   2081  11     0      0      0     0
17.03.18 JOB01847  DFHPA1101  CICSIVP1 DFHSIT   IS BEING LOADED.
17.03.18 JOB01847  DFHPA1108  CICSIVP1 DFHSIT   HAS BEEN LOADED. (GENERATED AT: MM/DD= 07/19 HH:MM= 14:06).
17.03.18 JOB01847  DFHPA1100  CICSIVP1 OVERRIDE PARAMETERS FROM JCL EXEC STATEMENT: START=AUTO,SYSIN
17.03.18 JOB01847  DFHPA1102  CICSIVP1 OVERRIDE PARAMETERS FROM SYSIN:  1
17.03.18 JOB01847  DFHPA1927  CICSIVP1 XRF=NO,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 FCT=NO,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 TCT=NO,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 SRT=NO,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 SEC=NO,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 TRTABSZ=64,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 PGRET=P/,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 PGPURGE=T/,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 PGCOPY=C/,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 PGCHAIN=X/,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 AUXTR=ON,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 AUXTRSW=NEXT,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 APPLID=CICSIVP1,  2
17.03.18 JOB01847  DFHPA1927  CICSIVP1 CICSSVC=212,
17.03.18 JOB01847  DFHPA1927  CICSIVP1 .END
17.03.18 JOB01847  DFHPA1103  CICSIVP1 END OF FILE ON SYSIN.
17.03.20 JOB01847  +DFHTR0103 TRACE TABLE SIZE IS 64K
17.03.20 JOB01847  +DFHSM0122I CICSIVP1 Limit of DSA storage below 16MB is 5,120K.  3
17.03.20 JOB01847  +DFHSM0123I CICSIVP1 Limit of DSA storage above 16MB is 20M.
17.03.20 JOB01847  +DFHSM0113I CICSIVP1 Storage protection is not active.
17.03.20 JOB01847  +DFHSM0126I CICSIVP1 Transaction isolation is not active.
17.03.20 JOB01847  +DFHDM0101I CICSIVP1 CICS is initializing.
17.03.21 JOB01847  +DFHXS1100I CICSIVP1 Security initialization has started.
17.03.21 JOB01847  +DFHLG0101I CICSIVP1 Log manager domain initialization has started.
17.03.21 JOB01847  +DFHSI1500 CICSIVP1 CICS startup is in progress for CICS Transaction Server Version 1.3.0
17.03.21 JOB01847  +DFHXS1102I CICSIVP1 Security is inactive.
17.03.21 JOB01847  +DFHDU0304I CICSIVP1 Transaction Dump Data set DFHDMPA opened.
17.03.21 JOB01847  +DFHSI1501I CICSIVP1 Loading CICS nucleus.
17.03.26 JOB01847  +DFHTR0113 CICSIVP1 Auxiliary trace is being started on data set DFHAUXT.
17.03.26 JOB01847  +DFHXS1101I CICSIVP1 Security initialization has ended.
17.03.26 JOB01847  +DFHRM0141 CICSIVP1 Recovery manager autostart override record is not present.
                    Normal processing continues.
17.03.27 JOB01847  +DFHMN0105I CICSIVP1 Using default Monitoring Control Table.
17.03.27 JOB01847  +DFHMN0110I CICSIVP1 CICS Monitoring is inactive.
17.03.27 JOB01847  IEC031I D37-04,IFG0554P,DFHIVPOL,CICS,DFHAUXT,2C15,P2DA17,INST.CICSTS12.CICS.DFHAUXT
17.03.27 JOB01847  +DFHTR0110 - AUXILIARY TRACE DATA SET DFHAUXT  FULL - SWITCHING TO DFHBUXT
17.03.32 JOB01847  +DFHSI1502I CICSIVP1 CICS startup is Warm.
17.03.32 JOB01847  +DFHTS0100I CICSIVP1 Temporary Storage initialization has started.
17.03.33 JOB01847  +DFHLG0103I CICSIVP1 System log (DFHLOG) initialization has started.
17.03.33 JOB01847  +DFHTS0101I CICSIVP1 Temporary Storage initialization has ended.
17.03.35 JOB01847  +DFHLG0104I CICSIVP1 System log (DFHLOG) initialization has ended.
17.03.35 JOB01847  +DFHLG0103I CICSIVP1 System log (DFHSHUNT) initialization has started.
17.03.35 JOB01847  +DFHSI1503I CICSIVP1 Terminal data sets are being opened.
17.03.37 JOB01847  +DFHLG0104I CICSIVP1 System log (DFHSHUNT) initialization has ended.
17.03.37 JOB01847  +DFHLG0102I CICSIVP1 Log manager domain initialization has ended.
17.03.37 JOB01847  +DFHKE0406I CICSIVP1
                    CICS is about to wait for predecessors defined in the MVS automatic
                    restart management policy for this region.
17.03.38 JOB01847  +DFHCP0101I CICSIVP1 CPI initialization has started.
17.03.38 JOB01847  +DFHPR0104I CICSIVP1 Partner resource manager initialization has started.
17.03.38 JOB01847  +DFHAI0101I CICSIVP1 AITM initialization has started.
```

Figure 27. Sample job log for the DFHIVPOL job (Part 1 of 2)

```
17.03.40 JOB01847  +DFHER5730 CICSIVP1 User recovery beginning
17.03.40 JOB01847  +DFHTD0100I CICSIVP1 Transient Data initialization has started.
17.03.42 JOB01847  +DFHFC0100I CICSIVP1 File Control initialization has started.
17.03.44 JOB01847  IEC031I D37-04,IFG0554P,DFHIVPOL,CICS,DFHBUXT,2C0E,P2DA66,INST.CICSTS12.CICS.DFHBUXT
17.03.44 JOB01847  +DFHTR0109 - AUXILIARY TRACE DATA SET DFHBUXT  FULL - AUXILIARY TRACE HAS BEEN STOPPED
17.03.44 JOB01847  +DFHER5731 CICSIVP1 No active user records on the system log
17.03.44 JOB01847  +DFHER5732 CICSIVP1 User recovery completed
17.03.44 JOB01847  +DFHTD0101I CICSIVP1 Transient Data initialization has ended.
17.03.44 JOB01847  +DFHFC0101I CICSIVP1 File Control initialization has ended.
17.03.44 JOB01847  +DFHTC1575 CICSIVP1 No TCT entry for SAMA
17.03.44 JOB01847  +DFHCP0102I CICSIVP1 CPI initialization has ended.
17.03.44 JOB01847  +DFHPR0105I CICSIVP1 Partner resource manager initialization has ended.
17.03.44 JOB01847  +DFHAI0102I CICSIVP1 AITM initialization has ended.
17.03.44 JOB01847  +DFHWB1007 CICSIVP1 Initializing CICS Web environment.
17.03.45 JOB01847  +DFHWB1008 CICSIVP1 CICS Web environment initialization is complete.
17.03.45 JOB01847  +DFHSI1517 CICSIVP1 Control is being given to CICS.
17.12.06 JOB01847  +DFHFC0208I CICSIVP1 LSR pool 1 is being built dynamically by CICS because all of the
                                         necessary parameters have not been supplied. Either there is no
                                         LSRPOOL definition or it is incomplete. The following are not
                                         defined:  'CI SIZE' 'STRINGS' 'MAXKEYLENGTH'. A delay is possible.
17.12.36 JOB01847  +DFHTM1715 CICSIVP1 CICS is being quiesced by userid CICSUSER in transaction CEMT at
                                         netname IYCWTC30.  4
17.12.36 JOB01847  +DFHDM0102I CICSIVP1 CICS is quiescing.
17.12.36 JOB01847  +DFHTM1782I CICSIVP1 All non-system tasks have been successfully terminated.
17.12.36 JOB01847  +DFHZC2305I CICSIVP1 Termination of VTAM sessions beginning
17.12.36 JOB01847  +DFHCESD  CICSIVP1 SHUTDOWN ASSIST TRANSACTION CESD STARTING. SHUTDOWN IS NORMAL.
17.12.42 JOB01847  +DFHZC2316 CICSIVP1 VTAM ACB is closed
17.12.44 JOB01847  +DFHRM0204 CICSIVP1 There are no indoubt, commit-failed or backout-failed UOWs.
17.12.44 JOB01847  +DFHRM0130 CICSIVP1 Recovery manager has successfully quiesced.
17.12.45 JOB01847  +DFHDU0303I CICSIVP1 Transaction Dump Data set DFHDMPA closed.
17.12.46 JOB01847  +DFHKE1799 CICSIVP1 TERMINATION OF CICS IS COMPLETE.
17.12.47 JOB01847  -DFHIVPOL CICS     CICS        00    867    .14    .01    9.5   576K  11  0   0   0   0
17.12.50 JOB01847  -DFHIVPOL CICS     PRTDMPA     00     12    .00    .00     .0   3190  11  0   0   0   0
17.12.51 JOB01847  -DFHIVPOL CICS     PRTDMPB     00     12    .00    .00     .0   2437  11  0   0   0   0
17.13.31 JOB01847  -DFHIVPOL CICS     PRTAUXT     00   1447    .34    .00     .6   584K  11  0   0   0   0
17.14.07 JOB01847  -DFHIVPOL CICS     PRTBUXT     00   1430    .34    .00     .5   586K  11  0   0   0   0
17.14.07 JOB01847  IEF404I DFHIVPOL - ENDED - TIME=17.14.07
17.14.07 JOB01847  -DFHIVPOL ENDED.  NAME-DOBROWN  TOTAL CPU TIME=   .84  TOTAL ELAPSED TIME=  10.8
17.14.07 JOB01847  $HASP395 DFHIVPOL ENDED
```

Figure 27. Sample job log for the DFHIVPOL job (Part 2 of 2)

Notes:

1 For information about the system initialization parameters used by the IVP jobs, see page 144. (See also **2** and **3** below.)

2 For more information about defining an applid for the CICS IVP jobs, see "Chapter 8. Defining CICS regions as applications to VTAM" on page 31. An applid of CICSIVP1 has been used in Figure 27 on page 161 page=no.

3 The DFHSM0122 messages inform you of the limits available for the dynamic storage areas below and above the 16MB boundary. For information about these storage areas, see the *CICS System Definition Guide*.

Note: Storage for the extended read-only DSA, ERDSA, is obtained from read-only key 0 protected storage, because the sample SIT specifies RENTPGM=PROTECT (the default).

4 The DFHTM1715 message is issued because the CICS region was shut down by the terminal user (with netname IYCWTC30) issuing a CEMT PERFORM SHUTDOWN command.

Logging on at a VTAM terminal

When the DFHIVPOL job displays the console message `CONTROL IS BEING GIVEN TO CICS`, you can log on to CICS using an IBM 3270 Information Display system terminal. Use the CICS application identifier that you specified when you brought up CICS to log on through your VTAM terminal. For example, unless you changed the APPLID specified as a SIT override parameter, (it is CICSIVP1), enter LOGON APPLID(CICSIVP1).

If you are using autoinstall, your logon request is passed to CICS and, provided all the autoinstall requirements described in “Using autoinstall for a VTAM terminal” on page 156 have been met, CICS installs your terminal. It does this by creating a TCT terminal entry (TCTTE) using the model definitions defined in the group list, DFHLIST, and the terminal identifier returned by the autoinstall user program (DFHZATDX in this case).

If you are using a terminal defined in the CSD explicitly, and included in the group list specified in the startup job stream, CICS identifies the installed resource definitions by the VTAM net name, and creates the required TCTTE.

When you log onto CICS, your terminal can display a “good morning” message, by the transaction specified on the GMTRAN system initialization parameter. The default transaction, CSGM, displays the message shown in Figure 28, as defined by the GMTEXT system initialization parameter.

```
WELCOME TO CICS 13:56:28




                       ******\  ******\  ******\   ******\
                      ********\ ******\ ********\ ********\
                      **\\\\**\   **\\\ **\\\\**\ **\\\\**\
                      **\    \\   **\   **\    \\ **\    \\
                      **\         **\   **\       *******\
                      **\         **\   **\        *******\
                      **\         **\   **\         \\\\**\
                      **\   **\   **\   **\   **\ **\   **\
                      ********\ ******\ ********\ ********\
                       ******\\ ******\  ******\\  ******\\
                        \\\\\\   \\\\\\   \\\\\\    \\\\\\ TM
```

Figure 28. Screen layout for default logon message transaction, CSGM

Using CICS-supplied transactions through a terminal

After you have started CICS with the DFHIVPOL job, you can use the CICS-supplied transactions to try out various functions of CICS, to help you verify that CICS is working properly. You can use the transactions at a CICS terminal and, if you defined one, the system console.

Table 10 on page 164 shows some typical terminal interactions, including use of the CEMT transaction. For information about the CICS transactions that you can try with the DFHIVPOL job, and about the message-switching responses to those transactions, see the *CICS Supplied Transactions* manual.

Table 10. Typical terminal interactions

Operator Input	System Response
CEMT	Status: ENTER ONE OF THE FOLLOWING Discard Inquire Perform Set
I	ENTER ONE OF THE FOLLOWING OR HIT ENTER FOR DEFAULT (Followed by a list of options)
PROG Press ENTER key	STATUS: RESULTS - OVERTYPE TO MODIFY Prog(CAUCAFBE) Len(0003112) Ass Pro Ena Pri Res(000) Use(0000000000) Any Cex Ful
Press PF3 key Press CLEAR key	
CEMT PERFORM STATISTICS	
Press PF3 key Press CLEAR key	SESSION ENDED
CETR	See screen layout on page 165
Press PF3 key Press CLEAR key	Clear or PF3 pressed Normal termination of CETR
CEMT I TA	Displays list of tasks in the system
Press PF3 key Press CLEAR key	SESSION ENDED
CEMT I PROG(DFHFEP)	Prog(DFHFEP)Len(000248) Ass Pro Ena Pri Res(000) Use(0000000) Any Cex Ful
Press PF3 key Press CLEAR key	SESSION ENDED
CEOT (Inquire about this terminal)	Ter (tmid) Tra (CEOT) Pri (nnn) Pag Ins Ati Tti (Remember ’tmid’ for use in next transaction, CMSG)
Press PF3 key Press CLEAR key	SESSION ENDED
CMSG ’HELLO’,R=tmid,S	(Send the message ’HELLO’ to your terminal) MRS OK MESSAGE HAS BEEN ROUTED (briefly at bottom right of screen) HELLO (at top left of screen)

You may enter your CEMT input in either uppercase or lowercase, because the master terminal transaction translates all input to uppercase. Use the CLEAR key and the PF3 key as indicated.

If you enter the CETR transaction, CICS displays the status of the various trace options. The screen layout in Figure 29 shows what the CETR display looks like. For information about the CETR transaction, and the other information panels available by using specified PF keys, see the *CICS Supplied Transactions* manual.

```
CETR                    CICS/ESA Trace Control Facility       sysid applid

Type in your choices.

Item                              Choice        Possible choices

Internal Trace Status       ===>  STARTED       STArted, STOpped
Internal Trace Table Size   ===>  64       K    16K - 1048576K

Auxiliary Trace Status      ===>  STOPPED       STArted, STOpped, Paused
Auxiliary Trace Dataset     ===>  B             A, B
Auxiliary Switch Status     ===>  NO            NO, NExt, All

GTF Trace Status            ===>  STOPPED       STArted, STOpped

Master System Trace Flag    ===>  ON            ON, OFf
Master User Trace Flag      ===>  ON            ON, OFf

When finished, press ENTER.




PF1=Help      3=Quit      4=Components      5=Ter/Trn     9=Error List
```

Figure 29. Screen layout for the CETR transaction

You can alter the status of any of the trace options by overtyping the current value, indicated by ===> on the CETR display.

Using the CEDA transaction

When DFHIVPOL starts up CICS, it uses the unsuffixed SIT, DFHSIT. This system initialization table specifies GRPLIST=DFHLIST, causing all the CICS resource definitions needed for normal running to be installed. You can see which resources are included in DFHLIST by using the CEDA transaction. For example, **CEDA EXPAND LIST(DFHLIST)** gives a screen like that in Figure 30 on page 166.

Press PF8 to see the continuation of the list. If you started the DFHIVPOL job with your own group list specified instead of the DFHLIST group list, specify the name of your list in the CEDA EXPAND command. The CICS-defined groups all begin with DFH. For information about CEDA and the interactions for a typical sequence of CEDA commands, see the *CICS Resource Definition Guide*.

```
 EXPAND LIST(DFHLIST)
 ENTER COMMANDS
  NAME     TYPE         LIST                                    DATE   TIME
  DFHDCTG  GROUP        DFHLIST                                 95.349 15.49.57
  DFHBMS   GROUP        DFHLIST                                 95.349 15.49.57
  DFHCONS  GROUP        DFHLIST                                 95.349 15.49.57
  DFHDBCTL GROUP        DFHLIST                                 95.349 15.49.57
  DFHDB2   GROUP        DFHLIST                                 95.349 15.49.57
  DFHEDF   GROUP        DFHLIST                                 95.349 15.49.57
  DFHEDP   GROUP        DFHLIST                                 95.349 15.49.57
  DFHFE    GROUP        DFHLIST                                 95.349 15.49.58
  DFHHARDC GROUP        DFHLIST                                 95.349 15.49.58
  DFHINQUI GROUP        DFHLIST                                 95.349 15.49.58
  DFHINTER GROUP        DFHLIST                                 95.349 15.49.58
  DFHISC   GROUP        DFHLIST                                 95.349 15.49.58
  DFHMISC  GROUP        DFHLIST                                 95.349 15.49.58
  DFHMSWIT GROUP        DFHLIST                                 95.349 15.49.58
  DFHOPCLS GROUP        DFHLIST                                 95.349 15.49.58
  DFHOPER  GROUP        DFHLIST                                 95.349 15.49.58
+ DFHPGAIP GROUP        DFHLIST                                 95.349 15.49.58

                                                     SYSID=CICS APPLID=DBDCCICS
  RESULTS: 1 TO 17 OF 34                       TIME:  16.09.50  DATE: 95.349
PF 1 HELP       3 END 4 TOP 5 BOT 6 CRSR 7 SBH 8 SFH 9 MSG 10 SB 11 SF 12 CNCL
```

Figure 30. Screen layout for CEDA EXPAND LIST(DFHLIST) command

The DFHLIST group list does not include any of the sample applications groups, the group names of which all begin with DFH$. To use the sample programs, therefore, you must first install the resource definitions for the required samples. For example, to use the FILEA sample application:

1. Install the sample programs needed for the FILEA applications. You can do this by the command:

   ```
   CEDA INSTALL GROUP(DFH$AFLA)
   ```

2. Make the FILEA data set available to CICS. You can do this by one of the following:

   - Install a FILE resource definition for the FILEA data set. You can do this by the command:

     ```
     CEDA INSTALL GROUP(DFH$FILA)
     ```

   - Provide a DD statement for the FILEA data set in your CICS startup JCL. For example,

     ```
     //FILEA    DD DISP=SHR,DSN=CICSTS13.CICS.CICSHTH1.FILEA
     ```

To end the CEDA session, press PF3.

Invoking and executing sample programs

To try the assembler-language version of the FILEA sample application, enter the AMNU transaction.

For information about the CICS sample application programs, see *CICS 4.1 Sample Applications Guide*.

Using transactions from a console device

CICS transactions (other than CECI) can be invoked from a console device, and other CICS operators can communicate with the console operator. In particular, you can use the console device for CICS master terminal functions, to control CICS terminals or to control several CICS regions in conjunction with multiregion operation. Normal operating-system use of the console device is not inhibited, and CICS supports multiple console devices where present.

Notes:

1. The CEDA transaction can be used from a console device only to INSTALL resource definitions.
2. The CECI transaction and the sample programs cannot be used from a console device.

If you issue the MVS command `d consoles`, this displays a list of console devices. This list identifies the console devices by name.

You can use a console device to submit MODIFY commands from your job stream if you define a console device in your CSD as CONSNAME(INTERNAL).

For further information about defining consoles, see “Defining an MVS console” on page 158. For further information about defining TSO users as consoles, see “Defining a TSO user as a console device” on page 159.

To enter a command, use:

```
{MODIFY|F}  jobname,[']command[']
```

where:

jobname
: is the region identifier for the CICS region. This is either the name of the job being used to execute CICS (for example, DFHIVPOL) or the name of a procedure if CICS was initiated as a started task.

command
: is a string of data, starting with a CICS transaction identifier. If the transaction requires further input, the operator will be prompted in the same way as any normal terminal operator. The message from CICS will contain a reply number that must be quoted in the reply.

You can use the commands shown in Figure 31 on page 168 to verify the CEMT and CEOT transactions from the MVS console. (For information about these transactions, see the *CICS Supplied Transactions* manual.)

Entering commands from TSO

A TSO user can enter CICS commands as above after invoking the TSO command CONSOLE, in either of the following formats:

```
CONSOLE {MODIFY|F}  cicsid,[']command[']

CONSOLE
{MODIFY|F}  cicsid,[']command[']
END
```

When the TSO command CONSOLE is used, TSO checks the user for authority to issue console commands. Further, if console operator command security is active, the TSO user must be specifically authorized to issue MODIFY cicsid.

The TSO user can interact with an alternate CICS by using the command CONSOLE MODIFY altcics,CEBT.

You can also use TSO CLIST processing to issue sequences of CICS commands.

```
Operator Input                     System Response

f dfhivpol,'cemt i terminal'       Displays a list of terminals attached
                                   to CICS

f dfhivpol,'cemt i dump'           Displays status of transaction dump
                                   data sets

f dfhivpol,'cemt p statistics'     CICS writes statistics to SMF data sets

f dfhivpol,'cemt i ta'             Displays number and types of tasks
                                   currently running

f dfhivpol,'cemt p dump'           CICS invokes SDUMP macro for system
                                   dump to be taken

f dfhivpol,'cemt i prog(dfhpep)'   Displays details of DFHPEP module

f dfhivpol,'ceot'                  Displays details of operator console

f dfhivpol,'cemt i journalname'    Displays status of CICS logs
```

Figure 31. Using an MVS console for master terminal operations

Terminating CICS

To terminate CICS, enter: `CEMT P SHUT` from the VTAM terminal or MVS console. (This is a short form of CEMT PERFORM SHUTDOWN.) The system responds with message DFH1713, and those that follow, as shown in the sample job log shown on page 161.

Verifying shared data tables support

To verify that the shared data tables function can be used, you can:

1. Start up a CICS region on which you have installed support for shared data tables.

   Note: To use shared data tables, you must install the following modules: DFHDTSVC, DFHDTCV, and DFHMVRMS in either an authorized system library in the MVS linklist (LNKLST concatenation of the MVS system) or in the LPA. When you install CICS, these modules are installed into the *hlq*.SDFHLINK library (which you should normally include in the MVS linklist).
2. Define and install a user-maintained data table.
3. Try a generic read command on your data table, using the CECI transaction. (Generic reads of user-maintained data tables are allowed only with shared data tables.) If shared data tables is operational, you should see a normal response. If shared data tables is not operational, you would see an INVREQ response.

   Note: This verification process uses user-maintained data tables throughout, because the behavior of CICS-maintained data tables is transparent to their users. For example, a normal response is returned for a generic read of a CICS-maintained data table, regardless of whether or not shared data tables is operational.

To verify that the cross-memory services of shared data tables are working:

4. Start up a second CICS region (the **requester**) that has an interregion communication (IRC) connection to the first CICS region (the **server**, which contains the user-maintained data table and source data set).
5. On the requester CICS region, do the following:
   a. Define and install a remote file referring to (associated with) the user-maintained data table on the server CICS region.
   b. Close the interregion communication connection between the two CICS regions so that function shipping is impossible; that is, only the cross-memory services of shared data tables can be used to access the shared data table from the requester CICS region. To close the connection, you can enter the command:

      ```
      CEMT SET IRC CLOSED
      ```

      To verify that function shipping cannot work, try a remote READ of a file (not a data table) on the server CICS region; you will get a SYSIDERR response.
   c. Try a generic read command on your data table, using the CECI transaction. If the cross-memory services of shared data tables can be used, you should see a normal response.
6. To restore interregion communication between the two CICS regions, open the connection again. To do this, you can enter the command:

   ```
   CEMT SET IRC OPEN
   ```

Example verification of shared data tables

As an example verification test of shared data tables, the following steps were completed for the CICS shared data tables environment shown in Figure 32 on page 171:

1. A CICS region, CICSIDC, was started. (CICSIDC is the server CICS region in this example.)
2. On CICSIDC, the following steps were completed:
   a. The user-maintained data table, MYSDT, was defined and installed. The MYSDT data table was based on the sample data set, *hlq*.CICSIDC.FILEA, installed on that region.
   b. The following generic READ command was entered at a terminal:

      ```
      CECI READ FILE(MYSDT) RIDFLD(00092) KEYLENGTH(5) GE GTEQ
      ```

      Figure 33 on page 171 shows the initial response (LOADING), and Figure 34 on page 172 shows the subsequent response when the command was repeated after the data table had completed loading.

The following steps were completed to verify the cross-memory services of shared data tables:

3. A second CICS region, CICSIDA, was started with support for shared data tables. (CICSIDA is the requester CICS region in this example.)

4. The following IRC connections and sessions were defined and installed on the associated CICS regions:

Region	**CONNECTION**	**SESSION**
CICSIDA	CICA	ATOC
CICSIDC	CICC	CTOA

See Figure 37 on page 173 and Figure 38 on page 174 for the parameters used for the CICA and ATOC resource definitions. The parameters for the CICC and CTOA resource definitions were similar.

5. On CICSIDA, the following steps were completed:
   a. The file, REMSDT, was defined and installed as remote, referring to the MYSDT data table on CICSIDC. See Figure 39 on page 174 for the parameters used for the REMSDT resource definition.
   b. The file, REMFIL, was defined and installed as remote, referring to the FILEA sample file on CICSIDC.
   c. The CEMT SET IRC CLOSED command was used to close the IRC connection to CICSIDC.
   d. The following generic READ command was entered at a terminal:

      ```
      CECI READ FILE(REMFIL) RIDFLD(00092) KEYLENGTH(5)
      LENGTH(80) GE GTEQ
      ```

      Figure 35 on page 172 shows the response (SYSIDERR), because the remote file cannot be accessed by function-shipping. (This response would also be observed for the remote data table, REMSDT, if the IRC connection was closed.)
   e. The following generic READ command was entered at a terminal:

      ```
      CECI READ FILE(REMSDT) RIDFLD(00092) KEYLENGTH(5)
      LENGTH(80) GE GTEQ
      ```

      Figure 36 on page 173 shows the response (NORMAL). This only works if MYSDT is already open on CICSIDC, as achieved by step 2b on page 169.

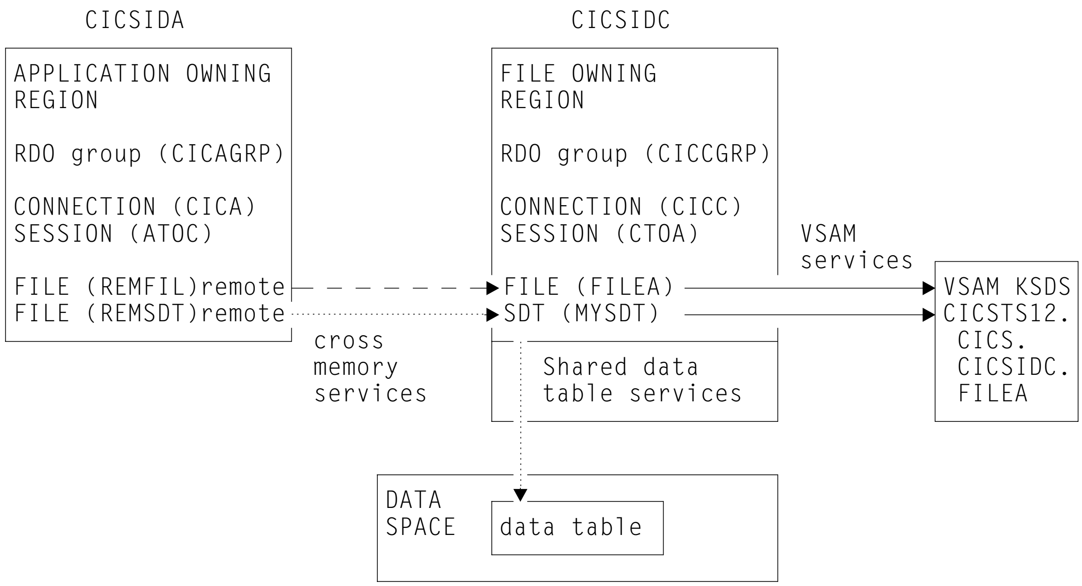

Figure 32. CICS environment for example verification of shared data tables

```
read file(MYSDT) ridfld(00092) keylength(5) ge gteq
STATUS:  COMMAND EXECUTION COMPLETE                        NAME=
 EXEC CICS  READ
  File( 'MYSDT ' )
  < SYsid() >
  ( SEt() | Into( '' ) )
  < Length( +00000 ) >
  RIdfld( '00092' )
  < Keylength( +00005 ) < GEneric > >
  < RBa | RRn | DEBRec | DEBKey >
  < GTeq | Equal >
  < UNcommitted | Consistent | REpeatable | UPdate <token()> >
  < Nosuspend >









 RESPONSE: LOADING               EIBRESP=+0000000094 EIBRESP2=+0000000104
PF 1 HELP 2 HEX 3 END 4 EIB 5 VAR 6 USER 7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

Figure 33. On CICSIDC, response to initial CECI generic READ FILE command with SDT support. (The data table is loaded on first reference, and generic READ commands are not allowed for a user-maintained data table while it is loading.)

```
 read file(MYSDT) ridfld(00092) keylength(5) ge gteq
 STATUS:  COMMAND EXECUTION COMPLETE                         NAME=
  EXEC CICS  READ
   File( 'MYSDT ' )
   < SYsid() >
   ( SEt()
     | Into( ' 000983J. S. TILLING       WASHINGTON, DC      34512' ... ) )
   < Length( +00080 ) >
   RIdfld( '00092' )
   < Keylength( +00005 ) < GEneric > >
   < RBa | RRn | DEBRec | DEBKey >
   < GTeq | Equal >
   < UNcommitted | Consistent | REpeatable | UPdate <token()> >
   < Nosuspend >









  RESPONSE: NORMAL                EIBRESP=+0000000000 EIBRESP2=+0000000000
PF 1 HELP 2 HEX 3 END 4 EIB 5 VAR 6 USER 7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

Figure 34. On CICSIDC, response to CECI generic READ FILE command with SDT support. Normal response

```
 read file(FILEA) ridfld(00092) keylength(5) length(80) ge gteq
 STATUS:  COMMAND EXECUTION COMPLETE                         NAME=
  EXEC CICS  READ
   File( 'FILEA   ' )
   < SYsid() >
   ( SEt()
     | Into( '                                                   ' ... ) )
   < Length( +00080 ) >
   RIdfld( '00092' )
   < Keylength( +00005 ) < GEneric > >
   < RBa | RRn | DEBRec | DEBKey >
   < GTeq | Equal >
   < UNcommitted | Consistent | REpeatable | UPdate <token()> >
   < Nosuspend >









  RESPONSE: SYSIDERR              EIBRESP=+0000000053 EIBRESP2=+0000000130
PF 1 HELP 2 HEX 3 END 4 EIB 5 VAR 6 USER 7 SBH 8 SFH 9 MSG 10 SB 11
```

Figure 35. On CICSIDA, response to remote CECI generic READ FILE command, with IRC closed. SYSIDERR response for file, REMFIL, attempting to use function shipping for associated file, FILEA, on CICSIDC

```
read file(MYSDT) ridfld(00092) keylength(5) length(80) ge gteq
STATUS:  COMMAND EXECUTION COMPLETE                         NAME=
 EXEC CICS  READ
  File( 'MYSDT   ' )
  < SYsid() >
  ( SEt()
    | Into( ' 000983J. S. TILLING       WASHINGTON, DC      34512' ... ) )
  < Length( +00080 ) >
  RIdfld( '00092' )
  < Keylength( +00005 ) < GEneric > >
  < RBa | RRn | DEBRec | DEBKey >
  < GTeq | Equal >
  < UNcommitted | Consistent | REpeatable | UPdate <token()> >
  < Nosuspend >










 RESPONSE: NORMAL                EIBRESP=+0000000000 EIBRESP2=+0000000000
PF 1 HELP 2 HEX 3 END 4 EIB 5 VAR 6 USER 7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

Figure 36. On CICSIDA, response to remote CECI generic READ FILE command, with IRC closed. Normal response for file, REMSDT, using cross-memory services for associated shared data table, MYSDT, on CICSIDC

```
OBJECT CHARACTERISTICS                                    CICS RELEASE = 0520

  Connection     : CICA
  Group          : CICAGRP
  DEscription    : MRO CONNECTION CICSIDA TO CICSIDC
 CONNECTION IDENTIFIERS
  Netname        : CICSIDC
  INDsys         :
 REMOTE ATTRIBUTES
  REMOTESystem   :
  REMOTEName     :
 CONNECTION PROPERTIES
  ACcessmethod   : IRc              Vtam | IRc | INdirect | Xm
  Protocol       :                  Appc | Lu61
  SInglesess     : No               No | Yes
  DAtastream     : User             User | 3270 | SCs | STrfield | Lms
  RECordformat   : U                U | Vb
 OPERATIONAL PROPERTIES
  AUtoconnect    : No               No | Yes | All
  INService      : Yes              Yes | No
```

Figure 37. Example CONNECTION resource definition, CICA, installed on CICSIDA. Only relevant parameters are shown; other parameters were allowed to default

```
OBJECT CHARACTERISTICS                                    CICS RELEASE = 0520

  Sessions       : ATOC
  Group          : CICAGRP
  DEscription    : SESSION FOR MRO CICA TO CICC
 SESSION IDENTIFIERS
  Connection     : CICA
  SESSName       :
  NETnameq       :
  MOdename       :
 SESSION PROPERTIES
  Protocol       : Lu61               Appc | Lu61
  MAximum        : 000 , 000          0-999
  RECEIVEPfx     : RB
  RECEIVECount   : 005                1-999
  SENDPfx        : SB
  SENDCount      : 003                1-999
  SENDSize       : 04096              1-30720
  RECEIVESize    : 04096              1-30720
  SESSPriority   : 100                0-255
```

Figure 38. Example SESSION resource definition, ATOC, associated with connection, CICA. Only relevant parameters are shown; other parameters were allowed to default

```
OBJECT CHARACTERISTICS                                    CICS RELEASE = 0520

  File           : REMSDT
  Group          : CICCGRP
  DEscription    :
 VSAM PARAMETERS
  DSNAme         :
  Password       :                    PASSWORD NOT SPECIFIED
  RLsaccess      : No                 No  | Yes
  Lsrpoolid      : 1                  1-8 | None
  READInteg      : Uncommitted        Uncommitted | Consistent | Repeat
  DSNSharing     : Allreqs            Allreqs | Modifyreqs
  STRings        : 001                1-255
  Nsrgroup       :
 REMOTE ATTRIBUTES
  REMOTESystem   : CICC
  REMOTEName     : MYSDT
  RECORDSize     :                    1-32767
  Keylength      :                    1-255
 INITIAL STATUS
  STAtus         : Enabled            Enabled | Disabled | Unenabled
```

Figure 39. Example remote FILE resource definition, REMSDT, installed on CICSIDA. Only relevant parameters are shown; other parameters were allowed to default

Verifying the CICS-DBCTL interface

This section describes how to use the installation verification procedure, DFHIVPDB, which you can use to verify that the CICS-DBCTL interface can be used successfully.

Before you can run the DFHIVPDB job successfully, you must:

1. Tailor the DFHIVPDB job to your CICS and IMS environment.

   You can do this as part of the process of tailoring all CICS sample post-installation jobs, as described in "Chapter 24. DL/I support" on page 127. When you run the DFHISTAR job as part of the CICS installation process, the DFHIVPDB job is installed in the *hlq*.XDFHINST library.

   Note: Change the prefix of the IMS.RESLIB library in the DFHIVPDB job to the prefix that you use for your IMS libraries.
2. Create the data sets needed by the CICS region used by the the DFHIVPDB job.

   To do this, you can tailor and run copies of the following CICS sample jobs:

   DFHCOMDS
   This job creates the CICS data sets common to all CICS regions.

   DFHDEFDS
   This job creates the data sets needed for each CICS region.

   When you run the DFHISTAR job as part of the CICS installation process, these jobs are installed in the *hlq*.XDFHINST library.
3. Run the IMS installation verification procedures, as outlined in "The IMS installation requirements for the DFHIVPDB job".

The IMS installation requirements for the DFHIVPDB job

The DFHIVPDB job depends on you running the IMS installation verification procedures, as part of the INSTALL/IVP process described in the IMS *Installation Guide*. The following assumptions about the IMS INSTALL/IVP process are made:

1. The IMS sample database, DI21PART, has been successfully defined. This comprises two data sets:
   DI21PART
   DI21PARO
2. The DI21PART database has been loaded with the IMS-supplied sample data.
3. The following IMS-supplied procedures have been installed in an executable procedure library:
   ACBGEN
   PSBGEN
4. The sample DRA startup table, DFSPZPIV, has been built and installed in the IMS.RESLIB library.
5. The sample DBCTL system, IVP3, is available.

For information about installing IMS, the INSTALL/IVP process, and running the IMS IVPs, see the *IMS Installation Guide*.

The DFHIVPDB job steps

The DFHIVPDB job consists of the following job steps:

1. **GEN**. This step unloads the member DFH$DBAN from the *hlq*.SDFHSAMP library into a temporary sequential data set called CARDIN. This member

contains the transactions to invoke the assembler versions of the DL/I sample applications that CICS reads from CARDIN as soon as initialization is complete.

Note: The sequential data set CARDIN is defined in the sample terminal control table, DFHTCT5$, as a simulated terminal.

The COBOL version, DFH$DBCB, and the PL/I version, DFH$DBPL, of the sample DL/I transactions are also in the *hlq*.SDFHSAMP library. If you want to run the COBOL or PL/I versions, modify this job step to load CARDIN with the appropriate member.

Output generated by the transactions is sent to a similar device – a sequential data set defined as PRINTER.

2. **CICS**. This job step executes the DFHSTART procedure to start up CICS, with the CICS-supplied resource group list DFH$IVPL. CICS attempts to connect to the DBCTL system IVP3, run the sample DLI transactions, and then shutdown the CICS region.

   Note: If the DBCTL system, IVP3, is not running, the sample DLI transactions will abend.

If you want to examine the sample members used by this IVP, here is a list of them, and where you can find each one:

DFHIVPDB
: This IVP contains some explanatory comments, and was installed in the *hlq*.XDFHINST library when you ran the DFHISTAR job. For details of the DFHISTAR job, see “Chapter 22. Tailoring the CICS-supplied skeleton jobs” on page 115.

DFH$SIP5
: This is the member of the *hlq*.SYSIN data set that contains the system initialization parameter overrides specific to the DFHIVPDB job.

  Note: You will probably want to specify other system initialization parameters (for example, APPLID, CICSSVC, and DFLTUSER) for the DFHIVPDB job; the DFH$SIP5 member of the *hlq*.SYSIN data set is a convenient place to do so.

DFHTCT5$
: This is the sample TCT that specifies the sequential devices that CICS uses in this IVP as a simulated terminal, with a terminal name of SAMA. The source statements are in the member, DFH$TCTS, of the *hlq*.SDFHSAMP library.

Running the DFHIVPDB job

Before submitting the DFHIVPDB job, run the DFHRMUTL program, as shown below, to reset the global catalog control record to perform an INITIAL start on the next CICS startup.

```
//DFHRMUTI JOB 24116475,'DFHRMUTL',
//       CLASS=A,MSGCLASS=H,NOTIFY=userid
//*
//*-------------------------------------------------------*/
//*  RESET GLOBAL CATALOG CONTROL RECORD TO INITIAL START  */
//*-------------------------------------------------------*/
//DFHRMUTL EXEC PGM=DFHRMUTL,REGION=1M
//STEPLIB  DD DSN=CICSTS13.CICS.SDFHLOAD,DISP=SHR
//SYSPRINT DD SYSOUT=*
```

```
//DFHGCD   DD DSN=CICSTS13.CICS.DBDCCICX.DFHGCD,DISP=OLD
//SYSIN    DD *
SET_AUTO_START=AUTOINIT
/*
```

When you are satisfied that you have made all the necessary preparations, and that all the prerequisite jobs have been run, submit the DFHIVPDB job. The job loads the DL/I transactions into CARDIN. CICS reads the transactions, and sends the output to the PRINTER sequential data set.

Notes:

1. The first transaction copied from the DFH$DBAN member of the *hlq*.SDFHSAMP library to CARDIN is CDBC CONNECT SUFFIX(IV). This connects CICS to DBCTL, using the sample DRA startup table, DFSPZP***IV***.
2. The final transaction copied from the DFH$DBAN member of the *hlq*.SDFHSAMP library to CARDIN is CEMT PERFORM SHUT.

   If you want to use some commands online before CICS shuts down, then delete the CEMT command before you run the job. You will then be able to issue CEMT, CEDA and other CICS-supplied transactions, and initiate a shutdown either from a CICS terminal or through an MVS console. If you want to communicate with CICS through an MVS console, you must define a console to CICS before you start DFHIVPDB, as described in "Defining an MVS console" on page 158. If you want to enter MODIFY commands from terminals connected to TSO, you must define the TSO users as console devices, as described in "Defining a TSO user as a console device" on page 159.

A sample job log from a run of the DFHIVPDB job is given in Figure 40. The results you get from the transaction processing should be the same as those shown in Figure 40.

```
1                  J E S 2  J O B  L O G  --  S Y S T E M  M V 2 D  --  N O D E  W I N M V S 2 C
0
 09:01:19 JOB05048 ---- THURSDAY,  14 AUG 1997 ----
          ↓
 09.01.19 .  IRR010I  USERID DOBROWN  IS ASSIGNED TO THIS JOB.
 09.01.21 .  ICH70001I DOBROWN  LAST ACCESS AT 08:58:34 ON THURSDAY, AUGUST 14, 1997
 09.01.21 .  $HASP373 DFHIVPDB STARTED - INIT 3    - CLASS A - SYS MV2D
 09.01.21 .  IEF403I DFHIVPDB - STARTED - TIME=09.01.21
 09.01.23 .  -                                         --TIMINGS (MINS.)--                  ----PAGING COUNTS---
 09.01.23 .  -JOBNAME  STEPNAME PROCSTEP    RC   EXCP    CPU    SRB  CLOCK   SERV  PG   PAGE   SWAP    VIO SWAPS
```

Figure 40. Sample job log output from the DFHIVPDB job (Part 1 of 3)

```
09.01.23 .  -DFHIVPDB          GEN         00     50    .00    .00     .0   2594  11      0    0    2   0
09.01.24 .  -DFHIVPDB CICS     CICSCNTL    01     13    .00    .00     .0   2411  11      0    0    0   0
09.01.24 .  -DFHIVPDB CICS     DTCNTL      01     10    .00    .00     .0   2116  11      0    0    0   0
09.01.27 .  DFHPA1101  CICSIVP1 DFHSIT   IS BEING LOADED.
09.01.27 .  DFHPA1108  CICSIVP1 DFHSIT   HAS BEEN LOADED. (GENERATED AT: MM/DD= 07/19 HH:MM= 14:06).
09.01.27 .  DFHPA1100  CICSIVP1 OVERRIDE PARAMETERS FROM JCL EXEC STATEMENT: START=AUTO,SYSIN
09.01.27 .  DFHPA1102  CICSIVP1 OVERRIDE PARAMETERS FROM SYSIN: 1
09.01.27 .  DFHPA1927  CICSIVP1 GRPLIST=DFH$IVPL,   INCLUDE DLI SAMPLE PROGRAMS & TRANSACTIONS
09.01.27 .  DFHPA1927  CICSIVP1 FCT=NO,
09.01.27 .  DFHPA1927  CICSIVP1 TCT=5$,             TCT INCLUDES SEQ DEVICES
09.01.27 .  DFHPA1927  CICSIVP1 XRF=NO,
09.01.27 .  DFHPA1927  CICSIVP1 SRT=NO,
09.01.27 .  DFHPA1927  CICSIVP1 SEC=NO,
09.01.27 .  DFHPA1927  CICSIVP1 STNTR=OFF,
09.01.27 .  DFHPA1927  CICSIVP1 STNTRFC=1,          TRACE FILE CONTROL AND DLI EVENTS
09.01.27 .  DFHPA1927  CICSIVP1 AUXTR=ON,
09.01.27 .  DFHPA1927  CICSIVP1 AUXTRSW=NEXT,
09.01.27 .  DFHPA1927  CICSIVP1 TRTABSZ=64,
09.01.27 .  DFHPA1927  CICSIVP1 APPLID=CICSIVP1,
09.01.27 .  DFHPA1927  CICSIVP1 CICSSVC=212,
09.01.27 .  DFHPA1927  CICSIVP1 .END
09.01.27 .  DFHPA1103  CICSIVP1 END OF FILE ON SYSIN.
09.01.28 .  +DFHTR0103 TRACE TABLE SIZE IS 64K
09.01.29 .  +DFHSM0122I CICSIVP1 Limit of DSA storage below 16MB is 5,120K.
09.01.29 .  +DFHSM0123I CICSIVP1 Limit of DSA storage above 16MB is 20M.
09.01.29 .  +DFHSM0113I CICSIVP1 Storage protection is not active.
09.01.29 .  +DFHSM0126I CICSIVP1 Transaction isolation is not active.
09.01.29 .  +DFHDM0101I CICSIVP1 CICS is initializing.
09.01.30 .  +DFHXS1100I CICSIVP1 Security initialization has started.
09.01.30 .  +DFHLG0101I CICSIVP1 Log manager domain initialization has started.
09.01.30 .  +DFHSI1500 CICSIVP1 CICS startup is in progress for CICS Transaction Server Version 1.3.0
09.01.30 .  +DFHXS1102I CICSIVP1 Security is inactive.
09.01.30 .  +DFHSI1501I CICSIVP1 Loading CICS nucleus.
09.01.30 .  +DFHDU0304I CICSIVP1 Transaction Dump Data set DFHDMPB opened.
09.01.37 .  +DFHTR0113 CICSIVP1 Auxiliary trace is being started on data set DFHAUXT.
09.01.37 .  +DFHXS1101I CICSIVP1 Security initialization has ended.
09.01.37 .  +DFHRM0140 CICSIVP1 Recovery manager autostart override found with value: 'AUTOINIT'.
09.01.37 .  +DFHRM0149I CICSIVP1 Recovery manager autostart override record will be deleted.
09.01.37 .  +DFHMN0105I CICSIVP1 Using default Monitoring Control Table.
09.01.37 .  +DFHMN0110I CICSIVP1 CICS Monitoring is inactive.
09.01.38 .  +DFHSI1502I CICSIVP1 CICS startup is Initial.
09.01.38 .  +DFHTS0100I CICSIVP1 Temporary Storage initialization has started.
09.01.38 .  +DFHLG0102I CICSIVP1 Log manager domain initialization has ended.
09.01.38 .  +DFHTS0101I CICSIVP1 Temporary Storage initialization has ended.
09.01.38 .  +DFHSI1503I CICSIVP1 Terminal data sets are being opened.
09.01.38 .  +DFHSI1592 CICSIVP1 CICS applid not (yet) active to VTAM.
09.01.38 .  +DFHSI1572 CICSIVP1 Unable to OPEN VTAM ACB - RC=00000008, ACB Code=5A.
```

Figure 40. Sample job log output from the DFHIVPDB job (Part 2 of 3)

```
09.01.38 .  +DFHKE0406I CICSIVP1
             CICS is about to wait for predecessors defined in the MVS automatic
             restart management policy for this region.
09.01.38 .  +DFHCP0101I CICSIVP1 CPI initialization has started.
09.01.38 .  +DFHPR0104I CICSIVP1 Partner resource manager initialization has started.
09.01.38 .  +DFHAI0101I CICSIVP1 AITM initialization has started.
09.01.38 .  +DFHFC0100I CICSIVP1 File Control initialization has started.
09.01.39 .  +DFHTD0100I CICSIVP1 Transient Data initialization has started.
09.01.39 .  +DFHTD0101I CICSIVP1 Transient Data initialization has ended.
09.01.39 .  +DFHFC0101I CICSIVP1 File Control initialization has ended.
09.01.39 .  +DFHCP0102I CICSIVP1 CPI initialization has ended.
09.01.39 .  +DFHPR0105I CICSIVP1 Partner resource manager initialization has ended.
09.01.39 .  +DFHAI0102I CICSIVP1 AITM initialization has ended.
09.01.40 .  +DFHSI1511I CICSIVP1 Installing group list DFH$IVPL.
09.01.45 .  IEC031I D37-04,IFG0554P,DFHIVPDB,CICS,DFHAUXT,2C15,P2DA17,INST.CICSTS12.CICS.DFHAUXT
09.01.45 .  +DFHTR0110 - AUXILIARY TRACE DATA SET DFHAUXT  FULL - SWITCHING TO DFHBUXT
09.01.48 .  +DFHLG0103I CICSIVP1 System log (DFHLOG) initialization has started.
09.01.50 .  +DFHLG0104I CICSIVP1 System log (DFHLOG) initialization has ended.
09.01.50 .  +DFHLG0103I CICSIVP1 System log (DFHSHUNT) initialization has started.
09.01.52 .  +DFHLG0104I CICSIVP1 System log (DFHSHUNT) initialization has ended.
09.01.55 .  +DFHWB1007 CICSIVP1 Initializing CICS Web environment.
09.01.55 .  +DFHWB1008 CICSIVP1 CICS Web environment initialization is complete.
09.01.55 .  +DFHSI1517 CICSIVP1 Control is being given to CICS.
09.03.35 .  +DFHTM1715 CICSIVP1 CICS is being quiesced by userid CICSUSER in transaction CEMT at terminal SAMA.
09.03.36 .  +DFHDM0102I CICSIVP1 CICS is quiescing.
09.03.37 .  +DFHDB8122I CICSIVP1 CICS is about to disconnect from DBCTL for CICS shutdown.
09.03.37 .  +DFHCESD  CICSIVP1 SHUTDOWN ASSIST TRANSACTION CESD STARTING. SHUTDOWN IS NORMAL.
09.03.37 .  +DFHDB8123I CICSIVP1 CICS disconnection from DBCTL for CICS shutdown has completed successfully.
09.03.37 .  +DFHTM1782I CICSIVP1 All non-system tasks have been successfully terminated.
09.03.42 .  +DFHRM0204 CICSIVP1 There are no indoubt, commit-failed or backout-failed UOWs.
09.03.43 .  +DFHRM0130 CICSIVP1 Recovery manager has successfully quiesced.
09.03.45 .  +DFHDU0303I CICSIVP1 Transaction Dump Data set DFHDMPB closed.
09.03.46 .  +DFHKE1799 CICSIVP1 TERMINATION OF CICS IS COMPLETE.
09.03.47 .  -DFHIVPDB CICS     CICS        00   1123    .17    .00    2.3    662K  11  526    998    0   1
09.03.49 .  -DFHIVPDB CICS     PRTDMPA     00     14    .00    .00     .0    2099  11    8      0    0   0
09.03.52 .  -DFHIVPDB CICS     PRTDMPB     00     15    .00    .00     .0    1991  11    2      0    0   0
09.04.25 .  -DFHIVPDB CICS     PRTAUXT     00   1336    .30    .00     .5    498K  11    0      0    0   0
09.04.34 .  -DFHIVPDB CICS     PRTBUXT     00    340    .08    .00     .1    142K  11    0      0    0   0
09.04.34 .  IEF404I DFHIVPDB - ENDED - TIME=09.04.34
09.04.34 .  -DFHIVPDB ENDED.  NAME-DOBROWN             TOTAL CPU TIME=      .57  TOTAL ELAPSED TIME=   3.2
09.04.34 .  $HASP395 DFHIVPDB ENDED
```

Figure 40. Sample job log output from the DFHIVPDB job (Part 3 of 3)

Note:

1 The DFHIVPDB job uses the unsuffixed SIT, DFHSIT, as used by all the CICS IVPs. It also uses some system initialization parameters included in the DFH$SIP5 member of the SYSIN data set, to override the parameters in DFHSIT. Further, the DFH$SIP5 member was edited to specify other system initialization parameters to create the DFHIVPDB job log shown. For information about these extra system initialization parameters used by the IVP jobs, see page 144.

Testing the CICS-DB2 environment

This section outlines how you can test the CICS-DB2 environment. It uses Phase 5 of the DB2 installation verification procedure. It is intended as an overview of what is involved, and what you would expect to see.

To use the DB2 installation verification procedure, and Phase 5 in particular, see the *IBM DATABASE 2 Administration Guide*. That publication gives the latest information about the procedure, and describes the steps involved in much more detail.

Run DB2 jobs DSNTEJ5C and DSNTEJ5P

To prepare the sample applications to be used in a CICS-DB2 environment, run the jobs DSNTEJ5C and DSNTEJ5P supplied with DB2.

Job DSNTEJ5C installs the sample application transactions in COBOL and prepares the organization application. Job DSNTEJ5P installs the transactions in PL/I and prepares the organization, project, and phone applications.

Both these jobs perform the following functions:
- Compile and link-edit the CICS online applications.
- Bind the CICS online applications.
- Create the BMS maps for the online applications.

Starting a DB2 organization or project application

After logging on to CICS, you can start an organization or project application by entering one of the following CICS transaction codes:
- D8PP, which starts the PL/I project version
- D8PS, which starts the PL/I organization version
- D8CS, which starts the COBOL organization version

If you enter one of these transaction codes, the panels shown in Figure 41 or Figure 42 on page 181 are displayed.

```
              ACTION SELECTION
MAJOR SYSTEM ...: O          ORGANIZATION
ACTION .........:
OBJECT .........:
SEARCH CRITERIA.:
DATA ...........:
SELECT AN ACTION FROM FOLLOWING LIST

   A     ADD (INSERT)
   D     DISPLAY (SHOW)
   E     ERASE (REMOVE)
   U     UPDATE (CHANGE)
```

Figure 41. Initial panel for the DB2 project application in CICS

```
              ACTION SELECTION
MAJOR SYSTEM ...: P          PROJECTS
ACTION .........:
OBJECT .........:
SEARCH CRITERIA.:
DATA ...........:
SELECT AN ACTION FROM FOLLOWING LIST

   A     ADD (INSERT)
   D     DISPLAY (SHOW)
   E     ERASE (REMOVE)
   U     UPDATE (CHANGE)
```

Figure 42. Initial panel for the DB2 project application in CICS

For detailed information about running the organization and project applications, see the *IBM DATABASE 2 Administration Guide*.

Starting the DB2 phone application

To start the phone application, clear the screen and type in the transaction code D8PT. You can change the transaction codes when you install DB2. Check with your system administrator to find out if they have been changed from those shown.

Part 3. CICSPlex SM installation and setup

This part describes the processes and procedures you should follow to install CICSPlex SM. It contains the following chapters

Chapter 29. Setup checklist and worksheets

This chapter contains the following aids to your installation and setup procedures:

Checklists

To use as a guide to your progress as you set up or revise the configuration of your IBM CICSPlex System Manager (CICSPlex SM) components. There is one checklist for use with a CICS/ESA, or CICS Transaction Server system (referred to as an MVS system) and all of the components you can install on it. The other checklists are for use when you install and set up a VSE remote MAS, and an OS/2 remote MAS.

Some of the items on the MVS checklist need be performed only once for your CICSPlex SM environment, while others must be performed once for each component. Items on the VSE and OS/2 checklists should be performed for each remote MAS or OS/2 workstation. See the ‘Where to get information’ column for a reference to information about how to perform each task.

The order of items in the checklists is a suggested order for performing the installation and setup steps. However, you may find that, particularly if you are modifying your CICSPlex SM environment, a different order is more practical.

Worksheets

To use as a record of the names and locations of components and data sets. The worksheets can be copied as you need.

The worksheets contain, in some cases, more than one line for a type of CICSPlex SM component. You may have fewer or more than shown of that type of component.

A worksheet is provided for each of the following CICSPlex SM system components:

- The CICSPlex SM system
- A CAS
- A CMAS
- A local MAS
- A CICS/ESA or CICS Transaction Server for OS/390 remote MAS
- A CICS/VSE or CICS Transaction Server for VSE/ESA Release 1 remote MAS
- A CICS for OS/2 remote MAS

The checklist and worksheets are also provided on the tape on which CICSPlex SM is delivered to you. They are loaded onto your system and available in the library CICSTS13.CPSM.SEYUINST.

Table 11 lists the members by name and content. You can edit these members, filling in the information specific to your CICSPlex SM environment, so that you have an online record of the information you need about that environment.

Table 11. Checklist and worksheets in CICSTS13.CPSM.SEYUINST

Member name	Contents
EYULSTMV	MVS installation and setup checklist
EYULSTVR	VSE remote MAS installation and setup checklist
EYUWKSYS	System worksheet
EYUWKCAS	CAS worksheet
EYUWKCMS	CMAS worksheet
EYUWKLMS	Local MAS worksheet
EYUWKRMS	MVS remote MAS worksheet
EYUWKVMS	VSE remote MAS worksheet
EYUWKOMS	OS/2 remote MAS server worksheet

Installation checklists

MVS installation and setup checklist

Component				What you need to do	Values to note	Where to get information
Note: Components are indicated as follows: **C**=CAS, **CM**=CMAS, **LM**=local MAS, **RM**=remote MAS						
C	CM	LM	RM	Make note of SYS1.PARMLIB(IEASYSxx) values for this MVS system	APF= CMD= LNK= LNKAUTH= LPA= MAXCAD= MAXUSER= NSYSLX= PROG= RSVNONR= RSVSTRT= SMF= SYSNAME=	"Noting IEASYSxx values" on page 201
C	CM			Update number of common data spaces in IEASYSxx	NSYSLX value	"Updating IEASYSxx (CAS)" on page 202
	CM			Update number of linkage indexes in IEASYSxx	MAXCAD value	"Updating IEASYSxx (CMAS)" on page 217
C	CM	LM	RM	Update IEAAPFxx or PROGxx to authorize index.SEYUAUTH	IEAAPFxx or PROGxx member Library name	"Authorizing libraries (CAS)" on page 203
		LM	RM	Update IEAAPFxx or PROGxx to authorize lindex.SEYULPA Optional library. Can be populated below.	IEAAPFxx or PROGxx member Library name	"Authorizing libraries (CAS)" on page 203
C	CM			Verify lindex.SEYULINK is authorized	LNKAUTH= value Library name	"Authorizing libraries (CAS)" on page 203
C	CM			Update linklist with lindex.SEYULINK	LNKLSTxx member Library name	"Updating the MVS linklist" on page 218
		LM	RM	Update LPA list with lindex.SEYULPA Optional library. Can be populated below.	LPALSTxx member Library name	"Installing CICSPlex SM modules into the LPA" on page 256
C	CM	LM	RM	Create VTAM Mode Table entry	Node name	"Step 1: (Optional) Creating a mode table" on page 204

Component				What you need to do	Values to note	Where to get information
C	CM	LM	RM	Use your ESM to protect CICSPlex SM libraries	As required by your ESM	*CICS RACF Security Guide*
C	CM			Define security for the CAS and CMAS startup procedures	Procedure names	*CICS RACF Security Guide*
C				Create VTAM application definition for each CAS	SYS1.VTAMLST major node member Application name(s)	"Step 2: Creating a VTAM application definition (CAS)" on page 206
	CM			Create VTAM application definition for each CMAS	SYS1.VTAMLST major node member Application name(s)	"Step 1: Creating a VTAM application definition (CMAS)" on page 223
			RM	Verify VTAM application definition for each MAS	SYS1.VTAMLST major node member Application names(s)	"Step 1: Reviewing a remote MAS application definition" on page 246
C				Define cross-domain resources for each CAS	SYS1.VTAMLST members	"Step 3: Defining cross-domain resources (CAS)" on page 207
	CM			Define cross-domain resources for each CMAS	SYS1.VTAMLST members	"Step 2: Defining cross-domain resources (CMAS)" on page 223
			RM	Review VTAM cross-domain resources for each remote MAS	SYS1.VTAMLST members	"Step 2: Reviewing remote MAS cross-domain definitions" on page 247
C	CM	LM	RM	Add application and cross-domain resource definitions to the VTAM configuration list	SYS1.VTAMLST (ATCCONxx)	"Step 4: Updating the configuration list (CAS)" on page 207
C	CM	LM	RM	Activate VTAM definitions	Major node names	"Step 5: Activating the major nodes (CAS)" on page 208
C	CM	LM	RM	Edit EYUISTAR for post-installation members	Edited member	"Generating post-installation members (CAS)" on page 209
C	CM	LM	RM	Run edited EYUISTAR member to generate POST install members.	sysproc.XEYUINST output library name	"Generating post-installation members (CAS)" on page 209
		LM	RM	(Optional.) Install LPA modules	Installed usermod name	"Installing CICSPlex SM modules into the LPA" on page 256
C				(Optional.) Create CICSPlex SM parameter repository	dsindex.EYUIPRM	"Creating data sets" on page 210
C				(Optional.) Create CICSPlex SM screen repository	dsindex.EYUSDEF	"Creating data sets" on page 210
	CM			Create CICSPlex SM data repository	dsindex.EYUDREP. cmasname	"Creating the CICSPlex SM data repository" on page 229
	CM			Create CMAS resource definition table modules	Output load library name DCT Suffix SRT Suffix PLTPI Suffix	"Adding CICS system definitions (CMAS)" on page 225

Component				What you need to do	Values to note	Where to get information
		LM	RM	Update MAS resource definition table modules	Output load library name DCT Suffix JCT Suffix SRT Suffix PLTPI Suffix PLTSD Suffix	“Adding CICS system definitions (MVS MAS)” on page 248
	CM			Update CMAS CSD resource definitions	CSD library name CMAS Group name CMAS Startup list name	“Updating the CSD files using DFHCSDUP (CMAS)” on page 227
		LM	RM	Update MAS CSD resource definitions	CSD library name MAS Group name MAS Startup list name	“Updating CSD files using DFHCSDUP (MVS MAS)” on page 250
			RM	Update remote MAS CSD communications resource definitions	CSD group name added CMAS APPLID CMAS SYSIDNT	“Updating CSD files using DFHCSDUP (MVS MAS)” on page 250
	CM			Create CICSPlex SM system parameter member for each CMAS	Modified EYUCMS0P parameter member(s)	“Preparing to start a CMAS” on page 235
		LM		Edit CICSPlex SM system parameter member for each local MAS	Modified EYULMS0P parameter member(s)	“Preparing to start an MVS MAS” on page 258
			RM	Edit CICSPlex SM system parameter member for each remote MAS	Modified EYURMS0P parameter member(s)	“Preparing to start an MVS MAS” on page 258
	CM			Edit CICS SIT parameters for each CMAS	Modified parameter member(s)	“CMAS-related CICS SIT parameters” on page 238
		LM	RM	Edit CICS SIT parameters for each MAS	Modified parameter member(s)	“MVS MAS-related CICS SIT parameters” on page 260
	CM			Create CICS data sets for each CMAS	Modified EYUDFHDS member	“Preparing to start a CMAS” on page 235
C				Install CAS startup procedure (EYUCAS sample procedure)	Installed procedure member Subsystem Id	“Preparing to start a CAS” on page 212
	CM			Install CMAS startup procedure (EYUCMAS sample procedure)	Installed procedure member	“Preparing to start a CMAS” on page 235
C				Update ISPF signon allocations (EYUTSODS temporary allocation EXEC)	Signon procedure member	“Preparing user access to CICSPlex SM” on page 211
C				Update ISPF panel selection	Updated panel member	“Preparing user access to CICSPlex SM” on page 211
C				Start the CAS	Message BBMZA00I INITIALIZATION COMPLETE	“Preparing to start a CAS” on page 212
C				Start the CMAS	Message EYUXL009I CAS Connection established	“Preparing to start a CMAS” on page 235
C				Define CAS-to-CAS links using CASDEF view	Subsystem ids	*CICSPlex SM Administration*
	CM			Create CMAS-to-CMAS links using CMTCMDEF view	CMAS names Target APPLID Target CICS SYSID	*CICSPlex SM Administration*

Component				What you need to do	Values to note	Where to get information
	CM			Create CICSplex definition using CPLEXDEF view	CICSplex name	*CICSPlex SM Administration*
		LM	RM	Create all MAS definitions using CICSSYS view	MAS name(s)	*CICSPlex SM Administration*
			RM	Create CMAS-to-remote MAS links using CMTPMDEF view	Remote MAS name Remote MAS APPLID Remote MAS CICS SYSIDNT	*CICSPlex SM Administration*
		LM		Start the local MAS	Message EYUXL0007I LMAS Phase II initialization complete	"Preparing to start an MVS MAS" on page 258
			RM	Start the remote MAS	Message EYUXL0007I RMAS Phase II initialization complete	"Preparing to start an MVS MAS" on page 258
		LM	RM	Shut down the MASs using CICSRGN view - terminates CICS	Message EYUXL0016I MAS shutdown complete	"Stopping management of a CICS system" on page 263

VSE remote MAS installation and setup checklist

What you need to do	Values to note	Where to get information
Verify VTAM APPLID	PRD1.CONFIG major mode member Application names	"Step 1: Reviewing a VSE remote MAS application definition" on page 266
Review cross-domain resources	PRD1.CONFIG members	"Step 2: Reviewing VSE remote MAS cross-domain definitions" on page 266
Add application and cross-domain resource definitions to VTAM configuration list	PRD1.CONFIG ATCCONxx	"Step 3: Updating the configuration list (VSE remote MAS)" on page 267
Activate VTAM definitions	Node name	"Step 4: Activating the major nodes (VSE remote MAS)" on page 267
Update CICS resource definition tables	Output sublibrary name DCT suffix PLTPI suffix PLTSD suffix	"Updating CICS resource definition tables for VSE remote MASs" on page 268
Update CSD resource definitions	CSD library name MAS group name MAS startup list name	"Updating CSD files using DFHCSDUP (VSE remote MAS)" on page 269
Update remote MAS CSD communication resource definitions	CSD group name added CMAS APPLID CMAS SYSID	"Updating CSD files using DFHCSDUP (VSE remote MAS)" on page 269
(Optional.) Create SVA load list	Sublibrary containing phase $SVACPSM	"Using CICSPlex SM modules in the shared virtual area" on page 272
Define CICSPlex SM system parameter file	Job control statement file attributes	"Defining the EYUPARM file" on page 275
Edit CICS SIT parameters	SIT parameters location	"VSE remote MAS-related CICS SIT parameters" on page 276
Create MAS definition using the CICSSYS view	MAS name(s)	*CICSPlex SM Administration*

What you need to do	Values to note	Where to get information
Create CMAS-to-remote MAS links using the CMTPMDEF view	Remote MAS name Remote MAS APPLID Remote MAS CICS SYSIDNT	*CICSPlex SM Administration*
Start the VSE remote MAS	Message EYUNL0159I Resource topology data retrieval complete	"Preparing to start a VSE remote MAS" on page 275
Shut down the MAS using the CICSRGN view to terminate CICS	Message EYUXL0016I RMAS shutdown complete	"Stopping and restarting management of a CICS/VSE system" on page 279

OS/2 remote MAS installation and setup checklist

What you need to do	Values to note	Where to get information
Review setup requirements		"An overview of the setup process" on page 281
Download the EYUIDLDS.EXE file	File location SMP/E library	"Downloading the EYUIDLDS.EXE file" on page 283
Install Software Installer for OS/2 using EYUIDLDS.EXE		"Using EYUIDLDS.EXE to install Software Installer for OS/2" on page 284
Install the CICSPlex SM components		"Installing the CICSPlex SM components" on page 285
Update your CONFIG.SYS file	LIBPATH value	"Updating your CONFIG.SYS file" on page 288
Review your eNetwork Communications Server for OS/2 Warp definitions	Local LU name Local alias Partner LU name Partner alias Transactions	"Reviewing your eNetwork Communications Server for OS/2 Warp definitions" on page 288
Define a TCS entry for CICSPlex SM	Connection name Group name APPC Mode name APPC LU alias Partner LU alias	"Defining a TCS entry for CICSPlex SM" on page 289
Update the CICS for OS/2 CICSENV.CMD file	File location UserWrk value CicsRgrp value	"Updating the CICS for OS/2 CICSENV.CMD file" on page 290
Review the CICS for OS/2 system initialization parameters	Local System ID	"Reviewing the CICS for OS/2 system initialization parameters" on page 291
Customize the CICS for OS/2 DLLs	Location of DLLs	"Customizing the CICS for OS/2 DLLs" on page 291
Restart your OS/2 workstation		"Restarting your CICS for OS/2 system" on page 295
Edit CICSPlex SM EYUPARMS.DAT file	File location	"Editing the CICSPlex SM EYUPARMS.DAT file" on page 293
Import CICSPlex SM resource definitions	CICS for OS/2 home directory	"Importing the CICSPlex SM resource definitions" on page 293
Create MAS definition using the CICSSYS view	MAS name(s)	*CICSPlex SM Administration*
Create CMAS-to-remote MAS links using the CMTPMDEF view	Remote MAS name Remote MAS APPLID Remote MAS CICS SYSID	*CICSPlex SM Administration*
Start the OS/2 remote MAS	Message EYUNL0159I Resource topology data retrieval complete	"Restarting your CICS for OS/2 system" on page 295

What you need to do	Values to note	Where to get information
Shut down the MAS using the CICSRGN view to terminate CICS	Message EYUXL0016I RMAS shutdown complete	"Terminating a CICS for OS/2 system" on page 295

System worksheet

System: _______

CAS name: _______ Subsystem ID: _______ VTAM Applid: _______

	Name:	VTAM Applid:	CICS-SYSID:
CMAS:	______________	______________	______________
LMAS:	______________	______________	______________
LMAS:	______________	______________	______________
LMAS:	______________	______________	______________
RMAS:	______________	______________	______________
RMAS:	______________	______________	______________
RMAS:	______________	______________	______________
CMAS:	______________	______________	______________
LMAS:	______________	______________	______________
LMAS:	______________	______________	______________
LMAS:	______________	______________	______________
RMAS:	______________	______________	______________
RMAS:	______________	______________	______________
RMAS:	______________	______________	______________
CMAS:	______________	______________	______________
LMAS:	______________	______________	______________
LMAS:	______________	______________	______________
LMAS:	______________	______________	______________
RMAS:	______________	______________	______________
RMAS:	______________	______________	______________
RMAS:	______________	______________	______________

CAS worksheet

System: _______ CAS name: _______
VTAM Applid: _______ Subsystem id: _______

SYS1.PARMLIB(IEASYSxx) values:

APF= ___________	CMD= ___________	LNK= ___________
LNKAUTH= ___________	LPA= ___________	MAXCAD= ___________
MAXUSER= ___________	NSYLSX= ___________	PROG= ___________
RSVNONR= ___________	RSVSTRT= ___________	SMF= ___________
SYSNAME= ___________		

Dsn added to member IEAAPFxx or PROGxx: when LNKAUTH=APFTAB: (when LNKAUTH=LNKLST, no dsn here)	____________________________.SEYUAUTH ____________________________.SEYULINK
Dsn added to member LNKLSTxx:	____________________________.SEYULINK
VTAM Mode Table Mode Name:	______________
SYS1.VTAMLST start list (ATCSTRxx):	______________
SYS1.VTAMLST configuration list (ATCCONxx):	______________
SYS1.VTAMLST applications member:	______________
SYS1.VTAMLST cross-domain member:	______________
VTAM definitions; Major Node Names:	

1st CAS: ______________ 2nd CAS: ______________ 3rd CAS: ______________

Installation materials library:	____________________________.SEYUINST
Modified EYUISTAR (post-installation) member:	______________
EYUINST exec output library:	____________________________.XEYUINST
CICSPlex® SM parameter repository:	____________________________.EYUIPRM
CICSPlex SM screen repository:	____________________________.EYUSDEF
CAS startup procedure (member):	______________
CAS signon procedure (member):	______________
ISPF panel selection (member):	______________
Links to other CASs:	______________

	Subsystem Id:	VTAM Applid:	Link name:
1st CAS:	______________	______________	______________
2nd CAS:	______________	______________	______________
3rd CAS:	______________	______________	______________

CMAS worksheet

System: _______ CMAS name: _______
CAS name: _______ CICS Sysid: _______ VTAM Applid: _______

SYS1.PARMLIB(IEASYSxx) values:

APF=	___________	LNK=	___________	LNKAUTH=	___________
MAXCAD=	___________	NSYLSX=	___________	PROG=	___________

Dsn added to member IEAAPFxx or PROGxx: when LNKAUTH=APFTAB: (when LNKAUTH=LNKLST, no dsn here)	____________________________.SEYUAUTH ____________________________.SEYULINK
Dsn added to member LNKLSTxx:	____________________________.SEYULINK
VTAM Mode Table Node Name:	______________
SYS1.VTAMLST start list (ATCSTRxx):	______________
SYS1.VTAMLST configuration list (ATCCONxx):	______________
SYS1.VTAMLST applications member:	______________
SYS1.VTAMLST cross-domain member:	______________
VTAM definitions; Node Names:	

	Name	VTAM Applid	CICS Sysid
LMAS:	______________	______________	______________
LMAS:	______________	______________	______________
LMAS:	______________	______________	______________
RMAS:	______________	______________	______________
RMAS:	______________	______________	______________
RMAS:	______________	______________	______________

Installation materials library:	____________________________.SEYUINST
Modified EYUISTAR (post-installation) member:	______________
EYUINST exec output library:	____________________________.XEYUINST
CICSPlex SM data repository dsn:	____
CICS resource definition tables output dsn:	____
Created CICS resource definition table suffixes:	

DCT: ______ JCT: ______ SRT: ______ PLTPI: ______

CICS CSD dsn:	____
CMAS group EYU140G0 load module:	______________
CMAS startup list EYU140L0 load module:	______________
Modified EYUCMS0P member:	______________
CICS SIT parameters member:	______________
Modified EYUDFHDS member:	______________
CMAS startup procedure member:	______________
Links to other CMASs:	

CMAS name:	VTAM Applid:	CICS Sysid:	Protocol:
______________	______________	______________	______________
______________	______________	______________	______________
______________	______________	______________	______________
______________	______________	______________	______________

Links to LMASs:

LMAS name:	VTAM Applid:	CICS Sysid:	Protocol:
________________	________________	________________	________________
________________	________________	________________	________________
________________	________________	________________	________________
________________	________________	________________	________________

Links to RMASs:

RMAS name:	VTAM Applid:	CICS Sysid:	Protocol:
________________	________________	________________	________________
________________	________________	________________	________________
________________	________________	________________	________________
________________	________________	________________	________________

Local MAS worksheet

MVS/ESA System: ______________
CAS Name: ______________
CICSplex Name: ______________
CMAS CPSM Name: ______________ MAS CPSM Name: ______________
CMAS CICS Sysid: ______________ MAS CICS Sysid: ______________
CMAS VTAM Applid: ______________ MAS VTAM Applid: ______________
MAS Type ______________ FOR, AOR, TOR

Dsn added to member IEAAPFxx or PROGxx: when LNKAUTH=APFTAB: (when LNKAUTH=LNKLST, no dsn here) ____________________________.SEYUAUTH
____________________________.SEYULINK
Dsn added to member LPALSTxx: ____________________________.SEYULPA
SYS1.VTAMLST start list (ATCSTRxx): ______________
SYS1.VTAMLST configuration list (ATCCONxx): ______________
SYS1.VTAMLST applications member: ______________
Installation materials library: ____________________________.SEYUINST
Modified EYUISTAR (post-installation) member: ______________
EYUINST exec output library: ____________________________.XEYUINST
LPA module (usermod) name: ______________
CICS resource definition tables output dsn: ____
Updated CICS resource definition table suffixes:

DCT: ______ JCT: ______ SRT: ______ PLTPI: ______ PLTSD: ______

CICS CSD dsn: ____
MAS group EYU140G1 load module: ______________
Modified MAS startup list name: ______________
Modified EYULMS0P dsn (member): ____
CICS SIT parameters dsn (member): ____
Link from CMAS:

CMAS name:	VTAM Applid:	CICS Sysid:	Protocol:
______________	______________	______________	______________

MVS remote MAS worksheet

MVS/ESA System:	______________	
CAS Name:	______________	
CICSplex Name:	______________	
CMAS CPSM Name:	______________	RMAS CPSM Name: ______________
CMAS CICS Sysid:	______________	RMAS CICS Sysid: ______________
CMAS VTAM Applid:	______________	RMAS VTAM Applid: ______________
MAS Type	______________	FOR, AOR, TOR

Dsn added to member IEAAPFxx or PROGxx: when LNKAUTH=APFTAB: (when LNKAUTH=LNKLST, no dsn here)	____________________________.SEYUAUTH ____________________________.SEYULINK
Dsn added to member LPALSTxx:	____________________________.SEYULPA
SYS1.VTAMLST start list (ATCSTRxx):	______________
SYS1.VTAMLST configuration list (ATCCONxx):	______________
SYS1.VTAMLST applications member:	______________
SYS1.VTAMLST cross-domain resource member:	______________
Modified EYUISTAR (post-installation) member:	______________
EYUINST exec output library:	____________________________.XEYUINST
LPA module (usermod) name:	______________
CICS resource definition tables output dsn:	____
Updated CICS resource definition table suffixes:	

DCT: ______ JCT: ______ SRT: ______ PLTPI: ______ PLTSD: ______

CICS CSD dsn:	____
MAS group EYU140G2 load module:	______________
Modified MAS startup list name:	______________
Group containing communications definitions:	______________
Modified EYULMS0P member:	______________
Reviewed CICS SIT parameters member:	______________
CMAS-to-MVS remote MAS link:	

CMAS name:	VTAM Applid:	CICS Sysid:	Protocol:
______________	______________	______________	______________

VSE remote MAS worksheet

MVS/ESA System: ______________
CAS Name: ______________
CICSplex Name: ______________
CMAS CPSM Name: ______________ RMAS CPSM Name: ______________
CMAS CICS Sysid: ______________ RMAS CICS Sysid: ______________
CMAS VTAM Applid: ______________ RMAS VTAM Applid: ______________
MAS Type ______________ FOR, AOR, TOR

VTAM PRD2.CONFIG start list (ATCSTRxx.B): ______________
VTAM PRD2.CONFIG configuration list (ATCCONxx.B): ______________
VTAM PRD2.CONFIG cross-domain resource member ______________
VTAM PRD2.CONFIG applications member: ______________
ICCF user library containing copied post-installation members: ____
CICS resource definition tables output dsn: ____
Updated CICS resource definition table suffixes:

DCT: ______ JCT: ______ PLTPI: ______ PLTSD: ______

CICS CSD dsn: ____
MAS group EYU140G3 phase module: ___________ (EYU9nnG3)
Modified MAS startup list name: ______________
Group containing communications definitions: ______________
EYUPARM dsn: ____

Extent: ___________ Length: ___________

CICS SIT parameters location: ______________
CMAS-to-VSE remote MAS link:

CMAS name:	VTAM Applid:	CICS Sysid:	Protocol:
______________	______________	______________	______________

OS/2 remote MAS worksheet

MVS/ESA System:	______________
CAS Name:	______________
CICSplex Name:	______________ RMAS CPSM Name: ______________
CMAS CPSM Name:	______________ RMAS CICS Sysid: ______________
CMAS CICS Sysid:	______________ RMAS VTAM Applid: ______________
CMAS VTAM Applid:	______________
SMP/E SEYUOS2 Library:	____________________________ CICSTS13.CPSM.SEYUOS2
EYUIDLDS.EXE Location:	____________________________ D:\CPSM140

CONFIG.SYS Changes:

SET LIBPATH:	____ D:\CPSM140\CICSV3\BIN;D:\CPSM140\CICSV3\LIB

eNetwork Communications Server for OS/2 Warp SNA Features List:

Local LU Name:	______________ CMTPMDEF RMAS VTAM Applid
Local Alias:	______________ TCS Local LU Alias
Partner LU Name:	______ ______ VTAM node and CMAS Applid
Partner Alias:	______________ TCS Partner LU Alias
Transactions:	______ ______ COI1 and COI2

CICS TCS Definition:

Connection Name:	______________ eNetwork Communications Server for OS/2 Warp SNA Features Partner LU Alias
Group Name:	______________ EYUTCS
APPC Mode Name:	______________ #INTER
APPC LU Alias:	______________ eNetwork Communications Server for OS/2 Warp SNA Features Alias
Partner LU Alias:	______________ CMAS VTAM Applid
CICSENV.CMD Location:	______________ CICS300\RUNTIME or CICS310\RUNTIME
UserWrk value:	______________D:\CPSM140\CICSV3\BIN
CicsRgrp value:	______________EYUGROUP,EYUTCS

CMAS-to-Remote MAS link:

RMAS CPSM name:	______________
RMAS VTAM Applid:	______________ eNetwork Communications Server for OS/2 Warp SNA Features Local LU Name
RMAS CICS Sysid:	______________
Protocol Type:	______________ LU6.2
Updated EYUPARMS.DAT:	______________________________ D:\CPSM140\DATA\EYUPARMS.DAT
COPR DCT File Name:	______________ Must match EYUPARMS location

Chapter 30. Setting up a coordinating address space (CAS)

This chapter describes the steps you must perform in order to make a coordinating address space (CAS) operational. These steps consist of:

- “Noting IEASYSxx values”
- “Updating IEASYSxx (CAS)” on page 202
- “Authorizing libraries (CAS)” on page 203
- “Defining VTAM requirements (CAS)” on page 204
- “Generating post-installation members (CAS)” on page 209
- “Creating data sets” on page 210
- “Preparing user access to CICSPlex SM” on page 211
- “Preparing to start a CAS” on page 212
- “Defining VTAM to CICSPlex SM (CAS)” on page 215
- “Preparing to stop a CAS” on page 215.

For a summary of the CAS setup tasks that you can refer to while performing them, see “Chapter 29. Setup checklist and worksheets” on page 185.

If you are converting your CICSPlex SM system or systems from a previous release to CICSPlex SM for CICS Transaction Server for OS/390 Release 3, you should read the *CICS Transaction Server for OS/390 Migration Guide*.

For details on applying corrective or preventive maintenance to CICSPlex SM, see “Chapter 37. Applying service to CICSPlex SM” on page 313.

Noting IEASYSxx values

Some of the MVS/ESA initialization values located in an IEASYSxx member of the SYS1.PARMLIB library are referenced during installation of the CAS and other CICSPlex SM address spaces. Access the IEASYSxx member of the SYS1.PARMLIB library used to initialize your MVS/ESA system and make note of the values assigned to the following parameters:

APF=
Completes the name of the parmlib member (IEAAPFxx) that contains authorized library names.

CMD=
Completes the name of the parmlib member (COMMNDxx) that contains commands to be issued internally during master scheduler initialization.

LNK=
Completes the name of one or more parmlib members (LNKLSTxx) that contain names of data sets that are to be concatenated to SYS1.LINKLIB.

LNKAUTH=
Specifies whether all data sets in the LNKLST concatenation are to be treated as APF authorized or whether only those that are named in the APF table are to be treated as APF authorized.

LPA=
Completes the name of one or more parmlib members (LPALSTxx) that are concatenated to SYS1.LPALIB for the purpose of building the pageable LPA (PLPA and extended PLPA).

MAXCAD=
: Specifies the maximum number of SCOPE=COMMON data spaces to be allowed during an IPL.

MAXUSER=
: Specifies a value that the system uses (along with the RSVSTRT and RSVNONR parameter values) to limit the number of jobs and started tasks that the system can run concurrently during a given IPL.

NSYSLX=
: Specifies the number of linkage indexes (LXs), in addition to those in the system function table, to be reserved for system linkage indexes (LXs).

PROG=
: Completes the name of the parmlib member (PROGxx) that contains authorized library names when a dynamic APF list is being used.

RSVNONR=
: Specifies the number of address space vector table (ASVT) entries to be reserved for replacing those entries marked nonreusable for the duration of an IPL.

RSVSTRT=
: Specifies the number of ASVT entries to be reserved for address spaces created in response to a START command.

SMF=
: Specifies a parmlib member (SMFPRMxx) from which SMF will obtain its parameters.

: You should examine the SMFPRMxx member of SYS1.PARMLIB and note the SID() value that identifies the system that will run the CAS.

SYSNAME=
: Specifies the name of the system being initialized.

For more information about these parameters, see the *MVS/ESA Initialization and Tuning Reference* manual.

Updating IEASYSxx (CAS)

In every MVS/ESA image that contains a CAS, you need to verify that the IEASYSxx member of the SYS1.PARMLIB library that you use for MVS initialization includes the parameters:

NSYSLX=nnn
: Set or increase the value to include the minimum number of linkage indexes (LXs) required by CICSPlex SM. Because two LXs are required for the CAS and one LX is needed for the ESSS, the minimum number of LXs required for use by CICSPlex SM is 3.

: If you are also setting up a CMAS, refer to "Updating IEASYSxx (CMAS)" on page 217 for information about additional parameters.

For additional information about these parameters, see the *MVS/ESA Initialization and Tuning Reference* manual.

Authorizing libraries (CAS)

In each MVS/ESA image containing a CAS and CICSPlex SM address space (CMAS), you must change the appropriate IEAAPFxx or PROGxx member of the SYS1.PARMLIB library to authorize CICSPlex SM libraries.

The libraries to be authorized in the IEAAPFxx or PROGxx member are:

CICSTS13.CPSM.SEYUAUTH
: Needed to run a CAS

SYS1.CICSTS13.CPSM.SEYULINK
: The link list data set, needed to run a CMAS (For more information about adding this data set, see “Updating the MVS linklist” on page 218.)

If your operating system uses the parameter

```
LNKAUTH=LNKLST
```

(which is the default), you do not need to authorize the SYS1.CICSTS13.CPSM.SEYULINK library now.

SYS1.CICSTS13.CPSM.SEYULPA
: The link pack area data set, optionally used for managed application system (MAS) LPA modules.

If you are adding the data set names to the IEAAPFxx member, the format of each entry is:

```
dsname volser
```

where `dsname` is the name of one of the CICSPlex SM libraries listed above and `volser` is the volume serial number of the volume on which the data set is located.

If you are adding the data set names to the PROGxx member, the format of each entry is:

```
APF ADD DSNAME(dsname) VOLUME(volser)
```

where `dsname` is the name of one of the CICSPlex SM libraries listed above and `volser` is the volume serial number of the volume on which the data set is located.

For additional information about adding entries to IEAAPFxx and PROGxx, see the *MVS/ESA Initialization and Tuning Reference* manual. If you are running with a static APF list, you must re-IPL MVS in order for authorization to take effect.

You should use RACF (or another external security manager) to protect the CICSTS13.CPSM.SEYUAUTH, SYS1.CICSTS13.CPSM.SEYULPA, and SYS1.CICSTS13.CPSM.SEYULINK libraries, as described in the *CICS RACF Security Guide*.

Defining VTAM requirements (CAS)

ACF/VTAM definitions are required to identify each CAS used by CICSPlex SM. This involves creating VTAM application definitions and, optionally, cross-domain resource management definitions.

If you are also setting up a CMAS, see "Defining VTAM requirements (CMAS)" on page 222 for more information about the steps for defining the VTAM requirements for a CMAS.

To create VTAM application definitions and cross-domain resource management definitions for a CAS, you must perform the following steps:

1. Optionally, create a mode table entry.
2. Create a VTAM application definition for each CAS you will be using.
3. Define each CAS as a cross-domain resource.
4. Add the application and cross-domain resource definitions to the VTAM configuration list.
5. Activate the definitions.

Depending on your VTAM conventions, you may need to modify the procedures described in this section. Specifically:

- Change references to the SYS1.VTAMLST library if you do not keep your definitions in the default VTAM list.
- Modify the APPL and CDRSC statements if you want to add these statements to existing members, rather than create new ones.

After you have the CAS running and can access CICSPlex SM, you can define VTAM to CICSPlex SM. (See "Defining VTAM to CICSPlex SM (CAS)" on page 215.)

Step 1: (Optional) Creating a mode table

If you use Network Control Programs (NCPs), you may need to create a mode table with the default entry shown in Figure 43 on page 205 in order to control the VTAM RUSIZES (request unit size) parameter. If you do not create a default entry, VTAM could select a number that is too small, thus resulting in considerable system overhead.

To create a default mode table entry:

1. Define a mode table containing the following entry:

```
         TITLE 'modename - MODE Table - Entries'
modename MODETAB ,
         MODEENT LOGMODE=entryname,                                    X
               FMPROF=X'13',                                           X
               TSPROF=X'07',                                           X
               PRIPROT=X'B0',                                          X
               SECPROT=X'B0',                                          X
               COMPROT=X'50B1',                                        X
               SSNDPAC=X'00',                                          X
               SRCVPAC=X'00',                                          X
               RUSIZES=X'F8F8',                                        X
               PSNDPAC=X'00',                                          X
               PSERVIC=X'060200000000000000002300',                    X
               ENCR=X'00'
         MODEEND ,
         END ,
```

Figure 43. Sample mode table entry

where:

modename Is a mode table name that you supply.

entryname Is a name for an entry that you supply.

For a copy of this mode table entry, see the member EYUSMPMT in CICSTS13.CPSM.SEYUSAMP.

2. Assemble the mode table source and link-edit it into SYS1.VTAMLIB on all systems for which cross-system communication is enabled. As you do so, keep the following in mind:
   - The name you assign to the load module becomes the name of the mode table.
   - You must have access to the macro library used to assemble VTAM applications.

   The JCL you use to assemble and link-edit should look like that shown in Figure 44 on page 206. (The member EYUJCLMT in CICSTS13.CPSM.SEYUSAMP contains a copy of this JCL.)

```
//*-----------------------------------------------------------------------
//*
//* Sample JCL - Assemble and Link Mode Table Entry
//*
//* The following needs to be provided:
//*------------------------------------
//*   ASM.SYSIN    - Input member containing the mode table source.
//*   LINK.SYSLMOD - Output member name in SYS1.VTAMLIB
//*
//*----------------------------------------------------------------------
//ASM     EXEC PGM=ASMA90,
//            PARM='OBJECT,NODECK'
//SYSLIB   DD  DISP=SHR,DSN=SYS1.SISTMAC1
//         DD  DISP=SHR,DSN=SYS1.MACLIB
//SYSUT1   DD  DSN=&&SYSUT1,
//            UNIT=VIO,SPACE=(1700,(600,100))
//SYSTERM  DD  SYSOUT=*
//SYSPRINT DD  SYSOUT=*
//SYSLIN   DD  DISP=(MOD,PASS),
//            DSN=&&OBJSET,
//            UNIT=VIO,SPACE=(80,(200,50))
//SYSIN    DD  DISP=SHR,DSN=data_set_name(member_name)
//*
//LINK    EXEC PGM=IEWL,
//            PARM=(XREF,LET,LIST,NCAL,REUS),
//            COND=(8,LT,ASM)
//SYSLIN   DD  DISP=(OLD,DELETE),DSN=&&OBJSET
//         DD  DDNAME=SYSIN
//SYSLMOD  DD  DISP=SHR,DSN=SYS1.VTAMLIB(member_name)
//SYSUT1   DD  DSN=&&SYSUT1,
//            UNIT=VIO,SPACE=(1024,(50,20))
//SYSPRINT DD  SYSOUT=*
//*
```

Figure 44. JCL to assemble a mode table entry

Step 2: Creating a VTAM application definition (CAS)

To establish a VTAM application definition for a CAS, either create a new member (*major node*) or access an existing member in the SYS1.VTAMLST library. To this member, add the following APPL statement:

```
          VBUILD TYPE=APPL
name      APPL ACBNAME=acbname,AUTH=(ACQ),                             x
               PARSESS=YES,MODETAB=mode_table
```

where:

name Is a 1- to 8-character unique name.

acbname
Is the node name of this CAS. This name must be unique within the domain. If you omit this parameter, the name of the VTAM APPL statement is used.

mode_table
Is the name of the mode table that is to govern LU 6.2 conversations.

For example, to create a VTAM application definition for the CAS on SYSA, you might create a member named APPLCASA in the SYS1.VTAMLST library that contains the APPL statement:

```
          VBUILD TYPE=APPL
CASA      APPL ACBNAME=CASA,AUTH=(ACQ),                                x
               PARSESS=YES,MODETAB=AMODET
```

The same type of definition is needed for each CAS you will be using.

Step 3: Defining cross-domain resources (CAS)

You should define cross-domain resources (CDRSCs) when:

- A CAS that is to communicate with another CAS cannot take advantage of dynamically defined CDRSCs.
- You want to minimize the overhead involved in using dynamically defined CDRSCs.

To establish a CDRSC definition, you must either create a new member or access an existing member in the SYS1.VTAMLST library. In the new or existing member, specify the following CDRSC statement for each CAS with which you want to communicate:

```
         VBUILD TYPE=CDRSC
name     CDRSC CDRM=cdrm
```

where:

name Is the name you assigned to a CAS in Step 1.

cdrm Is the name of the MVS image previously identified as the cross-domain resource manager (CDRM).

For example, to allow the CAS on SYSA to communicate with the CASs on SYSB and SYSC, you might create the member CDRCASA on the SYS1.VTAMLST library, which contains the CDRSC statements:

```
        VBUILD TYPE=CDRSC
CASB    CDRSC CDRM=VTAMB
CASC    CDRSC CDRM=VTAMC
```

where VTAMB and VTAMC are the cross-domain resource manager names assigned to SYSB and SYSC, respectively. The same types of definitions are also needed for the CASs on SYSB and SYSC. That is, for the CAS on SYSB, you might create a member named CDRCASB that contains:

```
        VBUILD TYPE=CDRSC
CASA    CDRSC CDRM=VTAMA
CASC    CDRSC CDRM=VTAMC
```

For additional information about cross-domain resources, see the *VTAM Resource Definition Reference*.

Step 4: Updating the configuration list (CAS)

If, in step 2 or 3, you created new members in the SYS1.VTAMLST library, you must update the VTAM configuration list for each MVS image. This causes the new members to be automatically activated when VTAM starts.

To do this, add the new member names to the end of the configuration list in the appropriate ATCCONxx member of the SYS1.VTAMLST library. To find the suffix of the ATCCONxx member, do the following:

- Get the suffix of the COMMNDxx member from the CMD= parameter in the IEASYSxx member in SYS1.PARMLIB.
- Get the suffix of the ATCSTRxx member from the LIST= parameter on the command used to start VTAM in the COMMNDxx member in SYS1.PARMLIB, or (if you do not start VTAM from the COMMNDxx member) get the suffix from the LIST= parameter of the command that you use to start VTAM.

- Get the suffix of the ATCCONxx member from the CONFIG= parameter in the ATCSTRxx member in SYS1.VTAMLST.

To illustrate, the examples shown in steps 2 and 3 assume the creation of members named APPLCASA and CDRCASA. To add these members to the end of the configuration list in ATCCONxx, you would specify:

```
APPLCASA,                                                  x
CDRCASA
```

Note: If you added the CAS and cross-domain definitions to existing members, ATCCONxx should already contain these member names.

Step 5: Activating the major nodes (CAS)

You can activate the definitions created in steps 1 and 2 by either restarting VTAM for each system, or manually activating the definitions.

To manually activate a major node, you can issue the following commands, where name identifies a major node created (or modified) in steps 2 and 3:

- Deactivate the major node if it is currently active by issuing the command:

  ```
  VARY NET,INACT,ID=name
  ```

- Activate (or reactivate) the major node by issuing the command:

  ```
  VARY NET,ACT,ID=name
  ```

To ensure that the major node has been activated, issue the command:

```
D NET,ID=name
```

For example, to activate the member APPLCASA and then ensure that it has been activated, you would issue the commands:

```
VARY NET,INACT,ID=APPLCASA
VARY NET,ACT,ID=APPLCASA
D NET,ID=APPLCASA
```

To dynamically load a mode table that you have updated, issue the command:

```
F NET,TABLE,OPTION=LOAD,NEWTAB=name
```

If you do not do this after updating and relinking a mode table with a new logmode entry, the entry will be unavailable until you have stopped and restarted VTAM. Note that you do not need to issue this command when you create a mode table with a single logmode entry.

The preceding steps need to be performed for each CAS you may be using.

Generating post-installation members (CAS)

A number of skeleton post-installation members are distributed with CICSPlex SM.

When you do this, the members identified in Table 12 are produced. These members can be customized, using EYUISTAR, if you perform the actions described in this section.

Table 12. Post-installation members

Job	Use
EYUCAS	A sample JCL procedure that you can use to start a CAS, as described on page 212.
EYUCMAS	A sample JCL procedure that you can use to start a CMAS, as described on page 235.
EYUDEFDS	Sample JCL that you can use to create the data, screen, and parameter repositories. For additional information about creating a: • Data repository, see page 229. • Screen and parameter repository, see page 210.
EYUDFHDS	Sample JCL that you can use to create the CICS region data sets for the CMAS region.
EYULPMOD	Sample JCL that you can use to apply SMP/E USERMODs that move MAS modules to the SEYULPA library.
EYUTSODS	A REXX EXEC, described on page 211, that you can use to invoke the TSO interface.

Only the members EYUCAS, EYUDEFDS, and EYUTSODS are used in setting up a CAS. The other members can be created here and used when you set up a CMAS (see page 225) or when you set up a MAS (see page 248).

To customize and then generate the post-installation members, use the job distributed in the member EYUISTAR of the CICSTS13.CPSM.SEYUINST library.

- Tailor the job in the EYUISTAR member of the CICSTS13.CPSM.SEYUINST library using the parameters identified in Table 13.

  Use the SCOPE and ENVIRONMENT parameters to qualify the specific members that are to be generated. That is, use SCOPE to identify the type of members to be generated and ENVIRONMENT to indicate whether those members are to apply to a MAS-only environment or a CMAS environment.

  For additional information, see "EYUINST EXEC parameters" on page 395.
- Run the EYUISTAR job to produce the post-installation members. The resulting members, listed in Table 12, are stored in the library you specified on the LIB parameter of the EYUISTAR job. See "Sample JCL execution considerations" on page 402 for further information.

Table 13. CMAS- and MAS-related EYUINST EXEC parameters

Parameter	CMAS default value	MAS default value
CMASNAME	None	n/a
CINDEXnnn	None	n/a
CRELEASE	None	n/a
DEFVOL	sysprocdd	sysprocdd
DSINFO	index defvol defvol	n/a
ENVIRONMENT	None	None
EYUIPRM	dsinfo.EYUIPRM NEW	n/a
EYUSDEF	dsinfo.EYUSDEF NEW	n/a
GZONECSI	index.GLOBAL OLD smpvol smpvol	index.GLOBAL OLD smpvol smpvol
INDEX	sysprocdsn_levels	sysprocdsn_levels
JOB	//XXXXXXXX JOB	//XXXXXXXX JOB
LIB	sysprocdsn_levels.XEYUINST	sysprocdsn_levels.XEYUINST
OLDDREP	None	n/a
PREFIX	EYU	EYU
SCOPE	ALL	ALL
SELECT	None	None
SYSIDNT	None	n/a
TEMPLIB	sysprocdsn	sysprocdsn
TIMEZONE	None	n/a
TZONE	TZONE	TZONE
UTILITIES	ASMA90 IEWL GIMSMP	ASMA90 IEWL GIMSMP
WORKUNIT	SYSDA	SYSDA

Creating data sets

You can use the post-installation job EYUDEFDS to create three different data sets, where two of the data sets are defined to the CAS and one data set is defined to a CMAS.

The CAS-related data sets, which may be shared by multiple CASs, are:

- A screen repository. This optional data set contains the screen configuration definitions created by individuals using CICSPlex SM. If you do not create this data set, users will not be able to save their CICSPlex SM screen configurations. (For additional information about creating and using screen configurations, see the *CICSPlex SM User Interface Guide*)
- A parameter repository data set. This required data set contains communications definitions used by the CAS. (See the *CICSPlex SM Administration* manual for information about creating and maintaining these definitions.)

The CMAS-related data set is the data repository. The data repository contains CICSPlex SM administration definitions. Each CMAS must have a unique data repository associated with it.

The EYUDEFDS job is generated when you run the EYUISTAR job, as described in “Generating post-installation members (CAS)” on page 209. It consists of the following steps:

- DREPALOC and either DREPINIT or DREPCNVT, which create and initialize the data repository data set for each CMAS. (For more information about these steps, see “Creating the CICSPlex SM data repository” on page 229.)

- SDEFDEL, which deletes any existing screen repository data set having the same name, and SDEFALOC, which creates a new one. These steps are generated only when you specify a disposition of NEW with the EYUSDEF parameter of the EYUISTAR job. If you specified OLD with the EYUSDEF parameter, the existing screen repository data set is referenced by the EYUCAS procedure.
- IPRMDEL, which deletes any existing parameter repository data set having the same name, and IPRMALOC, which creates a new one. These steps are generated only when you specify a disposition of NEW with the EYUIPRM parameter of the EYUISTAR job. If you specified OLD with the EYUIPRM parameter, the existing parameter repository data set is referenced by the EYUCAS procedure.

The job is stored in a member named EYUDEFDS. This member is in the library you specified on the LIB parameter of the EYUISTAR job.

Preparing user access to CICSPlex SM

To permit users to select CICSPlex SM as an application from an ISPF menu:

1. If your enterprise uses an external security manager (ESM), which contains a list of TSO command processors that can be executed by users, include the following names in the table:
   - BBM3API
   - BBM9TC20
   - BBM9TC23
2. Insert the following line in the existing list of menu options on one or more of the ISPF menu panels defined as members in the ISPPLIB library:
   ```
   id,'PANEL(EYUDEZZZ) NEWAPPL(EYUD) PASSLIB'
   ```
   where `id` is any appropriate, unique menu option id, such as CP.
3. Add the following libraries to the signon procedure for each individual who might access CICSPlex SM during a TSO session:

DD name	Data set name
BBILINK	CICSTS13.CPSM.SEYUAUTH
BBSDEF	CICSTS13.CPSM.EYUSDEF
ISPLLIB	CICSTS13.CPSM.SEYUAUTH
ISPMLIB	CICSTS13.CPSM.SEYUMLIB
ISPPLIB	CICSTS13.CPSM.SEYUPLIB
ISPTLIB	CICSTS13.CPSM.SEYUTLIB

   These library names should be placed after the user’s data set names and before any other system data set names.

If you are creating a new screen repository, you must run job EYUDEFDS before adding the CICSTS13.CPSM.EYUSDEF data set to a TSO session.

You can also access CICSPlex SM by running a REXX EXEC from within ISPF. A sample EXEC, called EYUTSODS, is generated when you run the EYUISTAR job, as described in “Generating post-installation members (CAS)” on page 209. EYUTSODS is stored in the library you specified on the LIB parameter of the EYUISTAR job.

The EYUTSODS EXEC performs the following functions:

- Allocates the required CICSPlex SM data sets to a user’s TSO session. The data sets are concatenated ahead of any data sets already allocated to the referenced DD name.

- Invokes the CICSPlex SM ISPF end-user interface via the command:

```
ISPEXEC SELECT PANEL(EYUDEZZZ) NEWAPPL(EYUD) PASSLIB
```

- Restores the original allocation when the user exits CICSPlex SM.

Preparing to start a CAS

There are several ways you can start a CAS. You can start a CAS:

- At MVS IPL time.

  This is the recommended method for starting a CAS. To use this method:
  - Verify that the CAS startup procedure is in a system procedure library, such as SYS1.PROCLIB.
  - Verify that the CAS startup procedure is in the 'Started Tasks' table of the external security manager (ESM).
  - Include the START command, as described on page 213, in the COMMNDaa member of SYS1.PARMLIB that contains the automatic operator commands.
- From the system console.

  To start a CAS from the system console:
  - Verify that the CAS startup procedure is in a system procedure library, such as SYS1.PROCLIB.
  - Verify that the CAS startup procedure is in the 'Started Tasks' table of the external security manager (ESM).
  - Have the operator issue the START command, as described on page 213.
- As a batch job.

  To start a CAS as a batch job:
  - Verify that the CAS startup procedure is in a system procedure library, such as SYS1.PROCLIB.
  - Construct a job stream to invoke the CAS procedure.
  - Submit the job to invoke a CAS.

A sample procedure that you can use to start a CAS is supplied in the member EYUCAS and is illustrated in Figure 45 on page 213. This member was generated when you ran the EYUISTAR job, as described in “Generating post-installation members (CAS)” on page 209. The member is stored in the library you specified on the LIB parameter of the EYUISTAR job.

```
//EYUCAS   PROC SSID=CPSM,              MVS/ESA Subsystem ID
//              XDM=N,                  Extended diagnostic mode
//              SPCF=N,                 SysPlex Coupling Facility
//              COLD=N,                 Cold start option
//              DUMP=ALL                Capture all dumps
//*
//CPSMCAS  EXEC PGM=BBM9ZA00,
//              PARM=('SSID=&SSID,XDM=&XDM,SPCF=&SPCF,COLD=&COLD',
//              'DUMP=&DUMP'),
//              TIME=1440,
//              REGION=4096K
//*
//STEPLIB  DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUAUTH
//BBACTDEF DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUADEF
//BBVDEF   DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUVDEF
//BBIPARM  DD DISP=SHR,DSN=CICSTS13.CPSM.EYUIPRM
//BBSECURE DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUPARM
//*
```

Figure 45. A sample CAS startup job stream

EXEC statement

- Identifies the program that performs basic initialization tasks (PGM=BBM9ZA00).
- Provides unlimited processing time for the CAS (TIME=1440).
- Designates the size of the private region required by the CAS (REGION=4096K). Do not define a region smaller than 4096K.

STEPLIB DD statement
Identifies the CICSTS13.CPSM.SEYUAUTH authorized load library.

BBACTDEF DD statement
Defines the library that contains the SMP-installed CICSPlex SM action and view tables, that are shared by multiple systems.

BBVDEF DD statement
Defines the library that contains all SMP-installed CICSPlex SM views. A CAS is responsible for retrieving the views associated with PlexManager.

BBIPARM DD statement
Defines the library that contains the cross-system definitions created by CICSPlex SM users.

BBSECURE DD statement
Defines the library that contains member BBMTSS00, which contains overrides to the CICSPlex SM global security parameters. See the *CICS RACF Security Guide*.

START command for a CAS

The syntax of the command you can use to start a CAS is:

```
START procname [,SSID=ssid][,XDM=Y|N] [,SPCF=Y|N]
               [,COLD=Y|N][,DUMP=Y|N|ALL]
```

where:

procname
Is the 1- to 8-character name of the procedure. (EYUCAS is the name of the distributed sample procedure.)

SSID=ssid

Identifies the 4-character name that uniquely identifies the CAS subsystem. Please note that:

1. Subsystem names must be unique within the MVS image.
2. Subsystems are created without being predefined.

The distributed sample startup JCL uses CPSM as the default subsystem identifier. (EYUX is used as the subsystem identifier for the Environment Services System Services (ESSS) and, therefore, cannot be used as a CAS subsystem ID.)

Make sure that you use this subsystem ID with the CASNAME parameter, described on page 406.

If your enterprise has more than one CAS, make sure your TSO users know the subsystem ID of each CAS. In the Subsystem ID field on the Session Control Parameters panel, they can specify a different CAS than the one they first connect to. (The Session Control Parameters panel is described in the *CICSPlex SM User Interface Guide*)

XDM=Y|N

Indicates whether the CAS should execute in extended diagnostic mode (XDM).

XDM, which is described in the *CICSPlex SM Problem Determination* book, should be activated only when requested by IBM Support Personnel. Specifying XDM=Y disables certain error recovery mechanisms and issues extensive diagnostic messages to the console.

SPCF=Y|N

Indicates whether the sysplex coupling facility (SPCF) should be initialized.

\# Since CICSPlex SM does not make use of this CAS facility, you should
\# specify SPCF=N, as provided in the distributed sample procedure.

COLD=Y|N

Indicates whether the CAS should be cold started.

When the CAS is initialized, several control blocks are built in common storage. Most of these blocks are freed when the CAS terminates. However, some blocks (with a total of less than 4KB of CSA) are retained to permit the reuse of previously allocated system resources—in particular, MVS system linkage indexes (LXs).

When you reinitialize the CAS with COLD=N, the control blocks from the preceding invocation of the CAS are used—rather than building new ones—and, thus, do not consume additional common storage or valuable LXs. By contrast, COLD=Y causes new control blocks to be built. This means that all previously built control blocks continue to occupy common storage until the system is IPLed.

Specify COLD=Y only when requested to do so by IBM Support Personnel in an attempt to clear an error condition.

DUMP=Y|N|ALL

Indicates whether system dumps (SDUMPs) are to be taken when the CAS subsystem recovery manager intercepts an unexpected abend.

When DUMP=ALL is in effect, an SDUMP is attempted for all unexpected abends.

If you specify DUMP=Y, the recovery manager attempts to take an SDUMP only when the failing function is running in supervisor state. If you specify DUMP=N, the recovery manager does not take an SDUMP for any abend, regardless of the PSW state at the time of the failure.

Identifying and connecting to a CAS

The first time a user accesses CICSPlex SM, CPSM is used as the default CAS subsystem ID. If this is not the appropriate subsystem ID, the user's profile must be changed. To do this, the user must select option 0 from the CICSPlex SM entry panel. Then select suboption 1 and change CPSM to the appropriate subsystem ID.

When the user displays the CICSPlex SM entry panel, the names of the context and scope that are to be in effect for the user's CICSPlex SM session are shown. When the user selects either option 1 or 2, CICSPlex SM establishes connection between the CAS and the CMAS responsible for managing the CICSplex identified as the context.

If, after a CAS connection has been established, the user decides to use option 0.1 to identify a different CAS, the user must use the END command to exit ISPF to FREE the current BBILINK allocations. From the TSO READY prompt, the user must restart the CICSPlex SM session in order to establish a connection to the new CAS.

Defining VTAM to CICSPlex SM (CAS)

Next, you must ensure that CICSPlex SM has the necessary VTAM information. To do this, use the PlexManager CASDEF view, described in the *CICSPlex SM Administration*, to establish direct CAS-to-CAS communication links.

Note: The CASDEF view will not be available until you have a CAS running and can access the CICSPlex SM ISPF end-user interface.

Preparing to stop a CAS

Before you stop a CAS, you should ensure that the MAXUSER, RSVNONR, and RSVSTRT parameters in IEASYSxx contain values that, in combination, will not allow the system to run out of usable ASIDs. To conserve overhead, you may want to limit the value specified for MAXUSER and use values for RSVNONR and RSVSTRT that allow for replacement of nonreusable address spaces when the value at MAXUSER has been exceeded.

The total number specified for MAXUSER and RSVNONR should be greater than zero. The sum of the values specified for MAXUSER, RSVNONR, and RSVSTRT cannot be greater than 32767, which is also the maximum for MAXUSER. For more information about the MAXUSER, RSVNONR, and RSVSTRT parameters, see the *MVS/ESA Initialization and Tuning Reference* manual.

Stopping a CAS

Once a CAS is running, you should not need to stop it unless you want to change its operating parameters.

If you want to stop a CAS, whether it is running as a started task or as a batch job, do the following:

1. Optionally, stop any CMASs that are connected to the CAS.

The CMASs can continue to run without a CAS, but you cannot access them through either the ISPF end-user interface or the application programming interface (API). You may want to leave the CMASs running if either of the following is true:

- You plan to restart the CAS immediately after stopping it.
- The CMAS is involved in workload management for a CICSplex.

Any CMAS that is running when you restart the CAS automatically reconnects to the CAS.

2. From the operator console, issue the MVS purge command:

```
P casname
```

where casname identifies the CAS you want to stop.

3. Look for the following console message to verify that the CAS has been stopped:

```
BBMZA999I  CAS(ssid) Shutdown Complete - CC=nn
```

where ssid identifies the CAS that was stopped and nn is the completion code.

Notes:

1. When the CAS is run as a batch job and you CANCEL the job, the initiator is purged.
2. When the CAS is run as a started task and you PURGE the task, the address space is no longer available for other processing.

Chapter 31. Setting up a CICSPlex SM address space (CMAS)

This chapter describes the steps you must perform in order to make a CICSPlex SM address space (CMAS) operational. These steps consist of:

For a summary of the CMAS setup tasks that you can refer to while performing them, see “Chapter 29. Setup checklist and worksheets” on page 185.

Before you begin

Before you begin, check the IEASYSxx member of SYS1.PARMLIB that you use for MVS/ESA initialization and make note of the initialization values that are referenced during installation. For details about these values, see “Noting IEASYSxx values” on page 201.

If you are converting your CICSPlex SM system or systems from a previous release to CICSPlex SM for CICS Transaction Server for OS/390 Release 3, you should read the *CICS Transaction Server for OS/390 Migration Guide*.

For details on applying corrective or preventive maintenance to CICSPlex SM, see “Chapter 21. Applying service to CICS Transaction Server for OS/390” on page 109.

Updating IEASYSxx (CMAS)

In every MVS/ESA image that contains a CMAS, you need to verify that the IEASYSxx member of the SYS1.PARMLIB library that you use for MVS initialization includes the parameters:

MAXCAD=nnn
: Set or increase the value to include the number of common MVS/ESA data spaces needed for each CMAS. Each CMAS needs a minimum of 6 common MVS/ESA data spaces. When setting the MAXCAD limit, allow for 6 common MVS/ESA data spaces per CMAS, in addition to any common data spaces that may be in use by other products.

NSYSLX=nnn
: Set or increase the value to include the minimum number of linkage indexes (LXs) required by CICSPlex SM. Because two LXs are required for

the CAS and one LX is needed for the Environment Services System Services (ESSS), the minimum number of LXs required for use by CICSPlex SM is 3.

Note: This parameter may already have been defined when you set up the CAS. (See "Updating IEASYSxx (CAS)" on page 202.)

For additional information about these parameters, see the *MVS/ESA Initialization and Tuning Reference* manual.

Authorizing libraries (CMAS)

In each MVS/ESA image containing a CMAS, the appropriate IEAAPFxx or PROGxx member of the SYS1.PARMLIB library must be changed to authorize the following libraries:
- CICSTS13.CPSM.SEYUAUTH
- SYS1.CICSTS13.CPSM.SEYULPA (Optionally used for MAS LPA modules).

If you did not do so as part of setting up the CAS (see "Authorizing libraries (CAS)" on page 203), do so now.

Updating the MVS linklist

Depending on what components of CICSPlex SM you plan to run in an MVS/ESA image, you must ensure that certain modules reside in an authorized library in the MVS linklist. These modules are supplied in the SYS1.CICSTS13.CPSM.SEYULINK library.

EYU9X140
In each MVS/ESA image containing a CMAS. EYU9X140 is the initialization module for the ESSS.

This CICSPlex SM component provides a system address space that is started by the first CMAS to be initialized in the MVS image after an IPL. For additional information about the ESSS, see the *CICSPlex SM Problem Determination* book.

EYU9A140
In each MVS/ESA image containing a CMAS where you wish to run the CICSPlex SM API. EYU9A140 is the CICSPlex SM API subtask module.

EYU9T140
In each MVS/ESA image containing a CMAS where you wish to run the NetView® RODM interface. Alternatively, EYU9T140 can be placed in an authorized library in the NetView STEPLIB concatenation. EYU9T140 is the CICSPlex SM-to-NetView interface module.

Note: For information on additional modules that can be placed in the MVS linklist if you plan to use the CICSPlex SM API, see "Preparing to use the CICSPlex SM API" on page 219.

To add one or more of these modules to an authorized library in the linklist, perform one of the following actions:
- Add the appropriate module(s) to an authorized library that is already in the linklist.

- Add the SYS1.CICSTS13.CPSM.SEYULINK library to the linklist by identifying the library in a LNKLSTxx member of the SYS1.PARMLIB library.

You should use RACF (or another external security manager) to protect the SYS1.CICSTS13.CPSM.SEYULINK library, as described in the *CICS RACF Security Guide*.

Preparing to use the CICSPlex SM API

In each MVS/ESA image containing a CMAS where you wish to run the CICSPlex SM API, you must ensure that certain modules reside in the proper location. These modules are supplied in the SYS1.CICSTS13.CPSM.SEYUAUTH library.

EYU9AB00
In an authorized library in either the MVS linklist or the STEPLIB concatenation of the application that calls the API. EYU9AB00 is the API batch interface module.

EYU9XESV
In an authorized library in either the MVS linklist or the CMAS STEPLIB concatenation. EYU9XESV is the API security exit module.

In addition, any application that calls the API must be link edited with one of these stub routine modules, regardless of what programming language is used:

EYU9ABSI
For batch, TSO, or NetView programs. EYU9ABSI is supplied in the SYS1.CICSTS13.CPSM.SEYUAUTH library.

EYU9AMSI
For CICS Transaction Server for OS/390 Release 3 programs. EYU9AMSI is supplied in the SYS1.CICSTS13.CPSM.SEYULOAD library.

Installing the REXX function package

The REXX run-time interface to the API is supplied as a function package and host command environment. The interface consists of a single load module containing two entry points:

EYU9AR00
The function package

EYU9AR01
The host command

EYU9AR00 is supplied in the SYS1.CICSTS13.CPSM.SEYUAUTH library with an alias of IRXFLOC.

For a REXX program to access the function package, the module EYU9AR00, along with its alternate entry point, EYU9AR01, and its alias, IRXFLOC, must reside in an authorized library in one of these places:
- The MVS linklist
- The STEPLIB concatenation of the application that calls the API.

For a REXX program to access the function package from NetView, the EYU9AR00 module must also be aliased to DSIRXLFP and placed in an authorized library in either the MVS linklist or the STEPLIB concatenation for the NetView system.

| **Note:** Users of the CICSPlex SMrun-time interface are subject to the normal
| CICSPlex SM API security checks. See the information in the *CICS RACF*
| *Security Guide*.

The following members contain SMP/E user modification control statements that you can use to move the necessary API load modules to the SYS1.CICSTS13.CPSM.SEYULINK library. These members are supplied in CICSTS13.CPSM.SEYUSAMP.

Member	Load module
EYU$UM11	EYU9AR00
EYU$UM12	EYU9AB00
EYU$UM13	EYU9XESV

If you use the IRXFLOC or DSIRXLFP aliases to provide access to the REXX function package, they must be placed ahead of any other IRXFLOC or DSIRXLFP modules in the STEPLIB (or MVS linklist) concatenation.

If you do not want to use the aliases for the REXX function package, you must modify your REXX parameter modules (IRXPARMS, IRXTSPRM, and IRXISPRM). If you do this, the following is recommended:

- The function package supplied by CICSPlex SM should be added as a System function package, rather than a Local or User function package.
- A new host command entry like the following should be added:
  - An 8-byte Command Environment name of 'CPSM   '
  - An 8-byte Command Routine name of 'EYU9AR01'
  - A 16-byte Command Token of blanks

As the last step in installing the REXX function package, you must:

- Increase the number of entries in the appropriate function package table.
- Add an entry to that table for EYU9AR00.

For more information about REXX function packages and host commands, see the *TSO/E Version 2 REXX/MVS Reference* book.

CICSPlex SM auxiliary storage usage

When a CMAS is initialized, up to 9 MVS/ESA dataspaces are created. These dataspaces are used by CICSPlex SM to allow quick access to data from a CMAS and the MASs attached to it. Although the dataspaces are logically owned by the CMAS, they are physically owned by the ESSS address space (EYUX140). The dataspaces are deleted when the CMAS (that logically owns the dataspaces) and all local MASs that are attached to that CMAS are terminated. The dataspaces are recreated when the CMAS is initialized again.

The size of the dataspaces is dependent upon the amount of work (end-user interface, workload management, MAS resource monitoring, and real-time analysis processing) the CMAS is performing and the number of MASs connected to the CMAS. The size may range from 20MB of storage in a relatively idle CICSPlex SM configuration to well over 100MB of storage in a configuration that is complex in both the number of MASs and the amount of work requested. If you do not prepare for such an increase in storage usage, you may encounter auxiliary storage shortages when you first start to use CICSPlex SM.

As an effort to prevent such auxiliary storage shortages, you should ensure that your auxiliary storage capabilities can handle an increase of 100MB of storage within the environment. Additionally, you can monitor CICSPlex SM's dataspace usage by using an external monitor package to determine the amount of storage being used by the EYUX140 job.

Note: If you contact IBM support personnel because of auxiliary storage shortages, they may ask you to use the CICSPlex SM online debugging transactions (COD0 and CODB) to evaluate the storage use of EYUX140. For information about the COD0 and CODB transactions, refer to the *CICSPlex SM Problem Determination* manual.

If auxiliary storage shortages do occur, you can alleviate the problem by either dynamically increasing your auxiliary storage capability or by causing CICSPlex SM to free the allocated dataspaces, as follows:

- To dynamically increase auxiliary storage capacity, allocate an additional page data set, then use the MVS/ESA console command PAGEADD to make the new page data set available.
- To cause CICSPlex SM to free the allocated dataspaces, first terminate the CICSPlex SM agent in all local MASs connected to the CMAS. (The CICSPlex SM agent does not have to be stopped in a remote MAS.) To do this, you must use the MAS view STOp action.

  If a local MAS is acting as a CICSPlex SM WLM TOR, and the DTR program is specified as EYU9XLOP for that MAS, then, before you can use the MAS view STOp action against that MAS, the DTR program must be changed from EYU9XLOP. (For example, you can change it to the IBM default program DFHDYP.)

  After the CICSPlex SM agent is terminated in all local MASs, terminate the CMAS itself.

  After the auxiliary storage capability is increased, you can restart the CMAS. Remote MASs that are still active are automatically reconnected to the CMAS, provided that the STOP action was not used against these remote MASs. If the MAS STOP action was performed against the remote MASs, you must use the CORM transaction to reconnect the remote MASs. To reconnect any local MASs that remained active after the CICSPlex SM agent was stopped, execute the COLM transaction within those CICS regions.

  You can execute CORM or COLM using a modify command from the CONSOLE.

Preparing to transmit generic alerts to NetView

You can have the real-time analysis (RTA) component of CICSPlex SM transmit generic alerts to an IBM NetView system when one or more user-defined conditions occur during analysis.

For information about how to prepare CICSPlex SM to send the generic alerts to NetView, see the discussions of the ACTNDEF view, in *CICSPlex SM Managing Resource Usage* and the CMASD view, in the : *CICSPlex SM Operations Views Reference* manual.

To be sure that a NetView system is ready to receive the alerts, in the NetView system verify that the Event Type record IMPD is being passed to the NetView database by issuing the NPDA command:

```
DFILTER AREC
```

The resulting list should show an ACTION of PASS for ETYPES of IMPD, and RSLV.

If it is necessary to add these record types to the filter, you can issue the following NPDA commands:

```
SRFILTER AREC PASS E IMPD
SRFILTER AREC PASS E RSLV
```

Defining VTAM requirements (CMAS)

ACF/VTAM definitions are required to identify each CMAS used by CICSPlex SM. This involves creating VTAM application definitions and, optionally, cross-domain resource management definitions.

Note: You may already have defined the VTAM requirements for a CAS (see "Defining VTAM requirements (CAS)" on page 204). The steps for defining the VTAM requirements for a CMAS are different.

To create VTAM application definitions and cross-domain resource management definitions for a CMAS, you must perform the following steps:

1. Create a VTAM application definition for each CMAS you will be using.
2. Define each CMAS as a cross-domain resource.
3. Add the application and cross-domain resource definitions to the VTAM configuration list.
4. Activate the definitions.

Notes:

1. Before you perform these steps, be sure to specify the size of the VTAM buffers.
   - For the VTAM-to-NCP connection, specify

     MAXDATA ≥ 4096
   - For the NCP-to-VTAM connection, specify

     MAXBFRU * IOBUF ≥ 4096

     MAXBFRU * UNITSZ ≥ 4096
   - For the NCP-to-NCP connection, specify

     TRANSFR * BFRS = RUSIZE ≥ 4096

   The size specified should be 36 bytes less than the smallest MAXDATA value in any NCP through which the link may pass. The 36 bytes provides allowance for VTAM required headers. For more information about the requirements for the VTAM-to-NCP connection, refer to the *VTAM Resource Definition Reference* manual for your level of VTAM. For more information about the requirements for the NCP-to-VTAM and the NCP-to-NCP connections, refer to the *NCP Resource Definition Reference* manual for your level of NCP.

   If you need help determining or modifying your VTAM buffer specifications, confer with the VTAM system programmer at your enterprise.
2. Depending on your VTAM conventions, you may need to modify the procedures described in this section. Specifically:
   - Change references to the SYS1.VTAMLST library if you do not keep your definitions in the default VTAM list.
   - Modify the APPL and CDRSC statements if you want to add these statements to existing members, rather than create new ones.

After you have the CMAS running and can access CICSPlex SM, you can define VTAM to CICSPlex SM. (See "Defining VTAM to CICSPlex SM (CMAS)" on page 243.)

Step 1: Creating a VTAM application definition (CMAS)

To establish a VTAM application definition for a CMAS, either create a new member (*major node*) or access an existing member in the SYS1.VTAMLST library. Then add the following APPL statement:

```
          VBUILD TYPE=APPL
name      APPL ACBNAME=acbname,AUTH=(VPACE,ACQ,SPO,PASS),              x
               EAS=10,PARSESS=YES,SONSCIP=YES,APPC=NO,                 x
               VPACING=number
```

where:

name
Is a 1- to 8-character unique name.

acbname
Is the node name of this CMAS. This name must be unique within the domain. If you omit this parameter, the name of the VTAM APPL statement is used.

vpacing
Is the maximum number of normal-flow requests that another logical unit can send on an intersystem session before waiting to receive a pacing response. Start with a value of 5.

For example, to create a VTAM application definition for the CMAS on SYSA, you might create a member named APCMAS1 in the SYS1.VTAMLST library that contains the APPL statement:

```
          VBUILD TYPE=APPL
CMS1      APPL ACBNAME=CMS1,AUTH=(VPACE,ACQ,SPO,PASS),                 x
               EAS=10,PARSESS=YES,SONSCIP=YES,APPC=NO,                 x
               VPACING=5
```

The same type of definition is needed for each CMAS you will be using.

Step 2: Defining cross-domain resources (CMAS)

You should define cross-domain resources (CDRSCs) when:

- A CMAS that is to communicate with another CMAS cannot take advantage of adjacent CDRSCs.
- You want to minimize the overhead involved in using adjacent CDRSCs.

To establish a CDRSC definition, you must either create a new member or access an existing member in the SYS1.VTAMLST library. In the new or existing member, specify the following CDRSC statement for each CMAS with which you want to communicate:

```
         VBUILD TYPE=CDRSC
name     CDRSC CDRM=cdrm
```

where:

name Is the name you assigned to a CMAS in Step 1.

cdrm Is the name of the MVS image previously identified as the cross-domain resource manager (CDRM).

For example, to allow the CMAS on SYSA to communicate with the CMASs on SYSB and SYSC, you might create the member CDRCMS1, in the SYS1.VTAMLST library, which contains the CDRSC statements:

```
        VBUILD TYPE=CDRSC
CMS2    CDRSC CDRM=VTAMB
CMS3    CDRSC CDRM=VTAMC
```

where VTAMB and VTAMC are the cross-domain resource manager names assigned to SYSB and SYSC respectively.

The same types of definitions are also needed for the CMASs on SYSB and SYSC. That is, for the CMAS on SYSB, you might create a member named CDRCMS2, which contains the CDRSC statements:

```
        VBUILD TYPE=CDRSC
CMS1    CDRSC CDRM=VTAMA
CMS3    CDRSC CDRM=VTAMC
```

For additional information about cross-domain resources, see the *VTAM Resource Definition Reference* manual.

Step 3: Updating the configuration list (CMAS)

If, in Step 1 or 2, you created new members in the SYS1.VTAMLST library, you must update the VTAM configuration list for each MVS image. This causes the new members to be automatically activated when VTAM starts.

To do this, add the new member names to the end of the configuration list in the appropriate ATCCONxx member of the SYS1.VTAMLST library. To find the suffix of the ATCCONxx member, do the following:

- Get the suffix of the COMMNDxx member from the CMD= parameter in the IEASYSxx member in SYS1.PARMLIB.
- Get the suffix of the ATCSTRxx member from the LIST= parameter on the command used to start VTAM in the COMMNDxx member in SYS1.PARMLIB, or (if you do not start VTAM from the COMMNDxx member) get the suffix from the LIST= parameter of the command that you use to start VTAM.
- Get the suffix of the ATCCONxx member from the CONFIG= parameter in the ATCSTRxx member in SYS1.VTAMLST.

To illustrate, the examples shown in Steps 1 and 2 assume the creation of members named APCMAS1 and CDRCMS1. To add these members to the end of the configuration list in ATCCONxx, you would specify:

```
APCMAS1,                                                                x
CDRCMS1
```

Note: If you added the CMAS and cross-domain definitions to existing members, ATCCONxx should already contain these member names.

Step 4: Activating the major nodes (CMAS)

You can activate the definitions created in Steps 1 and 2 by either restarting VTAM for each system, or manually activating the definitions.

To manually activate a major node, you can issue the following commands, where `name` identifies a major mode created (or modified) in Steps 1 and 2:

- Deactivate the major node if it is currently active by issuing the command:

  ```
  VARY NET,INACT,ID=name
  ```
- Activate (or reactivate) the major node by issuing the command:

  ```
  VARY NET,ACT,ID=name
  ```

To ensure that the major node has been activated, issue the command:

```
D NET,ID=name
```

For example, to activate the member APCMAS1 and then ensure that it has been activated, you would issue the commands:

```
VARY NET,INACT,ID=APCMAS1
VARY NET,ACT,ID=APCMAS1
D NET,ID=APCMAS1
```

The preceding steps need to be performed for each CMAS you may be using.

Using post-installation members

If you generated the CMAS-related post-installation members, using the procedure described on page 209, they were stored in the library identified by the LIB parameter of the EYUISTAR job. If you did not already do so, do so now.

Table 14 identifies the post-installation members and indicates their use.

Table 14. Post-installation jobs

Job	Use
EYUCAS	A sample JCL procedure that you can use to start a CAS, as described on page 212.
EYUCMAS	A sample JCL procedure that you can use to start a CMAS, as described on page 235.
EYUDEFDS	Sample JCL that you can use to create the data, screen, and parameter repositories. For additional information about creating a: • Data repository, see page 229. • Screen and parameter repository, see page 210.
EYUDFHDS	Sample JCL that you can use to create the CICS region data sets for the CMAS region.
EYULPMOD	Sample JCL that you can use to apply SMP/E USERMODs that move MAS modules to the SEYULPA library.
EYUTSODS	A REXX EXEC, described on page 211, that you can use to invoke the TSO interface.

Only the members EYUCMAS, EYUDFHDS, and EYUDEFDS (for the data repository) are used in setting up a CMAS. The other members are used when you set up a CAS (see “Generating post-installation members (CAS)” on page 209) or when you set up a MAS (see “Generating post-installation members (MVS MAS)” on page 248).

Adding CICS system definitions (CMAS)

You must add appropriate resource definitions to the CICS tables and the CICS system definition (CSD) file for each CMAS you are using.

Creating CICS resource definition tables for CMASs

For each CMAS, you must create resource definition table load modules required to run a CMAS. Assemble and link-edit the tables using the CICS procedures for installing resource definition table load modules. Library CICSTS13.CPSM.SEYUSAMP must be included in the SYSLIB concatenation for the Assembler step of the procedure used to assemble and link-edit the CICS tables.

Table 15 lists the members in CICSTS13.CPSM.SEYUSAMP that are:

- Source members used to create the resource definition table load modules
- Copy books that contain the resource definition entries referenced by the tables.

Table 15. Resource definition members for CMAS

Resource definition table source	Resource entry copy book	Resource definition tables	CICS release			
			4.1	**1.1**	**1.2**	**1.3**
EYUDCTD$	EYU$DCT0	Destination control table (DCT), see note 2	✓			
EYUJCTD$	EYU$JCT0	Journal control table (JCT)	✓			
EYUPLTD$	EYU$PLT0	Program list tables (PLT)	✓			
EYUPLTE$				✓		
EYUPLTF$					✓	
EYUPLTG$						✓
EYUSRTD$	EYU$SRT0	System recovery table	✓			
EYUSRTE$		(SRT)		✓		
EYUSRTF$					✓	
EYUSRTG$						✓

Notes:

1. The CICS release indicators are:

   4.1 CICS/ESA 4.1

   1.1 CICS TS for OS/390 1.1

   1.2 CICS TS for OS/390 1.2

   1.3 CICS TS for OS/390 1.3

2. EYUDCTD$, destination control table – because the source contains destinations beginning with the character C, RC=4 is expected, unless the DCT is assembled against CICS/ESA 4.1 libraries with APAR PQ11754 applied.

These tables do not need to be modified for CICSPlex SM to function properly. If your site has standards which necessitate enhancements to these tables or the entries within these tables, you must keep the following in mind:

For EYUJCTD$

The value for BUFSIZE must be greater than the maximum record size specified in the IDCAMS allocate statement for the EYUDREP data repository. The maximum record size supplied by CICSPlex SM is 6550.

The JCT entry for DFHJ25 is required if you want to produce any CMAS journal records, as described in “Chapter 45. CMAS journaling” on page 411.

For EYUPLTD$, EYUPLTE$, EYUPLTF$, and EYUPLTG$

You must add an entry to the PLTs to have the CICSPlex SM environment created as part of CICS post initialization processing for each CMAS. Make sure that the program EYU9XLCS runs during the second phase of PLT execution (which is the third phase of CICS initialization). The change to the PLT must follow the PROGRAM=DFHDELIM entry, and should be in the form:

```
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM
...
COPY EYU$PLT0
```

The suffix of that PLT must then be named on the program list table post-initialization (PLTPI) system initialization parameter for each CMAS.

Updating the CSD files using DFHCSDUP (CMAS)

The resource definitions you must add to the CSD file for each CICS/ESA CMAS are distributed in the EYU9nnG0 modules of the CICSTS13.CPSM.SEYULOAD library, where nn represents the CICS level (for example, 41 refers to CICS/ESA 4.1).

Sample JCL that you can use to include the definitions is supplied in the member EYUJCLG0 in the CICSTS13.CPSM.SEYUSAMP library. You can edit this JCL, as shown in Figure 46, to:

1. Define the CMAS group of resource definitions to the appropriate CSD file.
2. Add the CMAS group list to the CSD.

Modify the sample JCL to provide the following information:

```
//CSDUP   EXEC PGM=DFHCSDUP
//STEPLIB  DD  DSN=cics.index.SDFHLOAD,DISP=SHR
//         DD  DSN=cpsm.index.SEYULOAD,DISP=SHR
//DFHCSD   DD  DSN=cics.dfhcsd,DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 UPGRADE USING(group_load_module)
/*
```

Figure 46. Sample JCL to run DFHCSDUP

STEPLIB
: Identify:
- `cics.index.SDFHLOAD` as the CICS load library containing the DFHCSDUP module
- `cpsm.index.SEYULOAD` as the CICSPlex SM load library containing the definition modules.

DFHCSD
: Identify `cics.dfhcsd` as the CICS CSD file to be updated.

SYSIN
: You must identify the load module (EYU9nnG0) that contains the resource definitions group required to run the CMAS (EYU140G0).

A return code of 4 is expected from this run of DFHCSDUP. This is because, before adding the designated group to the CSD, the job attempts to delete any group with the same name.

Note: User transactions should not normally be run in a CMAS. However, if you do choose to define your own transactions to the CMAS, you should be aware that transaction IDs used by CICSPlex SM in the CMAS have no specific format. To avoid conflict between your names and those used by CICSPlex SM, you should review the transactions defined in the CSD group EYU140G0. For a list of these transactions, see the *CICS RACF Security Guide*.

Journalmodel considerations in a CICS TS for OS/390 CMAS

The CMAS grouplists for CICS TS for OS/390 release 1.1 (and higher) include the CICS-supplied group, DFHLGMOD. If the log stream names used by the DFHLGMOD group are not appropriate for your environment, copy group DFHLGMOD to a new group, where you can make your amendments. Finally, add the new group to the CMAS grouplist.

See “Chapter 20. Defining the logger environment for CICS journaling” on page 73 for details on how to define log streams.

Note: Do not operate the CMAS with log streams defined as DUMMY. This may cause problems when recovering the CSD or CICSPlex SM data repository (EYUDREP).

See “Chapter 45. CMAS journaling” on page 411 for details about the various CMAS journaling options that you can activate.

Considerations when upgrading the CSD release (CMAS)

When the CSD is upgraded to a new CICS release, you must install the CICSPlex SM group definitions for the new release into the upgraded CSD. For example, when the CSD is upgraded from CICS/ESA 4.1 to the CICS TS for OS/390, use the following SYSIN to install the CICSPlex SM CMAS resource definitions for the CICS TS for OS/390 Release 2.

```
//SYSIN DD *
 UPGRADE USING(EYU953G0)
/*
```

For information about the resource group definitions distributed with CICSPlex SM, see “Updating the CSD files using DFHCSDUP (CMAS)” on page 227.

Considerations when sharing the CSD (CMAS)

Before the CSD can be shared by multiple releases of CICS, the CSD must be upgraded by installing the CICSPlex SM resource definitions for the current CICS release. For information about doing so, see “Considerations when upgrading the CSD release (CMAS)”.

When a CMAS running under a previous release of CICS/ESA will be accessing resource definitions in a CSD that has been upgraded to the current CICS/ESA release, the CMAS group list must also be updated. Because the CMAS group list definitions are secured against updates, you must create a copy of the CMAS group list and update the copy.

For example, to run DFHCSDUP to create a copy of the CMAS group list and add the CICS compatibility groups (DFHCOMP4, DFHCOMP5, DFHCOMP6, and DFHCOMP7) required for a CICS/ESA 4.1 CMAS to access resource definitions in a CICS TS for OS/390 Release 3 CMAS, use the following SYSIN control statements:

```
//SYSIN DD *
 UPGRADE USING(EYU953G0)
 APPEND    LIST(EYU140L0)  TO(EYUE41L0)
 ADD     GROUP(DFHCOMP7) LIST(EYUE41L0)
 ADD     GROUP(DFHCOMP6) LIST(EYUE41L0)
 ADD     GROUP(DFHCOMP5) LIST(EYUE41L0)
 ADD     GROUP(DFHCOMP4) LIST(EYUE41L0)
/*
```

Figure 47. Sample JCL to update CMAS group list

The control statements in Figure 47 perform the following functions:

UPGRADE USING(EYU953G0)
: Replaces the previous CICS/ESA or CICS TS for OS/390 release CMAS group definitions with CICS TS for OS/390 Release 3 group definitions. The CICS TS for OS/390 Release 3 group definitions can be used to run a CICS/ESA 4.1, or CICS TS for OS/390 CMAS.

APPEND LIST(EYU140L0) TO(EYUE41L0)
: Creates the unprotected copy of list EYU140L0.

ADD GROUP(DFHCOMP7) LIST(EYUE41L0)
: Adds CICS TS for OS/390 Release 2 compatibility group DFHCOMP7 to the list EYUE41L0.

ADD GROUP(DFHCOMP6) LIST(EYUE41L0)
: Adds CICS TS for OS/390 Release 1 compatibility group DFHCOMP6 to the list EYUE41L0.

ADD GROUP(DFHCOMP5) LIST(EYUE41L0)
: Adds CICS/ESA 4.1 compatibility group DFHCOMP5 to the list EYUE41L0.

This JCL will complete with a return code of 04 when the CICSPlex SM group or list referenced by the UPGRADE statements is installed for the first time. This occurs because the processing of the UPGRADE statements will attempt to delete list EYU140L0 and group EYU140G0 before these resources are defined.

After this job is completed successfully, you can start a CICS/ESA 4.1 CMAS by referencing group list EYUE41L0; you can start a CICS TS for OS/390 Release 3 CMAS by referencing group list EYU140L0.

To start a CICS TS for OS/390 Release 2 CMAS, you can define an additional group list in a CICS TS for OS/390 CSD. Such a group list will include CICS compatibility group DFHCOMP7.

To start a CICS/ESA 4.1 CMAS, you can define an additional group list in a CICS TS for OS/390 CSD. Such a group list will include CICS compatibility groups DFHCOMP7, DFHCOMP6 and DFHCOMP5, in that order.

For more information about upgrading the CICS CSD with compatibility group definitions, see the *CICS Transaction Server for OS/390 Migration Guide*, GC34-5353.

Creating the CICSPlex SM data repository

Each CMAS must have a data repository associated with it. The data repository contains the CICSPlex SM administration definitions applicable to its associated CMAS.

Note: The data repository is a critical component of CICSPlex SM system management. It is imperative that you take regular backups of the data repository associated with each CMAS in your environment.

It is defined to CICS as being a recoverable file which participates in SYNCPOINT and SYNCPOINT ROLLBACK operations. The CMAS must have a CICS system log in order for these operations to operate correctly. Do not, therefore, run a CMAS with a system log defined as type DUMMY as this would compromise data integrity on the CICSPlex SM data repository.

To create the data set containing the data repository, you can use the post-installation job named EYUDEFDS. This job was generated when you ran the EYUISTAR job, as described in “Generating post-installation members (CAS)” on page 209. The job is stored in the library you specified on the LIB parameter of the EYUISTAR job.

If you will be running multiple CMASs in the same MVS image, you must create a data repository for each CMAS. You can edit and resubmit the EYUISTAR job (as described in “Chapter 43. Using the EYUINST EXEC to tailor skeleton jobs” on page 393), which generates the EYUDEFDS post-installation job. You may want to use the SELECT parameter to generate *only* the EYUDEFDS post-installation job. Once this job exists, you can edit it to make sure that the names specified with the SYSIDNT and CMASNAME parameters are unique each time you run the job.

Note: If you have already run the EYUDEFDS job (when you set up the CAS), be sure to delete the following steps before you rerun EYUDEFDS:
- SDEFDEL
- SDEFALOC
- IPRMDEL
- IPRMALOC

These steps create new screen and parameter repositories, deleting those already in existence. For more information about creating the screen and parameter repository data sets, see “Creating data sets” on page 210.

The EYUDEFDS job includes the following steps related to the creation of the data repository:

DREPALOC

This step allocates the VSAM KSDS cluster for the data repository data set named:

```
dsindex.EYUDREP.cmasname
```

where:

dsindex

Is defined by the DSINFO parameter of the EYUISTAR job.

cmasname

Is defined by the CMASNAME parameter of the EYUISTAR job.

Note: CICSPlex SM does not support VSAM records that span control intervals. Make sure the IDCAMS job that you use to create a CICSPlex SM data repository does not specify the SPANNED parameter. You should accept the IDCAMS default of nonspanned records.

DREPINIT or DREPCNVT

One of these two steps is used to setup the data repository for a CICS Transaction Server for OS/390 Release 3 CMAS. The step that is generated in job EYUDEFDS depends on the OLDDREP parameter you specified when you ran the EYUISTAR job.

Step DREPINIT is generated if you did not specify a value with the OLDDREP parameter. This step executes EYU9XDUT to initialize the new data repository that was allocated by step DREPALOC. The new data repository does not contain any records from a previous version of CICSPlex SM. The EYU9XDUT utility uses the following parameters for step DREPINIT:

CMASNAME=xxxxxxxx
: where:
- You cannot change this name after the data repository is initialized.
- This name must be unique within the CICSPlex SM environment. It should not be the same as the name of another CMAS, a CICSplex, a CICS system, or a CICS system group.
- Position 1 must be alphabetic or national, and cannot be numeric.
- Positions 2 through 8 can be alphabetic, national, or numeric.

SYSID=xxxx
: where:
- You cannot change this identifier after the data repository is initialized.
- This value must match the SYSIDNT (SIT parameter) for the CMAS; see "CMAS-related CICS SIT parameters" on page 238.
- This value must not be the same as the SYSID for any other CMAS or CICS system that is defined to CICSPlex SM.
- Positions 1 through 4 can be alphabetic, national, or numeric.

TIMEZONE=x
: where x must be a single alphabetic character (B through Z), representing one of the Greenwich time zone codes (see *CICSPlex SM Administration*)

ZONEOFFSET=nn
: where nn must be a two-digit numeric value (00 through 59), representing an adjustment (offset) to the TIMEZONE.

DAYLIGHT=x
: where x must be a single character (Y or N), representing daylight saving time.

For information about defining the TIMEZONE, ZONEOFFSET, and DAYLIGHT parameters, see *CICSPlex SM Administration*.

Step DREPCNVT is generated if you specified the name of an existing data repository on the OLDDREP parameter. This step executes EYU9XDUT to convert existing data repository records from a previous release of CICSPlex SM for use by CICSPlex SM for CICS Transaction Server for OS/390 Release 3. All the records from the input data repository specified on the OLDDREP parameter are added to the new data repository that was allocated by step DREPALOC. The input data repository is not modified. The EYU9XDUT utility uses the following parameter for step DREPCNVT:

TARGETVER=0140
: where 0140 represents the version of the new output data repository.

Converting the CICSPlex SM data repository

You can run the EYU9XDUT utility to convert the CICSPlex SM data repository
| from any release of CICSPlex SM to this release, and back again. That is, you can
upgrade the data repository to the current release of CICSPlex SM, and you can
| convert it back to a previous release. For example, after you have upgraded to
| CICSPlex SM Release 4 (Release 4 being the release of CICSPlex SM provided with

CICS Transaction Server for OS/390 Release 3), you can convert the data repository back to Release 3 of CICSPlex SM for use with a CMAS running the CICSPlex SM Release 3 code.

The conversion is controlled by the TARGETVER parameter and the DD statements you use to execute EYU9XDUT. To convert between a previous release and CICSPlex SM for CICS Transaction Server for OS/390 Release 3 requires both the EYUDREP and NEWREP DD statements in the JCL. The EYUDREP statement must reference an existing input data repository and the NEWREP statement must reference the output data repository.

Use JCL similar to that in Figure 48 to convert from Release 2 of CICSPlex SM to CICSPlex SM for CICS Transaction Server for OS/390 Release 3. This sample JCL assumes you have already allocated the VSAM cluster referenced by the NEWREP DD statement.

```
//DREPCNVT EXEC   PGM=EYU9XDUT,
//                     PARM=('TARGETVER=0140')
//STEPLIB   DD    DISP=SHR,DSN=CICSTS13.CPSM.SEYUAUTH
//EYUDREP   DD    DISP=SHR,DSN=CPSM130.EYUDREP.cmasname
//NEWREP    DD    DISP=OLD,DSN=CICSTS13.CPSM.EYUDREP.cmasname
//SYSPRINT  DD    SYSOUT=*
```

Figure 48. Example JCL to run EYU9XDUT

In the JCL, use a value for TARGETVER that indicates the release you are converting to. For example:

To convert to..	**Use:**
Release 3	TARGETVER=0130
CICSPlex SM for CICS TS Release 3	TARGETVER=0140

When the data repository is updated from a previous release to the current release, information stored in the earlier version is carried over to the current version of the data repository. When the data repository is reverted from the current release back to a previous release and the record in which information is changed is identical in both releases, then the changes are carried back to the earlier version. Likewise, if a field in a record exists in both releases, then later changes to the information in a field are carried back to the earlier version. However, when the data repository is converted from the current release to a previous release and either the record or a field in it did not exist in the previous release, then the information contained in the later version is permanently lost.

(For more information about the data repository, see “Creating the CICSPlex SM data repository” on page 229 and “Expanding the CICSPlex SM data repository”.)

Expanding the CICSPlex SM data repository

As is true for any repository, the CICSPlex SM data repository may fill up and require expansion. To expand the CICSPlex SM data repository, use the IDCAMS utility REPRO function. Figure 49 on page 233 is an example of the JCL you should use. This JCL is provided in member EYUJXDRP of the CICSTS13.CPSM.SEYUSAMP library.

```
//*
//* Sample JCL - Expand CICSPlex SM Data Repository
//*
//* The following values need to be edited:
//*-----------------------------------------------------------------
//* dsindex   - CMAS DSN High Level Qualifier
//* dsvol     - Volume for the created data sets
//* cmasname  - CMAS Name for this repository
//* (xx,yy)   - Primary and secondary space values
//*
//*-----------------------------------------------------------------
//*
//* This sample JCL expands the CICSPlex SM data repository
//* using the following technique:
//*
//* - Allocates the new Data Repository data set.
//* - Copies the existing Data Repository data set.
//* - Renames original repository to dsindex.OLDDREP.cmasname.
//* - Renames the new repository to have the original name.
//*
//*-----------------------------------------------------------------
```

Figure 49. Sample JCL to expand data repository, using IDCAMS (Part 1 of 3)

```
//DREPALOC EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
 DEFINE  CLUSTER -
   (NAME(dsindex.NEWDREP.cmasname) -
 RECORDS(xx,yy) -
 VOLUMES(dsvol) -
    CISZ(8192) -
    RECSZ(200,6550) -
    KEYS(64,0) -
    SHR(2) -
 INDEXED -
 SPEED -
 REUSE -
 ERASE)
 REPRO -
    INDATASET(dsindex.EYUDREP.cmasname) -
   OUTDATASET(dsindex.NEWDREP.cmasname)
```

Figure 49. Sample JCL to expand data repository, using IDCAMS (Part 2 of 3)

```
/*
//RENAME   EXEC PGM=IDCAMS,
//             COND=(0,NE)
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
 ALTER -
   dsindex.EYUDREP.cmasname -
   NEWNAME('dsindex.OLDDREP.cmasname')
 ALTER
   dsindex.NEWDREP.cmasname -
   NEWNAME('dsindex.EYUDREP.cmasname')
/*
```

Figure 49. Sample JCL to expand data repository, using IDCAMS (Part 3 of 3)

For RECORDS, specify a primary (xx) and a secondary (yy) value that are appropriate for your environment. The initial values are 500 and 3000.

Taking backups of the CICSPlex SM data repository

The CICSPlex SM data repository is defined to CICS as a VSAM file called EYUDREP. As the data set is accessed via CICS File Control, all the normal CICS methods of taking backups of VSAM data sets for disaster recovery purposes are available for use with the data repository.

You may use the following techniques for taking copies of the data repository, and for restoring the data repository after a data set failure.

- Use HSM, or DSS, or other utilities to take copies while the associated CMAS is not running, possibly using the Concurrent Copy technique to reduce the time during which the repository must be unavailable.
- Use HSM or DSS to take copies while the associated CMAS is running using the Backup While Open technique, and possibly also using the Concurrent Copy technique, which improves the ease of use of Backup While Open. This requires a forward recovery log (see "Defining a forward recovery log for the data repository").
- Use HSM or DSS to restore the data set after a data set failure.
- Use a Forward Recovery product such as CICS VSAM Recovery (CICS/VR) to reapply updates made to the data set after the most recent copy was taken. This requires a forward recovery log.
- Use remote site recovery techniques if you need an up-to-date copy of the data set at a remote site for disaster recovery purposes. This requires a forward recovery log.

The *CICS Recovery And Restart Guide* provides information on all the terms referred to above. In particular, it provides information about forward recovery logs, forward recovery, the CICS/VR product, Backup While Open, Concurrent Copy and its associated hardware prerequisites, taking back ups of data sets, restoring data sets from backup copies, and remote site recovery.

Defining a forward recovery log for the data repository

The data repository is defined in the CMAS as a VSAM file called EYUDREP. CICSPlex SM provides a default definition that defines this file as not having an associated forward recovery log, and therefore as not being eligible for forward recovery.

If you wish to use Forward Recovery, Backup While Open, or Remote Site Recovery, you will need to change the definition of EYUDREP. You will need to specify the following keywords on the definition of EYUDREP to define it as having a forward recovery log:

```
RECOVERY(ALL)
FWDRECOVLOG(nn)
```

where *nn* is a number between 1 and 99.

The default definition of EYUDREP also does not define the repository as being eligible for Backup While Open. To make the repository eligible for Backup While Open, you should specify the following keywords:

```
RECOVERY(ALL)
FWDRECOVLOG(nn)
BACKUPTYPE(DYNAMIC)
```

where *nn* is a number between 1 and 99.

The RECOVERY, FWDRECOVLOG, and BACKUPTYPE parameters of DEFINE FILE are described fully in the *CICS Resource Definition Guide*.

Notes:

1. You should not change any keywords on the EYUDREP definition other than RECOVERY, FWDRECOVLOG and BACKUPTYPE. In addition, you must never set RECOVERY(NONE). Setting RECOVERY(NONE) would cause repository corruption after transaction or CMAS failures.
2. You should not change the recovery options of the EYUDREPN FILE definition. This definition is used when CPSM determines that Data Repository file operations does not require logging.
3. If CPSM Data Repository initialization fails (as reported by message EUIXD0105E) and the cause is due to the EYUDREP data set requiring Batch Backout (for example CICS issues message DFHFC0921), you must recover the EYUDREP data set and then delete and redefine the CMAS Local and Global catalogs in order to reset the CICS backout required status for the data set.

Preparing to start a CMAS

There are several ways to start a CMAS.

You can start a CMAS:

- When an MVS system is IPLed.

  To use this method:

  – Verify that the CMAS startup procedure is in a system procedure library, such as SYS1.PROCLIB.

  – Verify that the CMAS startup procedure is in the 'Started Tasks' table of the external security manager (ESM).

  – Change the COMMNDaa member referenced by the IEASYSxx member of SYS1.PARMLIB (as described in "Noting IEASYSxx values" on page 201). to include a START command for the CMAS.

    The START command to be included is described in "START command for a CMAS" on page 242.

- From the system console.

  To start a CMAS from the system console:

  – Verify that the CMAS startup procedure is in a system procedure library, such as SYS1.PROCLIB.

  – Verify that the CMAS startup procedure is in the 'Started Tasks' table of the external security manager (ESM).

  – Have the operator issue the START command described on page 242.

- As a batch job.

  To start a CMAS as a batch job:

  – Verify that the CMAS startup procedure is in a system procedure library, such as SYS1.PROCLIB.

  – Construct a job stream to invoke the CMAS procedure.

  – Submit the job to invoke a CMAS.

No matter which method you use to start a CMAS, be sure to verify that the procedure references the appropriate:

- CICS SIT parameters,as described on page 238.
- CICSPlex SM startup parameters, as described on page 403.

Notes:

1. Because the job of the CMAS is to manage a MAS, it is important that the CMAS have the ability to process data with a higher priority than the MAS. Therefore, you should put CMAS jobs into a performance group that has a higher dispatching priority than the performance groups where the MAS resides. Failure to do so may result in severe performance problems for CICSPlex SM.
2. After starting a CMAS for the first time, you must configure the CMAS to your environment. This includes establishing the CICSplexes it is to manage and any communication links that are needed between this CMAS and another CMAS or a remote MAS. For additional information about this, see *CICSPlex SM Administration*.

A sample procedure that you can use to start a CMAS is supplied in the member EYUCMAS. This member was generated when you ran the EYUISTAR job, as described in "Generating post-installation members (CAS)" on page 209. The member is stored in the library you specified on the LIB parameter of the EYUISTAR job.

You must create the data sets for this CICS region. JCL to create the CICS region data sets for the CMAS is supplied in member EYUDFHDS of CICSTS13.CPSM.XEYUINST. This member was generated when you ran the EYUISTAR job.

Figure 50 on page 237 illustrates segments of the EYUCMAS procedure that are unique to CICSPlex SM.

```
//EYUCMAS  PROC DSNCSD=CICSTS13.CPSM.DFHCSD, CSD Data Set name
//            DSNTBL=CICSTS13.CPSM.RGNLOAD, CICS Table Module library
//            RGNHLQ=CICSTS13.CPSM,             CICS Region DSN qualifier
//            CICSPRM=EYUCnnI0,          CICS Parameters
//            CPSMPRM=EYUCMS0P           CPSM Parameters
//*
//CICS    EXEC PGM=EYU9XECS,             CMAS Startup program
//            PARM='SYSIN',              CICS Parameters location
//            REGION=0K                  Region Size
//*
//STEPLIB  DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUAUTH
//         DD DISP=SHR,DSN=CICSTS13.CICS.SDFHAUTH
//DFHRPL   DD DISP=SHR,DSN=CICSTS13.CPSM.SEYULOAD
//         DD DISP=SHR,DSN=CICSTS13.CICS.SDFHLOAD
//         DD DISP=SHR,DSN=&DSNTBL
 :
//EYULOG   DD SYSOUT=*
//DFHJ25A  DD DISP=SHR,DSN=CICSTS13.CPSM.SDFHJ25A
//DFHJ25B  DD DISP=SHR,DSN=CICSTS13.CPSM.SDFHJ25B
 :
//EYUDREP  DD DISP=SHR,DSN=CICSTS13.CPSM.EYUDREP.cmasname
//EYUPARM  DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUPARM(&CPSMPRM)
//BBACTDEF DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUADEF
//BBVDEF   DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUVDEF
//BBIPARM  DD DISP=SHR,DSN=CICSTS13.CPSM.SEYUPARM
```

Figure 50. CMAS-specific JCL requirements

Review the following statements in the sample JCL illustrated in Figure 50. Verify that the JCL has been modified so that the:

EXEC PGM=EYU9XECS statement
: Starts the CMAS and either verifies the existence of, or creates, the ESSS. EYU9XECS, the CMAS startup program, must be run in order for a CMAS to initialize.

STEPLIB DD statement
: Includes the CICSTS13.CPSM.SEYUAUTH authorized load library.

DFHRPL DD statement
: Includes the CICSTS13.CPSM.SEYULOAD load library. Include the load library containing the CICS resource definition table load modules.

  You should not include application load libraries in the DFHRPL concatenation.

EYULOG DD statement
: Identifies the log to which messages from the CMAS and its associated managed application systems (MASs) are to be directed.

  When you are using a sequential data set for the EYULOG, allocate 3 primary cylinders and 1 secondary cylinder.

EYUDREP DD statement
: Identifies the library to be used as the data repository by the CMAS, where:

  cmasname
  : Is the name you specified for the CMASNAME parameter on the EYUISTAR job. The CMASNAME value is used by EYU9XDUT in order to create the CICSPlex SM data repository. (See "Creating the CICSPlex SM data repository" on page 229.)

EYUPARM DD statement
Identifies the library containing the CICSPlex SM system parameters.

BBACTDEF DD statement
Defines the data set that contains the SMP-installed CICSPlex SM action and view tables. These tables help the CAS determine which view names and actions are valid within a given context.

BBVDEF DD statement
Defines the library that contains all SMP-installed CICSPlex SM views.

BBIPARM DD statement
Identifies the library containing the CICSPlex SM system parameters.

Editing CICSPlex SM system parameters

Member EYUCMS0P, in the CICSTS13.CPSM.SEYUPARM data set, contains sample parameters for a CMAS; this member must be edited. (See "Chapter 44. CICSPlex SM system parameters" on page 403 for a detailed description of each parameter.)

When the CMAS is to connect to a MAS for which security will be active (the CICS SIT parameter for the MAS is SEC=YES), the CMAS must have CICSPlex SM security active. When CICSPlex SM security is not activated in the CMAS, the connection between the CMAS and the MAS cannot be established. If this is attempted, the following message is issued to the console, the CMAS joblog, and the CMAS EYULOG:

```
EYUCR0007E  Security mismatch between CMAS cmasname and
            MAS masname. Connection terminating.
```

To activate CICSPlex SM security in the CMAS, you must specify the CICSPlex SM system parameter SEC(YES). The default is SEC(NO). (For more information about the SEC parameter, see "Chapter 44. CICSPlex SM system parameters" on page 403.) Specifying SEC=YES in the CICS SIT parameters for the CMAS does not affect CICSPlex SM security.

CMAS-related CICS SIT parameters

Three members of the CICSTS13.CPSM.SEYUPARM library contain CICS system initialization table (SIT) parameters that should be included in the sequential data set or partitioned data set member identified by the CICS SYSIN statement. The members are named EYUCnnI0, where *nn* is:

41 CICS/ESA 4.1
51 CICS TS for OS/390 Version 1.1
52 CICS TS for OS/390 Version 1.2
53 CICS TS for OS/390 Version 1.3

Table 16 on page 239 identifies the CMAS-related CICS SIT parameters.

Notes:

1. When the second column in the table contains an asterisk, before you start a CMAS you should supply your own value for the parameter listed in the first column.
2. When the second column of the table does not contain an asterisk, leave the value of the parameter as shown in the first column.

Table 16. CICS SIT parameters for a CMAS

Parameter	Your value	Explanation	CICS release			
			4.1	1.1	1.2	1.3
AIEXIT=DFHZATDX		VTAM terminal autoinstall program.	✓	✓	✓	✓
APPLID=	*	VTAM application ID for this CICS, which is acting as a CMAS. Used as CMAS name when NAME(`value`) is not specified as a CICSPlex SM system parameter.	✓	✓	✓	✓
AUXTR=ON		Auxiliary trace - Exception records.	✓	✓	✓	✓
AUXTRSW=ALL		Continuous auxiliary trace switching.	✓	✓	✓	✓
CICSSVC=216	*	CICS SVC installed in LPA.	✓	✓	✓	✓
CSDACC=READWRITE		Enable read and write updates to CSD.	✓	✓	✓	✓
CSDRECOV=ALL		Forward recovery and backout. **Note:** CICS journaling must be active with real, not DUMMY, journals if CSDRECOV=ALL.	✓	✓	✓	✓
DBP=1$		Dynamic transaction backout program.	✓			
DCT=D$		EYULOG and EYUPARM DCT entries.	✓			
DFLTUSER=	*	Non-CESN RACF user Id.	✓	✓	✓	✓
DSALIM=4M		Limit of DSA storage below 16MB.	✓	✓	✓	✓
DUMPDS=A		Transaction dump data set.	✓	✓	✓	✓
DUMPSW=NEXT		Switch to next transaction dump data set.	✓	✓	✓	✓
EDSALIM=32M		Limit of EDSA storage above 16MB.	✓	✓	✓	✓
FCT=NO		No File control table.	✓	✓	✓	✓
GMTEXT='CICSPlex SM / ESA'		Default logon message.	✓	✓	✓	✓
GRPLIST=EYU140L0		CSD group list having group EYU140G0. See "Updating the CSD files using DFHCSDUP (CMAS)" on page 227 for additional information.	✓	✓	✓	✓
INTTR=ON		Activate main storage trace.	✓	✓	✓	✓
ICV=100		Region exit interval.	✓	✓	✓	✓
ICVR=20000		Runaway task interval. **Note:** For a CMAS running on a small processor and having a large number of resources defined through BAS, this value may need to be increased to about 90000.	✓	✓	✓	✓
ICVTSD=1		Terminal scan delay interval.	✓	✓	✓	✓
IRCSTRT=YES		IRC started at system initialization.	✓	✓	✓	✓
ISC=YES		Load programs required for interregion or intersystem communications during initialization.	✓	✓	✓	✓
JCT=D$		Journal Control Table for system log.	✓			

Table 16. CICS SIT parameters for a CMAS (continued)

Parameter	Your value	Explanation	CICS release			
			4.1	**1.1**	**1.2**	**1.3**
MXT=300		Maximum tasks to exist.	✓	✓	✓	✓
RENTPGM=PROTECT		Specifies that CICS will allocate ERDSA from readonly key 0 protected storage.	✓	✓	✓	✓
PLTPI=D$		Initialization table having EYU9XLCS.	✓			
PLTPI=E$		Initialization table having EYU9XLCS.		✓		
PLTPI=F$		Initialization table having EYU9XLCS.			✓	
PLTPI=G$		Initialization table having EYU9XLCS.				✓
SEC= {YES | <u>NO</u>}		Indicate whether external security checking is to be performed for this CMAS. Specify: **YES** When READ access is granted: • READ is permitted • UPDATE is refused. When UPDATE access is granted: • READ is permitted • UPDATE is permitted. **Note:** If you specify YES in a CMAS running CICS/ESA 4.1 or later, you must define all the CICSPlex SM transactions that run in a CMAS to your external security manager (ESM). For a list of these transactions, see the *CICS RACF Security Guide*. **NO** Security checking is not performed. For information about the CICSPlex SM SEC parameter for the CMAS, see "Chapter 44. CICSPlex SM system parameters" on page 403.	✓	✓	✓	✓
SIT=6$		System initialization table suffix.	✓	✓	✓	✓
SPOOL=YES		System spooling interface. Required when you are going to use the CICSPlex SM batched repository-update facility.	✓	✓	✓	✓
SRT=D$		System Recovery Table Suffix.	✓			
SRT=E$		System Recovery Table Suffix.		✓		
SRT=F$		System Recovery Table Suffix.			✓	
SRT=G$		System Recovery Table Suffix.				✓

Table 16. CICS SIT parameters for a CMAS (continued)

<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Your value</th><th rowspan="2">Explanation</th><th colspan="4">CICS release</th></tr>
<tr><th>4.1</th><th>1.1</th><th>1.2</th><th>1.3</th></tr>
<tr><td>START=(COLD,ALL)</td><td></td><td>Cold start overriding other options.

The first time a CMAS is started, it should be cold started to install the necessary CICS resource definitions and establish CMAS-to-CMAS and CMAS-to-remote MAS connections.
Note: The first time a CMAS running the CICS TS for OS/390 is started, you should specify START=INITIAL.

Subsequently, a CMAS can be started with either START=COLD or START=AUTO. For more information, see “Restarting a CMAS” on page 244.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>STGPROT=NO</td><td></td><td>No storage protection.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>SUBTSKS=1</td><td></td><td>Use additional concurrent mode TCB.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>SYSIDNT=</td><td>*</td><td>CICS System Id.
Note: The SYSIDNT value must match the EYU9XDUT SYSID parameter value used to initialize the data repository being referenced by the EYUDREP DD statement.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>SYSTR=OFF</td><td></td><td>No system activity trace.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>TCT=NO</td><td></td><td>No TCT needed.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>TRANISO=NO</td><td></td><td>No transaction isolation.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>TRTABSZ=2048</td><td></td><td>Kilobytes for trace table.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>TS=(COLD)</td><td></td><td>Cold start temporary storage.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>TST=NO</td><td></td><td>No temporary storage table required.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>USERTR=ON</td><td></td><td>Enable user trace facility.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>WRKAREA=1024</td><td></td><td>Bytes for Common Work Area.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>XCMD={<u>YES</u> | name | NO}</td><td>*</td><td>If you specify the CICSPlex SM system parameter SEC(YES), you must specify XCMD=NO to indicate that EXEC CICS system commands are not to be included in security checking.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>XDB2={<u>NO</u> | name}</td><td>*</td><td>If you specify the CICSPlex SM system parameter SEC(YES), you must specify XDB2=NO to indicate that DB2 resources are not to be included in security checking.</td><td></td><td></td><td>✓</td><td>✓</td></tr>
<tr><td>XDCT={<u>YES</u> | name | NO}</td><td>*</td><td>If you specify the CICSPlex SM system parameter SEC(YES), you must specify XDCT=NO to indicate that destination control entries are not to be included in security checking.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
</table>

Table 16. CICS SIT parameters for a CMAS (continued)

Parameter	Your value	Explanation	CICS release			
			4.1	1.1	1.2	1.3
XFCT={YES | name | NO}	*	If you specify the CICSPlex SM system parameter SEC(YES), you must specify XFCT=NO to indicate that file control entries are not to be included in security checking.	✓	✓	✓	✓
XJCT={YES | name | NO}	*	If you specify the CICSPlex SM system parameter SEC(YES), you must specify XJCT=NO to indicate that journal entries are not to be included in security checking.	✓	✓	✓	✓
XPCT={YES | name | NO}	*	If you specify the CICSPlex SM system parameter SEC(YES), you must specify XPCT=NO to indicate that EXEC-started transactions are not to be included in security checking.	✓	✓	✓	✓
XPPT={YES | name | NO}	*	If you specify the CICSPlex SM system parameter SEC(YES), you must specify XPPT=NO to indicate that program entries are not to be included in security checking.	✓	✓	✓	✓
XRF=NO		No XRF support. **Note:** The extended recovery facility (XRF) is not supported because of the way in which a CMAS uses MVS/ESA data spaces.	✓	✓	✓	✓

Note: The CICS release indicators are:
4.1 CICS/ESA 4.1
1.1 CICS TS for OS/390 1.1
1.2 CICS TS for OS/390 1.2
1.3 CICS TS for OS/390 1.3

START command for a CMAS

The syntax of the command you can use to start a CMAS is:

```
START procname [,DSNCSD=dsn][,DSNTBL=dsn][,RGNHLQ=idx][,CICSPRM=mem][,CPSMPRM=mem]
```

where:

procname
Is the 1- to 8-character name of the procedure. (EYUCMAS is the name of the distributed sample procedure.)

DSNCSD=dsn
Specifies the name of the data set containing the CSD file that has been modified to include the necessary CICSPlex SM resource definitions.

DSNTBL=dsn
Specifies the name of the data set containing the CICS table modules that have been modified for CICSPlex SM.

RGNHLQ=idx
Specifies the high-level qualifier that is to be used with the DFHxxxx data sets that are unique to this CMAS.

The high-level qualifier used with CICS data sets that can be shared between systems is established by the EYUINST EXEC parameter CINDEX.

CICSPRM=mem
Identifies the member in the CICSTS13.CPSM.SEYUPARM library that contains the CICS/ESA SIT parameters.

CPSMPRM=mem
Identifies the member in the CICSTS13.CPSM.SEYUPARM library that contains the CICSPlex SM system parameters.

Defining VTAM to CICSPlex SM (CMAS)

The last step is to provide the necessary VTAM information to CICSPlex SM. To do this, use the CMTCMDEF view, described in *CICSPlex SM Administration*, to establish direct CMAS-to-CMAS communication links.

The CMTCMDEF view will not be available until you have a CMAS running and can access CICSPlex SM itself.

Shutting down a CMAS

You can shut down a CMAS using:
- The SHUtdown command
- The CMASSTOP command of the CODB transaction
- The COSD transaction.

Note: You should not attempt to:
- Cancel the CMAS job from MVS/ESA
- Issue the CEMT PERFORM SHUTDOWN command against a CMAS.

If either of these actions is taken, the CMAS cannot shut itself down properly.

Using the SHUtdown command

You can issue the SHUtdown command from either the CMAS view or the CMASD view.

From the CMAS view
Issue the action command:

```
SHUtdown cmas
```

where cmas identifies the CMAS to be shut down.

From the CMASD view
Issue the action command:

```
SHUtdown
```

Using the CMASSTOP command

You can use the CMASSTOP command of the CODB system-level debugging transaction to shut down the CMAS. For details, see *CICSPlex SM Problem Determination*.

Using the COSD transaction

You can issue, from any terminal, including an MVS console, the transaction id:

```
COSD
```

You should see an information message that indicates whether or not the CMAS has been shut down. For details of these messages, see *CICSPlex SM Messages and Codes*.

Restarting a CMAS

A CMAS that was shut down normally (using the CICSPlex SM SHUTDOWN action command) can usually be restarted with a SIT parameter of START=AUTO. However, you must specify START=COLD if you have:

- Modified any of the CICS resource definitions that are used by the CMAS.
- Added or removed CMAS-to-CMAS (CMTCMDEF) or CMAS-to-remote MAS (CMTPMDEF) connection definitions.

If a CMAS terminates abnormally (that is, through any means other than the CICSPlex SM SHUTDOWN action command), you must perform an emergency restart to allow CICS to perform backout processing. You can accomplish an emergency restart of a CMAS in one of two ways:

- If the CMAS is registered with the MVS/ESA automatic restart manager (ARM), an emergency restart occurs automatically.
- If the CMAS is not registered with ARM, specify START=AUTO in the CMAS startup procedure.

A CMAS should initialize and function properly after an emergency restart, provided you have made no changes to the CICS resource definitions or CICSPlex SM connection definitions.

If you have made any such changes since the last run of the CMAS (that is, the one that terminated abnormally), the CMAS may not function properly. In that case, you should shut down the CMAS using the CICSPlex SM SHUTDOWN action command and restart it, specifying START=COLD. For an illustration of the SHUTDOWN action command, see “Shutting down a CMAS” on page 243.

Chapter 32. Setting up a CICS Transaction Server for OS/390 or CICS/ESA managed application system (MAS)

This chapter describes the steps you must perform so that a CICS Transaction Server for OS/390 or CICS/ESA system can be known as a managed application system (MAS) to CICSPlex SM. (Throughout the rest of this chapter, a CICS Transaction Server for OS/390 MAS or CICS/ESA MAS is referred to as an MVS MAS.) The following levels of CICS under MVS can connect directly to, and be managed by, CICSPlex SM:
- CICS Transaction Server for OS/390 Release 3
- CICS Transaction Server for OS/390 Release 2
- CICS Transaction Server for OS/390 Release 1
- CICS/ESA 4.1

The information you need is in the following sections:

- "Authorizing libraries (MAS)"
- "Using CICS global user exits and user-replaceable modules" on page 246
- "Reviewing VTAM definitions for a remote MAS" on page 246
- "Generating post-installation members (MVS MAS)" on page 248
- "Adding CICS system definitions (MVS MAS)" on page 248
- "Using CICSPlex SM modules in the MVS link pack area" on page 255
- "Preparing to start an MVS MAS" on page 258
- "Stopping and restarting management of a CICS system" on page 263.

For a summary of the MAS setup tasks that you can refer to while performing them, see "Chapter 29. Setup checklist and worksheets" on page 185.

Before you begin

Before you begin, check the IEASYSxx member of SYS1.PARMLIB that you use for MVS/ESA initialization and make note of the initialization values that are referenced during installation. For details about these values, see "Noting IEASYSxx values" on page 201.

If you are converting your CICSPlex SM system or systems from a previous release to CICSPlex SM for CICS Transaction Server for OS/390 Release 3, you should read the *CICS Transaction Server for OS/390 Migration Guide*.

For details on applying corrective or preventive maintenance to CICSPlex SM, see "Chapter 21. Applying service to CICS Transaction Server for OS/390" on page 109.

Note: If you define a CICS system to CICSPlex SM as a remote MAS, that system cannot act as a terminal-owning region (TOR) in the workload management environment.

Authorizing libraries (MAS)

In each MVS image containing a remote MAS, the appropriate IEAAPFxx or PROGxx member of the SYS1.PARMLIB library must be changed to authorize the following libraries:
- CICSTS13.CPSM.SEYUAUTH
- SYS1.CICSTS13.CPSM.SEYULPA (Optionally used for MAS LPA modules).

If you did not do so as part of setting up the CAS (see "Authorizing libraries (CAS)" on page 203), do so now.

Using CICS global user exits and user-replaceable modules

This section describes the CICS global user exits (GLUE) and user replaceable modules that are used by CICSPlex SM.

The way these exits are used by CICSPlex SM conforms to the standard described in the *CICS Customization Guide*. CICSPlex SM uses these exits only to acquire information; the application environment is not altered.

CICSPlex SM uses the dynamic routing program user replaceable module (DTRPROG) as part of workload balancing.

The XMNOUT and XSTOUT exits are used when monitoring services are enabled for a managed application system (MAS).

- The XMNOUT exit is used to get task and CICS monitoring data. XMNOUT is used only with a local MAS.
- The XSTOUT exit is used to get statistical data before the data is reset by CICS.

These exits are used to obtain monitoring and statistics information and always return a "continue processing" return code. They are disabled when a shutdown request for the MAS is received.

The XMEOUT, XDUREQ, XDUREQC, XRSINDI and XDUOUT exits are used when topology requests are enabled for a local MAS. The XMEOUT exit is used to detect short on storage sick and well health events.

- The XRSINDI exit is used to detect topology resource changes.
- The XDUREQ exit is used to detect system dump and transaction dump sick health events.
- The XDUREQC exit is used to detect the completion of dump action.
- The XDUOUT exit is used to detect transaction dump well health events.
- The XSNOFF exit is used to detect user signoff events.

Reviewing VTAM definitions for a remote MAS

When you are using an LU 6.2 protocol, the current VTAM definitions for each remote MAS must be reviewed and, if necessary, modified in order for the remote MAS to communicate with the CMAS.

Step 1: Reviewing a remote MAS application definition

To locate the VTAM definitions currently in use, locate the appropriate ATCCONxx configuration list member referenced when VTAM is started. To locate the remote MAS application definition, examine the members named in the configuration list.

If the application definition does not already have them, modify it to include the following parameter definitions:

APPC=NO
Tells VTAM whether or not the application program can issue APPCCMD macroinstructions.

PARSESS=YES
Allows this application program to have multiple LU-LU sessions between the same session partners.

The following is an example of a valid remote MAS application definition:

```
         VBUILD TYPE=ALL
 name    APPL AUTH=(PASS,ACQ,SPD,VPACE),
              PARSESS=YES,
              SONSCIP=YES,
              APPC=NO
```

Step 2: Reviewing remote MAS cross-domain definitions

You should review and, if necessary, define cross-domain resources (CDRSC) if either of the following situations occur:

- A remote MAS cannot take advantage of dynamically defined CDRSCs.
- You want to minimize the overhead involved in using dynamically defined CDRSCs.

To establish a CDRSC definition, you must either create a new member or access an existing member in the SYS1.VTAMLST library. In the new or existing member, specify the following CDRSC statement for the CMAS with which you want to communicate:

```
         VBUILD TYPE=CDRSC
name     CDRSC CDRM=cdrm
```

where:

name Is the name assigned to the CMAS application.

cdrm Is the name of the MVS image previously identified as the cross-domain resource manager (CDRM).

For example, to allow the remote MAS on SYSB to communicate with the CMAS on SYSA, you might create the member CDRCMS1, in the SYS1.VTAMLST library, which contains the CDRSC statements:

```
        VBUILD TYPE=CDRSC
CMS1    CDRSC CDRM=VTAMA
```

where VTAMA is the cross-domain resource manager name assigned to SYSA.

The same types of definitions are also needed for the CMASs on SYSA to communicate with the remote MAS on SYSB. That is, for the CMAS on SYSA, you might create a member named CDRRMS1, which contains the CDRSC statements:

```
        VBUILD TYPE=CDRSC
RMS1    CDRSC CDRM=VTAMB
```

where VTAMB is the cross-domain resource manager name assigned to SYSB.

For additional information about cross-domain resources, see the *VTAM Resource Definition Reference* manual.

Step 3: Updating the configuration list (remote MAS)

If, in Step 1 or 2, you created new members in the SYS1.VTAMLST library, you must update the VTAM configuration list for each MVS image. This causes the new members to be automatically activated when VTAM starts.

To do this, add the new member names to the end of the configuration list in the appropriate ATCCONxx member of the SYS1.VTAMLST library. (To find this member, look in the VTAM configuration's start list named SYS1.VTAMLST(ATCSTRxx).)

To illustrate, the examples shown in Steps 1 and 2 assume the creation of a member named CDRCMS1. To add this member to the end of the configuration list in ATCCONxx, you would specify:

```
CDRCMS1
```

Note: If you added the CMAS and cross-domain definitions to existing members, ATCCONxx should already contain these member names.

Step 4: Activating the major nodes (remote MAS)

You can activate the definitions created in Steps 1 and 2 by either restarting VTAM for each system, or manually activating the definitions.

To manually activate a major node, you can issue the following commands, where `name` identifies a major mode created (or modified) in Steps 1 and 2:

- Deactivate the major node if it is currently active by issuing the command:
  ```
  VARY NET,INACT,ID=name
  ```
- Activate (or reactivate) the major node by issuing the command:
  ```
  VARY NET,ACT,ID=name
  ```

To ensure that the major node has been activated, issue the command:

```
D NET,ID=name
```

For example, to activate the member CDRCMS1 and then ensure that it has been activated, you would issue the commands:

```
VARY NET,INACT,ID=CDRCMS1
VARY NET,ACT,ID=CDRCMS1
D NET,ID=CDRCMS1
```

The preceding steps need to be performed for each remote MAS you may be using.

Generating post-installation members (MVS MAS)

Skeleton member, EYULPMOD, is distributed with CICSPlex SM for use in the MAS environments. It contains sample JCL that you can use to apply SMP/E USERMODs that move MAS modules to the SEYULPA library.

Note: When you are setting up a local MAS, you can skip this section. EYULPMOD was created when you generated the post-installation jobs for the CMAS. (For information about generating the post-installation jobs, see "Generating post-installation members (CAS)" on page 209.)

If you did not already do so when you set up the CAS (see "Generating post-installation members (CAS)" on page 209), you can use the EYUISTAR job to customize and then generate these members.

For a summary of the EYUINST EXEC parameters you need to generate this job, see "Generating post-installation members (CAS)" on page 209; for detailed information about the EYUISTAR job, see "Chapter 43. Using the EYUINST EXEC to tailor skeleton jobs" on page 393.

Adding CICS system definitions (MVS MAS)

You must add resource definitions to the CICS tables and to the CICS system definition (CSD) file for each local and remote MAS you are using.

Updating CICS resource definition tables for MASs

For each local MAS and remote MAS, some of your CICS resource definition tables must be updated to reference the CICSPlex SM copy books that contain entries for those control tables. When you have updated the tables for each MAS, assemble and link-edit them using the CICS procedures for maintaining resource definition table load modules.

The process used to assemble and link-edit the CICS resource definition table load modules must have library CICSTS13.CPSM.SEYUSAMP in the SYSLIB concatenation of the assembler step, or the copy book member must be inserted into the table source member in place of the COPY statement.

Table 17 lists the copy book members in CICSTS13.CPSM.SEYUSAMP that contain the resource definition table entries, and indicates the CICS release for which each member can be used.

Table 17. Copy book resource definition members for MAS

Member	Resource definition entries	CICS release			
		4.1	1.1	1.2	1.3
EYU$DCT1	Destination control table entry (DCT) for local MAS and remote MAS. **Note:** RC=4 is expected, because the source contains destinations beginning with the character C.	✓			
EYU$PLT1	Program list table entry (PLT) for local MAS - Program EYU9NXLM.	✓	✓	✓	✓
EYU$PLT2	Program list table entry (PLT) for remote MAS - Program EYU9NXRM.	✓	✓	✓	✓
EYU$SRT0	System recovery table entries (SRT) for MAS.	✓	✓	✓	✓

Note: The CICS release indicators are:
4.1 CICS/ESA 4.1
1.1 CICS TS for OS/390 1.1
1.2 CICS TS for OS/390 1.2
1.3 CICS TS for OS/390 1.3

Notes:

1. For CICS TS for OS/390, when the CSD is upgraded with the CICSPlex SM group of resource definitions, the DCT entries in the CSD are defined as TDQUEUE resources.
2. For EYU$PLT1 and EYU$PLT2, you must add an entry to the PLTs to have the CICSPlex SM environment created as part of post initialization processing for each MAS. Make sure that the designated program runs during the second phase of PLT execution (which is the third phase of CICS initialization). The change to the PLTs must follow the PROGRAM=DFHDELIM entry.

   For a local MAS, the change should be in the form:

   ```
   DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM
   ⋮
   COPY EYU$PLT1.
   ```

   This copy book contains an entry for program EYU9NXLM.

For a remote MAS, the change should be in the form:

```
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM
⋮
COPY EYU$PLT2.
```

This copy book contains an entry for program EYU9NXRM.

The change to the PLT must come prior to any entries for programs that require the CICSPlex SM environment. If the PLT contains entries for programs that require the CICSPlex SM environment, ensure the MASPLTWAIT system parameter is set to YES.

The suffix of that PLT must then be named on the program list table post initialization (PLTPI) system initialization parameter for each MAS.

Updating CSD files using DFHCSDUP (MVS MAS)

The resource definitions you must add to the CSD file for each managed CICS system are distributed in CSD upgrade load modules in CICSTS13.CPSM.SEYULOAD.

The names of the load modules, the environment for which they are used, and the name of the resource group (created using the definitions the load modules contain) are:

Load module EYU9nnG1

Environment Local or remote MAS - USELAPCOPY(NO)

Resource group
EYU140G1

where nn represents the CICS level (for example, 41 refers to CICS/ESA 4.1, and 53 refers to the CICS element in CICS TS for OS/390 Version 1.3).

Sample JCL that you can use to include the definitions is supplied in the member EYUJCLGN in the CICSTS13.CPSM.SEYUSAMP library. You can edit this JCL, as shown in Figure 51, to:

1. Define a group of resource definitions to the appropriate CSD file.
2. Add the group name to the CSD list referenced by the CICS system initialization table (SIT) parameter GRPLIST.

Modify the sample JCL to provide the following information:

```
//CSDUP    EXEC PGM=DFHCSDUP
//STEPLIB  DD  DSN=cics.index.SDFHLOAD,DISP=SHR
//         DD  DSN=cpsm.index.SEYULOAD,DISP=SHR
//DFHCSD   DD  DSN=cics.dfhcsd,DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 UPGRADE USING(group_load_module)
 ADD GROUP(EYU140G1) LIST(list_name)
/*
```

Figure 51. Sample JCL to run DFHCSDUP for MVS MAS

STEPLIB
Identify:

- `cics.index.SDFHLOAD` as the CICS load library containing the DFHCSDUP module
- `cpsm.index.SEYULOAD` as the CICSPlex SM load library containing the group definition module.

DFHCSD Identify `cics.dfhcsd` as the CICS CSD file to be updated.

SYSIN Identify:
- The load module containing the resource definition group
- The group name contained within the load module
- The group list used to start the MAS.

To avoid your transaction names clashing with those used by CICSPlex SM, you should review the names of the transactions defined in the appropriate EYU140Gn group in the CSD. The CICSPlex SM MAS transaction names are all of the form COxx.

A return code of 4 is expected from this run of DFHCSDUP. This is because, before adding the designated group to the CSD, the job attempts to delete any group with the same name.

To run the MAS using an USELPACOPY(YES) group, the appropriate load modules must be moved to the SYS1.CICSTS13.CPSM.SEYULPA data set. For additional information, see "Using CICSPlex SM modules in the MVS link pack area" on page 255.

Remote MAS only

In the CSD referenced by the remote MAS, create corresponding CONNECTION and SESSIONS definitions for the target CMAS. The group containing these definitions must be named in the CICS group list referenced by the remote MAS CICS SIT parameter GRPLIST.

If you have already created these definitions and referenced the appropriate group list in the CICS startup, you can skip this item.

Sample JCL provided in library CICSTS13.CPSM.SEYUSAMP can be used to create the CMAS CONNECTION and SESSIONS definitions required by a remote MAS. If you are using LU 6.2 connections, the sample JCL is supplied in member EYU$CON2 of library CICSTS13.CPSM.SEYUSAMP. Figure 52 on page 252 illustrates the sample JCL for LU 6.2 connections. If you are using MRO connections, the sample JCL is supplied in member EYU$CON1 of library CICSTS13.CPSM.SEYUSAMP. Figure 53 on page 253 illustrates the sample JCL for MRO connections.

For more information about creating both the CMAS and the remote MAS definitions, see the description of CMTPMDEF in *CICSPlex SM Administration*.

```
//* Variables you must edit are:
//* ----------------------------
//*
//* &LSTNAME  - CSD Group list to contain definition
//* &GRPNAME  - CSD Group to contain definition
//* &CMSYSID  - CMAS CICS SYSID value
//* &CMAPPLID - CMAS VTAM APPLID value
//* &DSNCSD   - CICS CSD full data set name
//* &CICSHLQ  - CICS data set name high level qualifier
//*             Used to reference &CICSHLQ.SDFHLOAD
//*
//*-------------------------------------------------------------------
//DEFRMAS  EXEC PGM=DFHCSDUP,
//             REGION=500K
//STEPLIB   DD  DISP=SHR,DSN=&CICSHLQ.SDFHLOAD
//DFHCSD    DD  DISP=SHR,DSN=&DSNCSD
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD *
DELETE CONNECTION(&CMSYSID)
       GROUP(&GRPNAME)
DELETE SESSIONS(&CMSYSIDSESS)
       GROUP(&GRPNAME)
```

Figure 52. JCL to create LU 6.2 CONNECTION and SESSIONS definitions for MVS MAS (Part 1 of 3)

```
DEFINE CONNECTION(&CMSYSID)
       DESCRIPTION(CMAS SYSID=&CMSYSID APPLID=&CMAPPLID)
       GROUP(&GRPNAME)
       NETNAME(&CMAPPLID)
       ACCESSMETHOD(VTAM)
       PROTOCOL(APPC)
       SINGLESESS(NO)
       DATASTREAM(USER)
       RECORDFORMAT(U)
       AUTOCONNECT(YES)
       INSERVICE(YES)
       ATTACHSEC(LOCAL)
       BINDSECURITY(NO)
```

Figure 52. JCL to create LU 6.2 CONNECTION and SESSIONS definitions for MVS MAS (Part 2 of 3)

```
DEFINE SESSIONS(&CMSYSIDSESS)
       DESCRIPTION(CMAS SYSID=&CMSYSID APPLID=&CMAPPLID)
       GROUP(&GRPNAME)
       CONNECTION(&CMSYSID)
       PROTOCOL(APPC)
       MAXIMUM(4,2)
       SENDSIZE(4060)
       RECEIVESIZE(4060)
       SESSPRIORITY(0)
       AUTOCONNECT(YES)
       BUILDCHAIN(YES)
       USERAREALEN(0)
       IOAREALEN(0,0)
       RELREQ(NO)
       DISCREQ(NO)
       NEPCLASS(0)
       RECOVOPTION(SYSDEFAULT)
ADD    GROUP(&GRPNAME)
       LIST(&LSTNAME)
/*
```

Figure 52. JCL to create LU 6.2 CONNECTION and SESSIONS definitions for MVS MAS (Part 3 of 3)

```
//* Variables you must edit are:
//* ----------------------------
//*
//* &LSTNAME  - CSD Group list to contain definition
//* &GRPNAME  - CSD Group to contain definition
//* &CMSYSID  - CMAS CICS SYSID value
//* &CMAPPLID - CMAS VTAM APPLID value
//* &DSNCSD   - CICS CSD full data set name
//* &CICSHLQ  - CICS DSN high level qualifier
//*             Used to reference &CICSHLQ.SDFHLOAD
//* &RPFX     - Specify the 2-character prefix that is to
//*             be used as the first two characters of the
//*             TCTTE names for the receive side of this
//*             connection. Be careful that the prefix
//*             does not cause a TCTTE name to be generated
//*             that matches an existing connection or
//*             terminal name.
//* &SPFX     - Specify the 2-character prefix that is to
//*             be used as the first two characters of the
//*             TCTTE names for the send side of this
//*             connection.  Be careful that the prefix
//*             does not cause a TCTTE name to be generated
//*             that matches an existing connection or
//*             terminal name.
//*
//*-------------------------------------------------------------------
```

Figure 53. JCL to create MRO CONNECTION and SESSIONS definitions for MVS MAS (Part 1 of 3)

```
//DEFRMAS  EXEC PGM=DFHCSDUP,
//            REGION=500K
//STEPLIB   DD  DISP=SHR,DSN=&CICSHLQ.SDFHLOAD
//DFHCSD    DD  DISP=SHR,DSN=&DSNCSD
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD *
DELETE CONNECTION(&CMSYSID)
       GROUP(&GRPNAME)
DELETE SESSIONS(&CMSYSIDSESS)
       GROUP(&GRPNAME)
DEFINE CONNECTION(&CMSYSID)
       DESCRIPTION(CMAS SYSID=&CMSYSID APPLID=&CMAPPLID)
       GROUP(&GRPNAME)
       NETNAME(&CMAPPLID)
       ACCESSMETHOD(XM)
       SINGLESESS(NO)
       DATASTREAM(USER)
       RECORDFORMAT(U)
       AUTOCONNECT(YES)
       INSERVICE(YES)
       ATTACHSEC(LOCAL)
       BINDSECURITY(NO)
```

Figure 53. JCL to create MRO CONNECTION and SESSIONS definitions for MVS MAS (Part 2 of 3)

Modify the appropriate sample to provide the following information:

```
DEFINE SESSIONS(&CMSYSIDSESS)
       DESCRIPTION(CMAS SYSID=&CMSYSID APPLID=&CMAPPLID)
       GROUP(&GRPNAME)
       CONNECTION(&CMSYSID)
       PROTOCOL(LU61)
       MAXIMUM(0,0)
       RECEIVEPFX(&RPFX)
       RECEIVECOUNT(2)
       SENDPFX(&SPFX)
       SENDCOUNT(2)
       SENDSIZE(8192)
       RECEIVESIZE(8192)
       SESSPRIORITY(125)
       AUTOCONNECT(YES)
ADD    GROUP(&GRPNAME)
       LIST(&LSTNAME)
/*
```

Figure 53. JCL to create MRO CONNECTION and SESSIONS definitions for MVS MAS (Part 3 of 3)

&LSTNAME
Change all occurrences to the name of the CSD group list that is to contain the resource definitions.

&GRPNAME
Change all occurrences to the name of the CSD group that is to contain the resource definitions.

&CMSYSID
Change all occurrences to the CMAS CICS SYSID.

&CMAPPLID
Change all occurrences to the CMAS VTAM APPLID.

&DSNCSD
Change all occurrences to the CICS CSD full data set name.

&CICSHLQ
Change all occurrences to the CICS data set name high-level qualifier.

	Used to reference &CICSHLQ.SDFHLOAD.
STEPLIB	Identify `&CICSHLQ.SDFHLOAD` as the CICS load library containing the DFHCSDUP module.
DFHCSD	Identify `cics.dfhcsd` as the CICS CSD file to be updated.
&RPFX	(MRO only) Specify the 2-character prefix to be used as the first two characters of the TCTTE names for the receive side of the connection. Ensure that the prefix does not create a TCTTE name that is the same as the name of an existing connection or terminal.
&SPFX	(MRO only) Specify the 2-character prefix to be used as the first two characters of the TCTTE names for the send side of the connection. Ensure that the prefix does not create a TCTTE name that is the same as the name of an existing connection or terminal.

Notes:

1. EYU$CON1 and EYU$CON2 delete any existing CONNECTION and SESSIONS definitions for the specified CMAS.
2. When you define the send and receive buffer sizes (see the *CICSPlex SM Administration*), the sizes entered in the CMTPMDEF view (for the communicating CMAS) and in the CSD resource definitions for the remote MAS must be the same.
3. For additional information about the size of VTAM buffers, see “Defining VTAM requirements (CMAS)” on page 222.

Considerations when upgrading the CSD release (MVS MAS)

When the CSD is upgraded to a new CICS release, you must install the CICSPlex SM group definitions for the new release into the upgraded CSD. For example, when the CSD is upgraded from CICS/ESA 4.1 to the CICS TS for OS/390, use the following SYSIN statement to install the CICSPlex SM local MAS resource definitions for the CICS TS for OS/390 1.3:

```
//SYSIN DD *
 UPGRADE USING(EYU953G1)
/*
```

For information about the resource group definitions distributed with CICSPlex SM, see “Updating CSD files using DFHCSDUP (MVS MAS)” on page 250.

Considerations when sharing the CSD (MVS MAS)

Before the CSD can be shared by multiple releases of CICS, the CSD must be upgraded by installing the CICSPlex SM resource definitions for the current CICS release. For information about doing so, see “Considerations when upgrading the CSD release (MVS MAS)”.

Using CICSPlex SM modules in the MVS link pack area

The benefits of using the MVS link pack area (LPA) are:

- **Sharing** – modules in the LPA can be shared by two or more CICS regions in the same MVS image, giving an overall reduction in the total working set.

- **Integrity** – the LPA is page-protected, even against key 0 programs, so all modules placed there are automatically protected against overwriting by other programs such as CICS applications. (This integrity feature applies equally to a single CICS system within the processor.)

Every CICSPlex SM module installed in the LPA can be used only by the release of CICSPlex SM to which it relates.

CICSPlex SM supplies prebuilt SMP/E USERMODs as members in the CICSTS13.CPSM.SEYUSAMP library. The USERMODs are:

```
EYU$UM01 - Local MAS modules
EYU$UM02 - Remote MAS modules
```

These USERMODs contain ++MOVE statements for each module that is eligible for the extended link pack area (ELPA). A read-only module that may reside above the 16MB line is eligible for the ELPA.

CICSPlex SM allocates an empty library for your use, called SYS1.CICSTS13.CPSM.SEYULPA. You can use SYS1.CICSTS13.CPSM.SEYULPA as the LPA library or you can add the modules to another LPA library.

If you are going to use SYS1.CICSTS13.CPSM.SEYULPA, verify that you have already authorized this library (see "Authorizing libraries (CAS)" on page 203), and that you have applied appropriate security (see the *CICS RACF Security Guide*.) You can give the SYS1.CICSTS13.CPSM.SEYULPA library your own high-level index. If you do, you must specify the new index on the LINDEX parameter of the EYUISTAR job.

The following sections provide information about:
- Space requirements
- Installing CICSPlex SM modules into the LPA
- Controlling the use of modules from the LPA
- Applying maintenance to LPA modules.

Space requirements

You must allow enough space in the link pack area for the installation of the selected CICSPlex SM modules. The approximate space required for the modules is:

Local MAS	2 034KB
Remote MAS	1 847KB

The total space needed depends on how the modules are packaged into the link pack area by the operating system.

Installing CICSPlex SM modules into the LPA

The term *install* means move or copy a module into the SYS1.CICSTS13.CPSM.SEYULPA library, by using SMP/E, or by using a copying method that reblocks the copied modules when the target data set has a smaller block size than the data set you are copying from (for example, use the COPYMOD function of the IEBCOPY program). The procedure for installing modules in the LPA by using SMP/E is described in this section.

You should not relink-edit the modules in order to get them into the SYS1.CICSTS13.CPSM.SEYULPA library. CICSPlex SM modules, as supplied, have the necessary attributes that cause MVS to load them automatically above the 16MB line (into the ELPA).

The MVS link pack area has both pageable and fixed areas. Although you can install CICSPlex SM modules into the fixed areas, for performance reasons you should use the pageable areas.

Modules to be loaded into the MVS pageable link pack area (PLPA) must have been link-edited with the RENT attribute. The library in which these modules reside must be named in an LPALSTxx member of the SYS1.PARMLIB library.

To install modules in the CICSPlex SM LPA library, and to ensure that SMP/E can continue to service them, complete the following steps for one or both of the CICSPlex SM-supplied USERMODs:

1. Receive the USERMOD into the CICSPlex SM global zone, and apply it to the CICSPlex SM target zone.
2. Define the SYS1.CICSTS13.CPSM.SEYULPA library to your MVS.

Note: You must also verify that the CSD referenced by the MAS contains the appropriate CICSPlex SM groups for loading modules from the LPA. For information about updating the CSD, see "Updating CSD files using DFHCSDUP (MVS MAS)" on page 250.

Receiving and applying the USERMOD

To receive and apply the CICSPlex SM-supplied USERMODs, in EYU$UM01 or EYU$UM02, you can use the sample job EYULPMOD, which is tailored to your CICSPlex SM environment and stored in the CICSTS13.CPSM.XEYUINST library when you run the EYUISTAR job. Member EYULPMOD must be edited to receive and apply the desired USERMODs. Ensure that the EYUISTAR settings match the corresponding DFHISTAR settings.

Receive the USERMOD into the CICSPlex SM global zone and apply it to the CICSPlex SM target zone. This causes SMP/E to move those load modules you have specified from the named CICSPlex SM target library (either CICSTS13.CPSM.SEYUAUTH or CICSTS13.CPSM.SEYULOAD) into the SYS1.CICSTS13.CPSM.SEYULPA library.

When the USERMOD is applied, the corresponding LMOD entries within the target zone SMP CSI are updated. Either or both USERMODs may be applied depending on your enterprise's requirements.

Do not accept the USERMOD into the distribution zone, and, for the time being, do not apply it to any other target zone.

Defining the SYS1.CICSTS13.CPSM.SEYULPA library to your MVS

Add the full name of the SYS1.CICSTS13.CPSM.SEYULPA library to an LPALSTxx member of SYS1.PARMLIB. This ensures that the library contents are loaded into the PLPA at the next IPL of your system when CLPA is specified.

When you have defined the SYS1.CICSTS13.CPSM.SEYULPA library to MVS, you should re-IPL your MVS with CLPA specified to enable the modules in the SYS1.CICSTS13.CPSM.SEYULPA library to be used from the LPA.

To run DFCSDUP to add the CICSPlex SM resource definitions required for MAS execution, use the following SYSIN control statement:

```
//SYSIN DD *
 UPGRADE USING(EYU9XXGB)
/*
```

Controlling the use of modules from the LPA

You can control whether CICS uses modules from the LPA, by specifying the LPA and PRVMOD CICS system initialization parameters or by including or excluding the SYS1.CICSTS13.CPSM.SEYULPA library (defined to MVS as an LPA library) in the STEPLIB or DFHRPL concatenations.

Notes:

1. A module that is link-edited with the RMODE(ANY) attribute is loaded into the ELPA.
2. It is important to remember that the LPA-resident version of a module usually loaded from STEPLIB will not be used from the LPA if it is left in the STEPLIB DD concatenation of libraries. If a module is found in the STEPLIB concatenation, it is loaded into the private area of the address space, and the LPA version ignored. This situation can be avoided by moving the LPA-eligible modules into an LPA library, as described in "Installing CICSPlex SM modules into the LPA" on page 256.

For further information about controlling the use of LPA-eligible modules, see "Chapter 9. Installing CICS modules in the MVS link pack area" on page 35, taking particular note of information concerning:
- The module-not-found warning message (DFHLD0107I)
- CICS SIT parameters related to LPA modules.

Applying maintenance to LPA modules

Use the SMP/E RESTORE function to back off the USERMOD before modules in the LPA are updated or copied. Afterwards, the USERMOD may be reapplied.

Preparing to start an MVS MAS

Note: Because a CICS system is unknown to CICSPlex SM until the CMAS with which the CICS system is associated is started, you should start the CMAS before any of the MASs (that is, the CICS systems the CMAS is to manage).

In order for a CICS system to be managed by CICSPlex SM, you must:
- Define the system to CICSPlex SM, as described in the *CICSPlex SM Administration*
- Change the startup JCL for that system by:
  - Modifying the DD statements shown in Figure 54 on page 259, to include the CICSPlex SM data sets
  - Verifying that the appropriate CICS SIT parameters are included

```
  ...
//STEPLIB  DD DSN=CICSTS13.CPSM.SEYUAUTH,DISP=SHR
//DFHRPL   DD DSN=CICSTS13.CPSM.SEYULOAD,DISP=SHR
//EYUPARM  DD DSN=(Any PO or PS data set with LRECL=80)
  ...
```

Figure 54. MVS MAS-specific JCL requirements

When changing these DD statements in the startup JCL for a CICS system make sure that the:

STEPLIB DD statement
: Includes the CICSTS13.CPSM.SEYUAUTH authorized load library.

DFHRPL DD statement
: Includes the CICSTS13.CPSM.SEYULOAD load library.

EYUPARM DD statement
: Identifies the library containing the CICSPlex SM parameters.

Notes:

1. Members EYULMS0P (for a local MAS) and EYURMS0P (for a remote MAS), in the CICSTS13.CPSM.SEYUPARM data set, contain sample system parameters for local and remote MASs; these members must be edited. See “Chapter 44. CICSPlex SM system parameters” on page 403 for a detailed description of each parameter.
2. If you want to use Business Application Services to install CICS resources in a MAS, you must specify the CICSPlex SM system parameter MASPLTWAIT(YES) for that system. This parameter suspends CICS PLT processing until all CICS resources are installed and the CICSPlex SM MAS is fully initialized.
3. The destination control table referenced during CICS initialization must contain an entry that is the same as the entry in CICSTS13.CPSM.SEYUSAMP(EYU$DCT1). For additional information, see “Updating CICS resource definition tables for MASs” on page 249.

   For CICS TS for OS/390, when the CSD is upgraded with the CICSPlex SM group of resource definitions, the DCT entries in the CSD are defined as TDQUEUE resources.

Activating DB2 connections during CICS startup

This section applies to CICS Transaction Server for OS/390 Release 3 CICS systems with the CICS-DB2 attachment facility.

Special considerations apply when BAS is used to install a DB2 connection defined to CICSPlex SM via a DB2CDEF resource definition.

When BAS is used to define and then install a DB2 connection (via a DB2CDEF) the connection starts out in NOTCONNECTED status. You can then issue a CONNect command on the DB2CONN view against an installed connection, to cause the connection to the DB2 subsystem to be activated.

In a test environment, it may be acceptable to wait for the MAS to start and then install the BAS definition, and issue a CONNECT command against the resulting DB2CONN.

However, in a production system, you may want the connection to be automatically activated when the MAS starts up, as part of the PLT processing sequence, so that the DB2 subsystem can be accessed immediately by programs and users.

Specifying the CICS SIT parameter DB2CONN=YES does not by itself achieve this, because at the time this and other SIT parameters are processed, CICSPlex SM has not yet installed any DB2CDEF objects.

The way to activate a DB2 connection during CICS startup is as follows:
1. Ensure there is an appropriate DB2CDEF resource definition for CICSPlex SM to install, and that the definition is set up for automatic installation.
2. Specify CICSPlex SM parameter MASPLTWAIT(YES). This causes the DB2CDEF resource definition (as well as all other BAS resource definitions) to be installed during PLT processing.
3. Arrange for the appropriate DB2 connect program to be started *after* the MAS startup program (EYU9NXLM for a local MAS, EYU9NXRM for a remote MAS).

Activating XM MRO connections during CICS startup

Special considerations apply when BAS is used to install an XM MRO connection. Ensure that you have not activated DB2 or MQSeries Ensure that you have not activated DB2 or MQSeries® connections before running EYU9NXLM. IRC will not function unless you ensure this.

If you are running CICS/ESA 4.1, or CICS TS 1.1, specify IRCSTRT=YES in the system initialization table, and ensure that your DB2 and MQSeries PLTPI programs follow EYU9NXLM in your PLT.

If you are running CICS TS 1.2, specify IRCSTRT=YES, DB2CONN=NO, and MQCONN=NO in the system initialization table, and ensure that your DB2 and MQSeries PLTPI programs follow EYU9NXLM in your PLT.

MVS MAS-related CICS SIT parameters

You should verify that the sequential data set or partitioned data set member identified by the CICS SYSIN statement includes the appropriate CICS system initialization table (SIT) parameters, as described in Table 18.

Review all of the listed parameters for each MAS, to ensure that the values specified are appropriate. When you specify YES for a specific resource type (XCMD, XDCT, XFCT, XJCT, XPCT, or XPPT), a CICSPlex SM security profile must exist for that resource type. (See the *CICS RACF Security Guide* for information about creating security profiles.)

Table 18. CICS SIT parameters for an MVS MAS

Parameter	Explanation	CICS release			
		4.1	1.1	1.2	1.3
APPLID=	VTAM application ID for this CICS system. Used as MAS name when NAME(value) is not specified as a CICSPlex SM system parameter.	✓	✓	✓	✓
DCT=	Destination control table (See "Updating CICS resource definition tables for MASs" on page 249.)	✓			

Table 18. CICS SIT parameters for an MVS MAS (continued)

Parameter	**Explanation**	**CICS release**			
		4.1	**1.1**	**1.2**	**1.3**
DFLTUSER=userid	Specify the user identifier that is to be used for security checking when a user is not defined to the ESM.	✓	✓	✓	✓
DSALIM=	Limit of DSA storage below 16MB. Should be set to at least 4MB.	✓	✓	✓	✓
EDSALIM=	Limit of DSA storage above 16MB. Should be set to at least 30MB but the actual amount of EDSA needed can vary significantly and depends on many factors. Some examples of these factors are: • how many resources are installed in the MAS, • what other software is installed, • whether the MAS is running with Language Environment, • whether Transaction Isolation is active, • the CICS MXT value, • the storage requirements of the CICS version.	✓	✓	✓	✓
GRPLIST=	Identify the name of the group list containing the CICSPlex SM group added to the CSD file for the MAS. (See "Updating CSD files using DFHCSDUP (MVS MAS)" on page 250 for additional information.)	✓	✓	✓	✓
ISC=YES	Code YES to include the CICS programs required for interregion and intersystem communications.	✓	✓	✓	✓
MCT=	Monitoring control table. If you have CICS performance class monitoring active, then you must specify a value for this parameter. You can use 2$ (the default) or an existing table. (See **Note** below.)	✓	✓	✓	✓
MN=ON	Activates CICS Monitor. (See **Note** below.)	✓	✓	✓	✓
MNFREQ=001500	Writes performance class data every 15 minutes. **Note:** Set only for local MAS.	✓	✓	✓	✓
MNPER=ON	Tells CICS to monitor performance classes. (See **Note** below.)	✓	✓	✓	✓
Note for MCT, MONITOR, MN, and MNPER parameters: To get all data available for the TASK and MLOCTRAN views, MCT must have a value specified, CICS monitoring for performance classes must be activated, and you must be collecting performance class data. If you do not want this data written to an SMF data set, you can suppress the monitor records. See the description of the SUPPRESSCMF parameter in "Chapter 44. CICSPlex SM system parameters" on page 403.					
MXT=	Maximum tasks. Increase by 20 to accommodate the CICSPlex SM MAS tasks. **Note:** CICSPlex SM rarely uses all 20 of these additional tasks. If you are using the MXT value alone to control application transactions, increasing this value may allow more application transactions to run concurrently. To prevent this from occurring, you can define a transaction class for the application. Then, set a class maximum task (CMXT) value that limits the number of concurrent transactions.	✓	✓	✓	✓

Table 18. CICS SIT parameters for an MVS MAS (continued)

Parameter	Explanation	CICS release			
		4.1	**1.1**	**1.2**	**1.3**
PLTPI=	Initialization table. (See “Updating CICS resource definition tables for MASs” on page 249.)	✓	✓	✓	✓
SEC= {YES | NO}	Indicate whether external security checking is to be performed for this CICS system. Specify: **YES** When READ access is granted: • READ is permitted • UPDATE is refused. When UPDATE access is granted: • READ is permitted • UPDATE is permitted. **NO** Security checking is not performed. **Notes:** 1. For CICS security, the value specified with SEC= for a CMAS overrides the value specified with SEC= for a MAS. (For more information about this parameter, see the *CICS RACF Security Guide*.) 2. For CICSPlex SM security to be active, you must set SEC=YES for a MAS, and the CMAS to which it connects must have the CICSPlex SM system parameter SEC(YES). When CICSPlex SM security is not activated in the CMAS, the connection between the CMAS and the MAS cannot be established. If this is attempted, message EYUCR0007E is issued to the console, the CMAS joblog, and the EYULOG. (For more information about the SEC parameter for the CMAS, see “Chapter 44. CICSPlex SM system parameters” on page 403.)	✓	✓	✓	✓
SECPRFX={YES | NO}	Specify whether the user ID is used as the prefix that is added to the beginning of all resource names to distinguish this CICS system from other CICS systems.	✓	✓	✓	✓
SRT=	System Recovery Table Suffix. (See “Updating CICS resource definition tables for MASs” on page 249.)	✓	✓	✓	✓
SYSIDNT=	Indicate the id of the CICS system. This name should be unique within a CICSplex. **Note:** This parameter must be specified for a remote MAS. When you define the CMAS-to-remote MAS link, as described in the *CICSPlex SM Administration*, the Target Sysid value must match this SYSIDNT value.	✓	✓	✓	✓
XCMD={YES | name | NO}	Indicate whether EXEC CICS system commands are to be included in security checking. Specify YES or NO.	✓	✓	✓	✓
XDB2={No | name}	Indicate whether DB2 resources are to be included in security checking. Specify NO or name.			✓	✓

Table 18. CICS SIT parameters for an MVS MAS (continued)

Parameter	Explanation	CICS release			
		4.1	1.1	1.2	1.3
XDCT={YES | name | NO}	Indicate whether destination control entries are to be included in security checking. Specify YES or NO.	✓	✓	✓	✓
XFCT={YES | name | NO}	Indicate whether file control entries are to be included in security checking. Specify YES or NO. (See note on page 260.)	✓	✓	✓	✓
XJCT={YES | name | NO}	Indicate whether journal entries are to be included in security checking. Specify YES or NO. (See note on page 260.)	✓	✓	✓	✓
XPCT={YES | name | NO}	Indicate whether EXEC-started transactions are to be included in security checking. Specify YES or NO. (See note on page 260.)	✓	✓	✓	✓
XPPT={YES | name | NO}	Indicate whether program entries are to be included in security checking. Specify YES or NO. (See note on page 260.)	✓	✓	✓	✓
Note: The CICS release indicators are: **4.1** CICS/ESA 4.1 **1.1** CICS TS for OS/390 1.1 **1.2** CICS TS for OS/390 1.2 **1.3** CICS TS for OS/390 1.3					

Stopping and restarting management of a CICS system

This section tells you how to:
- Stop management of a CICS system
- Restart management of a CICS system
- Terminate a CICS system.

Stopping management of a CICS system

To stop the MAS agent code in an active CICS system, either:
- Issue the STOP action command from the MAS view, or
- Run transaction COSH in the MAS. COSH may be started at a 3270 terminal, at a console, or via ATI.

Stopping the MAS agent prevents CICSPlex SM from accessing the MAS until either the CICS system is restarted (see page 258) or the COLM or CORM transaction is issued (see “Restarting management of a CICS system”).

Note: When a MAS is active as a CICSPlex SM workload management routing region, and the dynamic routing program is set to EYU9XLOP, the STOP command is not honored. In this situation, before you issue the STOP command you must use the CICSRGND view to change the dynamic routing program from EYU9XLOP to the CICS default dynamic routing program, DFHDYP, or another valid dynamic routing program.

Restarting management of a CICS system

To reactivate a running CICS system as a MAS, issue the CICS transaction:

COLM For a local MAS

CORM	For a remote MAS

Note: If you want a local MAS to be recognized as a workload management routing region when CICSPlex SM resumes managing the system, make sure the dynamic routing program is set to EYU9XLOP. To change the dynamic routing program, use the CICS CEMT transaction before you reactivate the local MAS.

Terminating a MAS

To verify that the CICSPlex SM MAS shutdown processing is properly installed, you can terminate the CICS system and check the log for the following shutdown message:

```
EYUXL0016I  MAS shutdown complete
```

To terminate a CICS system running the MAS agent code, use the CICSRGN view to issue the desired shutdown command. For more information about the CICSRGN view, see the *CICSPlex SM Operations Views Reference* manual.

Chapter 33. Setting up a CICS/VSE remote managed application system (MAS)

This chapter describes the steps you must perform so that a CICS system running under VSE can be known as a remote managed application system (MAS) to CICSPlex SM. You must be running CICS Transaction Server for OS/390 Release 3 to manage systems running CICS Transaction Server for VSE/ESA Release 1, but you can use CICSPlex SM 1.3 to manage systems running CICS/VSE 2.3. For details of CICS system connectivity, see "CICS system connectivity" on page xiv.

The information you need to set up a VSE remote MAS is in the following sections:

- "Reviewing VTAM definitions for a VSE remote MAS" on page 266
- "Editing post-installation members (VSE remote MAS)" on page 268
- "Adding CICS system definitions (VSE remote MAS)" on page 268
- "Using CICSPlex SM modules in the shared virtual area" on page 272
- "Preparing to start a VSE remote MAS" on page 275
- "Stopping and restarting management of a CICS/VSE system" on page 279.

For a summary of the MAS setup tasks that you can refer to while performing them, see "Chapter 29. Setup checklist and worksheets" on page 185.

Before you begin

Before you begin, you should be aware of the following requirements and limitations of a CICS/VSE remote MAS:

- Before you install the CICSPlex SM VSE agent code, you must already have installed CICSPlex SM for CICS Transaction Server for OS/390 Release 3.
- A VSE remote MAS cannot act as a terminal-owning region (TOR) in the CICSPlex SM workload management environment.
- Problem determination using CICSPlex SM facilities is the same for a CICS/VSE remote MAS as it is for a CICS/MVS remote MAS. However, the CICSPlex SM tools for the Interactive Problem Control System (IPCS) are not available for debugging problems in a CICS/VSE remote MAS.

If you are converting your CICSPlex SM system or systems from a previous release to CICSPlex SM for CICS Transaction Server for OS/390 Release 3, you should read *CICS Transaction Server for OS/390 Migration Guide*.

For details on applying corrective or preventive maintenance to CICSPlex SM, see "Chapter 37. Applying service to CICSPlex SM" on page 313.

Using CICS global user exits and user-replaceable modules

This section describes the CICS global user exits (GLUE) that are used by CICSPlex SM.

The way these exits are used by CICSPlex SM conforms to the standard described in the *CICS Transaction Server for VSE/ESA Customization Guide*. CICSPlex SM uses these exits only to acquire information; the application environment is not altered.

The XSTOUT exit is used when monitoring services are enabled for a remote MAS. It is used to get statistical data before the data is reset by CICS. It is used to obtain statistics information and always returns a "continue processing" return code. It is disabled when a shutdown request for the MAS is received.

The XMEOUT, XDUREQ, and XDUOUT exits are used when topology requests are enabled for a remote MAS. The XMEOUT exit is used to detect short on storage sick and well health events.

- The XRSINDI exit is used to detect topology resource changes.
- The XDUREQ exit is used to detect system dump and transaction dump sick health events.
- The XDUOUT exit is used to detect transaction dump well health events.
- The XSNOFF exit is used to detect user signoff events.

Reviewing VTAM definitions for a VSE remote MAS

When you are using a LU 6.2 protocol, the current VTAM definitions for each VSE remote MAS must be reviewed and, if necessary, modified in order for the VSE remote MAS to communicate with the CMAS.

Step 1: Reviewing a VSE remote MAS application definition

To locate the VTAM definitions currently in use, locate the appropriate ATCCONxx configuration list member referenced when VTAM is started. To locate the VSE remote MAS application definition, examine the members named in the configuration list.

If the application definition does not already have them, modify it to include the following parameter definitions:

APPC=NO
: Tells VTAM whether or not the application program can issue APPCCMD macro instructions.

PARSESS=YES
: Allows this application program to have multiple LU-LU sessions between the same session partners.

The following is an example of a valid VSE remote MAS application definition:

```
        VBUILD TYPE=ALL
name    APPL AUTH=(PASS,ACQ,SPO,VPACE),
             PARSESS=YES,
             SONSCIP=YES,
             APPC=NO
```

Step 2: Reviewing VSE remote MAS cross-domain definitions

You should review and, if necessary, define cross-domain resources (CDRSC) if either of the following situations occur:

- A VSE remote MAS cannot take advantage of the dynamically defined CDRSCs.
- You want to minimize the overhead involved in using dynamically defined CDRSCs.

To establish a CDRSC definition, you must either create a new member or access an existing member in the PRD1.CONFIG sublibrary. In the new or existing member, specify the following CDRSC statement for the CMAS with which you want to communicate:

```
        VBUILD TYPE=CDRSC
name    CDRSC CDRM=cdrm
```

where:

name Is the name assigned to the CMAS application.

cdrm Is the name of the MVS image previously identified as the cross-domain resource manager (CDRM).

For example, to allow the remote MAS on SYSB to communicate with the CMAS on SYSA, you might create the member CDRCMS1, in the PRD1.CONFIG sublibrary, which contains the CDRSC statements:

```
        VBUILD TYPE=CDRSC
CMS1    CDRSC CDRM=VTAMA
```

where VTAMA is the cross-domain resource manager name assigned to SYSA.

The same types of definitions are also needed for the CMASs on SYSA to communicate with the remote MAS on SYSB. That is, for the CMAS on SYSA, you might create a member named CDRRMS1, which contains the CDRSC statements:

```
        VBUILD TYPE=CDRSC
RMS1    CDRSC CDRM=VTAMB
```

where VTAMB is the cross-domain resource manager name assigned to SYSB.

For additional information about cross-domain resources, see the *VTAM Resource Definition Reference* manual.

Step 3: Updating the configuration list (VSE remote MAS)

If, in Step 1 or 2, you created new members in the PRD1.CONFIG sublibrary, you must update the VTAM configuration list for each VSE image. This causes the new members to be automatically activated when VTAM starts.

To do this, add the new member names to the end of the configuration list in the appropriate ATCCONxx member of the PRD1.CONFIG sublibrary. (To find this member, look in the VTAM configuration's start list named PRD1.CONFIG(ATCSTRxx).)

To illustrate, the examples shown in Steps 1 and 2 assume the creation of a member named CDRCMS1. To add this member to the end of the configuration list in ATCCONxx, you would specify:

```
CDRCMS1
```

Note: If you added the CMAS and cross-domain definitions to existing members, ATCCONxx should already contain these member names.

Step 4: Activating the major nodes (VSE remote MAS)

You can activate the definitions created in Steps 1 and 2 by either restarting VTAM for each system, or manually activating the definitions.

To manually activate a major node, you can issue the following commands, where `name` identifies a major mode created (or modified) in Steps 1 and 2:

- Deactivate the major node if it is currently active by issuing the command:

  ```
  VARY NET,INACT,ID=name
  ```

- Activate (or reactivate) the major node by issuing the command:

  ```
  VARY NET,ACT,ID=name
  ```

To ensure that the major node has been activated, issue the command:

```
D NET,ID=name
```

For example, to activate the member CDRCMS1 and then ensure that it has been activated, you would issue the commands:

```
VARY NET,INACT,ID=CDRCMS1
VARY NET,ACT,ID=CDRCMS1
D NET,ID=CDRCMS1
```

The preceding steps need to be performed for each VSE remote MAS you may be using.

Editing post-installation members (VSE remote MAS)

When you installed the CICSPlex SM VSE agent code, skeleton job control statement (JCS) members were installed in sublibrary 0811IX. The installed members and the purpose of each are as follows:

EYU$CON3.Z
: Updates the CSD with the CICS session and connection resource definitions for communications with the CMAS.

EYUJDTP3.Z
: Creates a sequential file that contains the CICSPlex SM system parameters.

EYUJSVAL.Z
: Creates SVA load list phase $SVACPSM in IJSYSRS.SYSLIB.

EYUJCSG3.Z
: Upgrades the CSD with the CICSPlex SM resource definitions.

Use the ICCF LIBRP procedure to copy these members to your ICCF library for editing. For information related to using the LIBRP procedure, see the *VSE/Interactive Computing Control Facility Primer*.

Adding CICS system definitions (VSE remote MAS)

You must add resource definitions to the CICS system definition (CSD) file for each VSE remote MAS you are using.

Updating CICS resource definition tables for VSE remote MASs

For each VSE remote MAS, some of your CICS resource definition tables must be updated to reference the CICSPlex SM copy book that contains entries for that control table. When you have updated the resource definition table source for each VSE remote MAS, assemble and link-edit each one using the CICS procedures for maintaining resource definition table phases.

Sublibrary 0811IX contains the following copy book members. These members contain the resource definition table entries.

EYU$DCT3.A
: Destination control table (DCT) entry.

EYU$PLT3.A
: Program List Table (PLT) entry for VSE remote MAS initialization.

EYU$PSD3.A
Program List Table (PLT) entry for VSE remote MAS shut down, applicable only at CICS/VSE 2.3.

EYU$SRT0.A
System Recovery Table (SRT) entry for VSE remote MAS shut down, applicable only at CICS Transaction Server for VSE/ESA Release 1.

Notes:

1. EYU$DCT3.A contains entries for destination COPR. When you assemble the DCT to include copybook EYU$DCT3.A, a return code 4 is expected because the source contains destinations beginning with the character C.
2. EYU$PLT3.A contains an entry for program EYU9NXRM. Ensure that program EYU9NXRM runs during the second phase of PLT execution (which is the third phase of CICS initialization). The change to the PLTPI table must follow the PROGRAM=DFHDELIM entry; the suggested form is:
```
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM      ....      COPY EYU$PLT3
```
The suffix of this PLT must then be named on the CICS program list table post initialization (PLTPI) parameter for each VSE remote MAS.
3. EYU$PSD3.A contains an entry for program EYU9NXS2. Ensure that program EYU9NXS2 runs during the first phase of PLT execution during shut down. The change to the PLTSD table must precede the PROGRAM=DFHDELIM entry; the suggested form is:
```
COPY EYU$PSD3
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM
```
The suffix of this PLT must then be named on the CICS program list table post shutdown (PLTSD) parameter for each VSE remote MAS.

Updating CSD files using DFHCSDUP (VSE remote MAS)

The program, transaction, and profile resource definitions you must add to the CSD file for each CICS/VSE system are distributed in the phases EYU923G3 and EYU941G3 of sublibrary 0811IX.

Sample JCS that you can use to install the definitions is supplied in member EYUJCSG3.Z of sublibrary 0811IX. Copy this member to the ICCF library using the LIBRP procedure and edit it for execution.

To execute the ICCF LIBRP procedure, enter the following at the ICCF command mode panel:

```
LIBRP PRD2.0811IX EYUJCSG3.Z EYUJCSG3
```

Use the JCS in sample member EYUJCSG3.Z, shown in Figure 55 on page 270 to do the following:

- Define resource group EYU140G3 to the specified CSD.
- Add group EYU140G3 to the CSD group list referenced by the CICS initialization table (SIT) parameter GRPLIST.

```
// JOB EYUJCSG3
*
* Edit and run this job to upgrade the CSD with the CPSM resource
*  definitions and to add the CPSM group to a CICS group list.
*
* Variables you must edit are:
* --------------------------
*
* &EYU9nnG3      - Phase containing resource definitions.
                   EYU923G3 for CICS/VSE 2.3
                   EYU941G3 for CICS TS for VSE/ESA R1
* &CSD.FILE.NAME - CICS CSD file to be updated.
* &LIB.SLIB      - Sublibrary containing installed CPSM members.
* &GRPLIST       - CICS group list to contain CPSM group.
* &VSAMCAT       - VSAM catalog used to reference CSD file.
*
// DLBL DFHCSD,'&CSD.FILE.NAME',,VSAM,CAT=&VSAMCAT
// LIBDEF *,SEARCH=(&LIB.SLIB),TEMP
// EXEC DFHCSDUP,SIZE=AUTO
 UPGRADE USING(EYU9nnG3)
 ADD     GROUP(EYU140G3) LIST(&GRPLIST)
/*
/&
```

Figure 55. Sample JCS to run DFHCSDUP for VSE remote MAS

Modify the sample JCS to provide the following information:

Change all occurrences of..	**To..**
&CSD.FILE.NAME	The name of the CSD file to be updated.
&GRPLIST	The CICS group list to contain the CPSM group.
&LIB.SLIB	The sublibrary containing the installed CPSM members.
&VSAMCAT	The VSAM catalog used to reference the CSD file.

A return code of 4 is expected from this run of DFHCSDUP. This is because, before phase EYU9nnG3 defines group EYU140G3 to the CSD, it attempts to delete group EYU140G3.

In the CSD referenced by the VSE remote MAS, create corresponding CONNECTION and SESSIONS definitions for the target CMAS. The group containing these definitions must be named in the CICS group list referenced by the VSE remote MAS CICS/ESA SIT parameter GRPLIST.

Note: If you have already created these definitions and reference the appropriate group in the CICS startup, you can skip this step.

The link from the CMAS to the VSE remote MAS must also be defined. For more information about creating both the CMAS and the remote MAS definitions, see the description of CMTPMDEF in the *CICSPlex SM Administration*.

Sample JCS that you can use to install the definitions is supplied in member EYU$CON3.Z of sublibrary 0811IX. Copy this member to the ICCF library using the LIBRP procedure and edit it for execution.

To execute the ICCF LIBRP procedure, enter the following at the ICCF command mode panel:

```
LIBRP PRD2.0811IX EYU$CON3.Z EYU$CON3
```

Use the JCS in sample member EYU$CON3.Z, shown in Figure 56 to do the following:

- Define SESSIONS and CONNECTION definitions within the specified CSD.
- Add the group containing the definitions to the CSD group list referenced by the CICS SIT parameter GRPLIST.

```
// JOB EYU$CON3
*
* Edit and run this job to define the session and connection resource
*  definitions for communications with the CMAS.
*
* Variables you must edit are:
* ----------------------------
*
* &CMAPPLID      - CMAS VTAM APPLID value
* &CMSYSID       - CMAS CICS SYSID value
* &CSD.FILE.NAME - CICS CSD file to be updated
* &GRPNAME       - CSD Group to contain definition
* &LSTNAME       - CSD Group list to contain definition
* &VSAMCAT       - VSAM Catalog used to reference CSD file
*
// DLBL DFHCSD,'&CSD.FILE.NAME',,VSAM,CAT=&VSAMCAT
// EXEC DFHCSDUP,SIZE=AUTO
DELETE CONNECTION(&CMSYSID)
       GROUP(&GRPNAME)
DELETE SESSIONS(&CMSYSIDSESS)
       GROUP(&GRPNAME)
DEFINE CONNECTION(&CMSYSID)
       GROUP(&GRPNAME)
       NETNAME(&CMAPPLID)
       ACCESSMETHOD(VTAM)
       PROTOCOL(APPC)
       SINGLESESS(NO)
       DATASTREAM(USER)
       RECORDFORMAT(U)
       AUTOCONNECT(YES)
       INSERVICE(YES)
       ATTACHSEC(LOCAL)
```

Figure 56. Sample JCS to create CONNECTION and SESSIONS definitions for VSE remote MAS (Part 1 of 2)

```
DEFINE SESSIONS(&CMSYSIDSESS)
       GROUP(&GRPNAME)
       CONNECTION(&CMSYSID)
       PROTOCOL(APPC)
       MAXIMUM(4,2)
       SENDSIZE(4060)
       RECEIVESIZE(4060)
       SESSPRIORITY(0)
       AUTOCONNECT(YES)
       BUILDCHAIN(YES)
       USERAREALEN(0)
       IOAREALEN(0,0)
       RELREQ(NO)
       DISCREQ(NO)
       NEPCLASS(0)
       RECOVOPTION(SYSDEFAULT)
ADD    GROUP(&GRPNAME)
       LIST(&LSTNAME)
LIST   GROUP(&GRPNAME) OBJECTS
/*
/&
```

Figure 56. Sample JCS to create CONNECTION and SESSIONS definitions for VSE remote MAS (Part 2 of 2)

Modify the sample JCS to provide the following information:

Change all occurrences of..	To..
&CMAPPLID	The CMAS VTAM APPLID value.
&CMSYSID	The CMAS CICS SYSID value.
&CSD.FILE.NAME	The name of the CICS CSD file to be updated.
&GRPNAME	The CSD Group to contain definitions.
&LSTNAME	The CSD Group list to contain definitions.
&VSAMCAT	The VSAM Catalog used to reference the CSD file.

A return code of 4 is expected when you run this job. This is because, before job EYU$CON3 defines the CONNECTION and SESSIONS resources to the CSD, it attempts to delete those resource definitions.

Using CICSPlex SM modules in the shared virtual area

For systems running multiple MASs, using the shared virtual area (SVA) allows the VSE remote MASs to share the same set of CICSPlex SM modules. The objective is to place as many eligible modules in the SVA as possible. All CICSPlex SM modules except the following can be loaded into the SVA:
- EYUTXLPD
- EYU9NLM2
- EYU9R111
- EYU9R120
- EYU923G3
- EYU941G3

The benefits of placing code in the SVA are:
- The code is protected from possible corruption by user applications. Because the SVA is protected storage, it is almost impossible to modify the contents of these programs.

- Performance can be improved and demand for real storage reduced when you use the SVA for program modules. If more than one copy of the same release of CICSPlex SM is running in multiple partitions of the same processor, each partition requires access to the CICSPlex SM modules. These modules can be either loaded into each of the partitions or shared in the SVA. Using them in the SVA reduces the working set and therefore the demand for real storage, which reduces paging.

If test and production VSE remote MASs are sharing SVA modules, it may be desirable to run the test VSE remote MAS without the SVA modules when maintenance is being carried out. This can be accomplished by altering the JCS SEARCH statement for the CICSplex to enable searching the SVA after searching the sublibraries specified on the statement.

During system startup VSE/ESA™ uses the SET SDL command to load SVA-eligible phases into the SVA. The SET SDL command maintains the System Directory List (SDL), which includes the names of the phases that are to be loaded into the SVA. SET SDL can be issued only from the BG partition.

Sample JCS member EYUJSVAL.Z, in sublibrary 0811IX, is provided to create a SVA load list phase to install CICSPlex SM modules in the SVA. Copy this member to the ICCF library using the LIBRP procedure and edit it for execution.

To execute the ICCF LIBRP procedure, enter the following at the ICCF command mode panel:

```
LIBRP PRD2.0811IX EYUJSVAL.Z EYUJSVAL
```

Use the JCS in sample member EYUJSVAL.Z, shown in Figure 57 on page 274 to do the following:

- Assemble and link-edit the $SVACPSM phase.
- Catalog the phase in IJSYSRS.SYSLIB.

```
// JOB EYUJSVAL
*
* Run this job to define the SVA load list.
* This job catalogs phase $SVACPSM in IJSYSRS.SYSLIB.
*
// OPTION NODECK,NOXREF,CATAL
// LIBDEF PHASE,CATALOG=IJSYSRS.SYSLIB
// OPTION CATAL
// EXEC  ASSEMBLY,SIZE=256K
SIPL  TITLE '$SVACPSM PRIVATE SVA LOAD LIST'
      SPACE
      SVALLIST $SVACPSM,                                        C
               (EYU9BA02),                                      C
               (EYU9CM02),                                      C
               (EYU9DBG0),                                      C
               (EYU9DBG1),                                      C
               (EYU9DBG2),                                      C
               (EYU9DBUG),                                      C
               (EYU9MN02),                                      C
               (EYU9NA02),                                      C
               (EYU9NPS2),                                      C
               (EYU9NXRM),                                      C
               (EYU9NXSD),                                      C
               (EYU9NXS2),                                      C
               (EYU9PS02),                                      C
               (EYU9TS02),                                      C
               (EYU9XC02),                                      C
               (EYU9XD02),                                      C
               (EYU9XEMV),                                      C
               (EYU9XLEV),                                      C
               (EYU9XLOP),                                      C
               (EYU9XL02),                                      C
               (EYU9XM02),                                      C
               (EYU9XQ02),                                      C
               (EYU9XS02),                                      C
               (EYU9XZ02)
         END
/*
// EXEC  LNKEDT,SIZE=128K
/*
/&
```

Figure 57. Sample JCS to create the SVA load list

Before you load CICSPlex SM modules into the SVA, ensure that there is enough space for the modules. The CICSPlex SM modules require 2320K above the 16M line and 20K below the line in the SVA. Output from the LIBR command LISTDIR SDL shows the available space. Use the SVA command to increase the space available to the SDL. For additional information related to the SVA command, see the *VSE/ESA System Control Statements.*

Ensure that the CICSPlex SM sublibrary 0811IX is in the LIBDEF chain for the BG partition. Procedure LIBSDL establishes the LIBDEF chain and is used by procedure $0JCL to start the BG partition. $0JCL must be modified to include a LIST=$SVACPSM statement following the LIST=$SVACICS statement. For additional information about using the LIST= statement to modify the SDL, see the *VSE/ESA Guide to System Functions.*

Ensure that the $SVACPSM load list phase is available to be loaded. When it is installed into a sublibrary other than IJSYSRS.SYSLIB, that sublibrary must be searched when the SET SDL command is executed to update the system directory list.

Preparing to start a VSE remote MAS

Because a CICS system is unknown to CICSPlex SM until the CMAS with which the CICS system is associated is started, you should start the CMAS before any of the VSE remote MASs (CICS systems the CMAS is to manage).

In order for a CICS system to be managed by CICSPlex SM, you must do the following things:

- Define the CICS system to CICSPlex SM, as described in the *CICSPlex SM Administration*.
- Define the CMAS to remote MAS communication link as described in the *CICSPlex SM Administration*.
- Verify the startup JCS for each CICS system to ensure the following:
  - The 0811IX sublibrary is searched for the CICSPlex SM phases. When the library containing the 0811IX sublibrary is not automatically searched, the 0811IX sublibrary must be included on the JCS LIBDEF SEARCH statement.
  - The JCS contains a DLBL statement for the EYUPARM file.

    The destination control table referenced during CICS initialization must contain an entry that is the same as the entry in member EYU$DCT3.A of sublibrary 0811IX. For additional information about updating CICS resource definition table entries, see "Updating CICS resource definition tables for MASs" on page 249.
  - The appropriate CICS SIT parameters are included.

Defining the EYUPARM file

Sample JCS member EYUJDTP3.Z in sublibrary 0811IX is provided to install CICSPlex SM parameters in a sequential file. Copy this member to the ICCF library using the LIBRP procedure and edit it for execution.

To execute the ICCF LIBRP procedure, enter the following at the ICCF command mode panel:

```
LIBRP PRD2.0811IX EYUJDTP3.Z EYUJDTP3
```

Use the JCS in sample member EYUC22P3.Z, shown in Figure 58 on page 276, to create the file that contains the CICSPlex SM system parameters.

```
.
// JOB EYUJDTP3
*
* Edit and run this job to create a sequential file containing the
* CICSPlex/SM system parameters.
* This file must be referenced by the CICS job control statements.
*
* Variables to be edited:
* -----------------------
*
* &CICSYSID  - Controlling CMAS CICS SYSID
* &FILE.NAME - CPSM EYUPARM file name
* &PLEXNAME  - CICSplex to which remote MAS connects
* &RMASNAME  - Name of this remote MAS
* &TRKNUM    - Extent starting track number
* &VOLSER    - DASD volume serial number
*
// OPTION JCANCEL
// UPSI 1
// DLBL SDSKOUT,'&FILE.NAME',0,SD
// EXTENT SYS003,&VOLSER,1,0,&TRKNUM,5
// EXEC DITTO
$$DITTO CSQ OUTPUT=SYS003
 NAME(&RMASNAME)
 CICSPLEX(&PLEXNAME)
 CMASSYSID(&CICSYSID)
 TIMEZONE(Z)
 TERMID(CNSL)
 /*
 $$DITTO EOJ
 /&
```

Figure 58. Sample JCS to create the CICSPlex SM EYUPARM file

TERMID (CNSL) is required so that CICSPlex SM can start the CEMT transaction when required to shut down the VSE remote MAS.

Modify the sample JCS to provide the following information:

Change all occurrences of..	To..
&CICSYSID	The controlling CMAS CICS SYSID.
&FILE.NAME	The CPSM EYUPARM file name.
&PLEXNAME	The CICSplex to which this remote MAS connects.
&RMASNAME	The name of this remote MAS
&TRKNUM	The extent starting track number.
&VOLSER	The DASD volume serial number.

For a detailed description of each parameter and additional parameters that can optionally be used, see “Chapter 44. CICSPlex SM system parameters” on page 403.

VSE remote MAS-related CICS SIT parameters

You must verify that the CICS system initialization table (SIT) parameters include the appropriate values, as described in Table 19 on page 277.

Review all of the listed parameters for each VSE remote MAS to ensure that the values specified are appropriate. CICSPlex SM provides simulated CICS security checking for a CICS/VSE 2.3 remote MAS. To provide for the simulated CICS security checking, you must use the CICSPlex SM system parameters DFLTUSER, SEC, SECPRFX, XCMD, XDCT, XFCT, XJCT, XPCT, and XPPT. For a description of those parameters, see “Chapter 44. CICSPlex SM system parameters” on page 403. (See the *CICS RACF Security Guide* for information about creating security profiles.)

Table 19. CICS SIT parameters for a VSE remote MAS

Parameter	**Explanation**	**CICS release**	
		2.3	**1.1**
AMXT	Maximum tasks to be despatched. Increase by 20 to accommodate the CICSPlex SM MAS tasks.	✓	
APPLID=	VTAM application ID for this CICS system. Used as VSE remote MAS name when NAME(value) is not specified as a CICSPlex SM system parameter.	✓	✓
AUTINST=	VTAM application ID for this CICS system. Used as VSE remote MAS name when NAME(value) is not specified as a CICSPlex SM system parameter.	✓	
DCT=	Destination control table (See “Updating CICS resource definition tables for VSE remote MASs” on page 268.)	✓	
DFLTUSER=userid	Specify the user identifier that is to be used for security checking when a user is not defined to the ESM.		✓
DSALIM=	Limit of DSA storage below 16MB. Should be set to at least 4MB.		✓
EDSALIM=	Limit of DSA storage above 16MB. Should be set to at least 20MB.		✓
EXITS={YES | NO}	Indicate whether CICSPlex SM is initialized at VSE remote MAS startup.	✓	
GRPLIST=	Identify the name of the group added to the CSD file for the VSE remote MAS. (See “Updating CSD files using DFHCSDUP (VSE remote MAS)” on page 269 for additional information.)	✓	✓
ICVR	Runaway task time interval. Should be set to at least 5000.	✓	✓
ISC=YES	Code YES to include the CICS programs required for interregion and intersystem communications.	✓	✓
MCT=	Monitoring control table. If you have CICS performance class monitoring active, then you must specify a value for this parameter. You can use 1$ (the default) or an existing table. (See **Note** below.)	✓	✓
MN=ON	Activates CICS Monitor. (See **Note** below.)		✓
MNPER=ON	Tells CICS to monitor performance classes. (See **Note** below.)		✓
MONITOR=(PER)	Activates CICS monitoring for performance classes. (See **Note** below.)	✓	

Note for MCT, MONITOR, MN, and MNPER parameters: To get all data available for the TASK and MLOCTRAN views, MCT must have a value specified, CICS monitoring for performance classes must be activated, and you must be collecting performance class data.

If you do not want this data written to an SMF data set, you can suppress the monitor records. See the description of the SUPPRESSCMF parameter in “Chapter 44. CICSPlex SM system parameters” on page 403.

Table 19. CICS SIT parameters for a VSE remote MAS (continued)

Parameter	Explanation	CICS release	
		2.3	**1.1**
MXT=	Maximum tasks. Increase by 20 to accommodate the CICSPlex SM MAS tasks. **Note:** CICSPlex SM rarely uses all 20 of these additional tasks. If you are using the MXT value alone to control application transactions, increasing this value may allow more application transactions to run concurrently. To prevent this from occurring, you can define a transaction class for the application. Then, set a class maximum task (CMXT) value that limits the number of concurrent transactions.	✓	✓
PLTPI=	Initialization table. (See "Updating CICS resource definition tables for VSE remote MASs" on page 268.)	✓	✓
SEC= {YES | NO | MIGRATE}	Indicate whether external security checking is to be performed for this CICS system. Specify: **YES** When READ access is granted: • READ is permitted • UPDATE is refused. When UPDATE access is granted: • READ is permitted • UPDATE is permitted. **NO** Security checking is not performed. **MIGRATE** When either READ or UPDATE access is granted, both READ and UPDATE are permitted. **Notes:** 1. For CICS security, the value specified with SEC= for a CMAS overrides the value specified with SEC= for a remote MAS. (For more information about this parameter, see the *CICS RACF Security Guide*.) 2. For CICSPlex SM security to be active, you must set SEC=YES for a remote MAS, and the CMAS to which it connects must have the CICSPlex SM system parameter SEC(YES). When CICSPlex SM security is not activated in the CMAS, the connection between the CMAS and the remote MAS cannot be established. If this is attempted, message EYUCR0007E is issued to the console, the CMAS joblog, and the EYULOG. (For more information about the SEC parameter for the CMAS, see "Chapter 44. CICSPlex SM system parameters" on page 403.)		✓
SECPRFX={YES | NO}	Specify whether the user ID is used as the prefix that is added to the beginning of all resource names to distinguish this CICS system from other CICS systems.		✓
SRT=	System Recovery Table Suffix. (See "Updating CICS resource definition tables for VSE remote MASs" on page 268.)	✓	✓
SYSIDNT=	Indicate the id of the CICS system. This name should be unique within a CICSplex. **Note:** This parameter must be specified for a remote MAS. When you define the CMAS-to-remote MAS link, as described in the *CICSPlex SM Administration*, the Target Sysid value must match this SYSIDNT value.	✓	✓

Table 19. CICS SIT parameters for a VSE remote MAS (continued)

Parameter	Explanation	CICS release	
		2.3	1.1
XCMD={YES | NO}	Indicate whether EXEC CICS system commands are to be included in security checking. Specify YES or NO.		✓
XDCT={YES | NO}	Indicate whether destination control entries are to be included in security checking. Specify YES or NO.		✓
XFCT={YES | NO}	Indicate whether file control entries are to be included in security checking. Specify YES or NO. (See note on page 260.)		✓
XJCT={YES | NO}	Indicate whether journal entries are to be included in security checking. Specify YES or NO. (See note on page 260.)		✓
XPCT={YES | NO}	Indicate whether EXEC-started transactions are to be included in security checking. Specify YES or NO. (See note on page 260.)		✓
XPPT={YES | NO}	Indicate whether program entries are to be included in security checking. Specify YES or NO. (See note on page 260.)		✓

Note: The CICS release indicators are:
2.3 CICS/VSE 2.3
1.1 CICS Transaction Server for VSE/ESA Release 1

Stopping and restarting management of a CICS/VSE system

This section tells you how to:
- Stop management of a CICS/VSE system
- Restart management of a CICS/VSE system
- Terminate a CICS/VSE system.

Stopping management of a CICS/VSE system

To stop the VSE remote MAS agent code in an active CICS system, from the MAS view issue the action command STOP. Issuing the STOP action prevents CICSPlex SM from accessing the VSE remote MAS until either the CICS system is restarted (see "Preparing to start a VSE remote MAS" on page 275) or the CORM transaction is issued (see "Restarting management of a CICS/VSE system").

Restarting management of a CICS/VSE system

To reactivate a running CICS system as a remote MAS, issue the CICS transaction CORM.

Terminating a VSE remote MAS

To verify that the CICSPlex SM remote MAS shutdown processing is properly installed, you can terminate the CICS/VSE system and check the log for the following shutdown message:

```
EYUXL0016I  RMAS shutdown complete
```

To terminate the CICS system running the VSE remote MAS agent code, use the CICSRGN view to issue the desired shutdown command. For more information about the CICSRGN view, see the *CICSPlex SM Operations Views Reference* manual.

Chapter 34. Setting up a CICS for OS/2 remote managed application system (MAS)

This chapter describes the steps you must perform so that a CICS system running on an OS/2 programmable workstation can be known as a remote managed application system (MAS) to CICSPlex SM. CICSPlex SM can manage single- and multi-user systems running CICS for OS/2 Version 3.0 or later.

An overview of the setup process

This section provides an overview of the CICSPlex SM OS/2 setup process. It contains important information that you should review before installing the CICSPlex SM OS/2 components.

Additional information concerning the setup and support of the CICS for OS/2 remote MAS are contained in a README file, supplied in the following locations:

- Member EYU#READ in the SEYUOS2 data set.
- The README.TXT file in the installed workstation directory.
- The Read Me object in the the CICSPlex SM folder of the OS/2 desktop.

Before you begin

Before you install the CICSPlex SM OS/2 components, you must have already done the following:

- Installed CICS Transaction Server for OS/390 Release 3 or later on the host.
- Defined your terminal emulation. The terminal emulator and APPC you are running must be compatible with eNetwork Communications Server for OS/2 Warp (with corrective service diskette (CSD) 2 applied).
- Installed CICS for OS/2 on your own workstation or one that is accessible from your workstation.

Note: If you have previously installed prior releases of the CICSPlex SM OS/2 components on this workstation, delete them before you install CICS Transaction Server for OS/390 Release 3, as described in “Deleting the OS/2 components of a previous release of CICSPlex SM” on page 296.

The process for setting up a CICS for OS/2 remote MAS consists of the following tasks:

- Installing the IBM Software Installer for OS/2 files that are supplied with CICSPlex SM
- Installing the CICSPlex SM OS/2 agent code using Software Installer for OS/2
- Updating your CONFIG.SYS file
- Reviewing your eNetwork Communications Server for OS/2 Warp definitions
- Defining a TCS entry for CICSPlex SM
- Updating the CICS for OS/2 CICSENV.CMD file
- Reviewing the CICS for OS/2 system initialization parameters
- Customizing CICS for OS/2 DLLs
- Restarting your OS/2 workstation
- Editing the CICSPlex SM EYUPARMS.DAT file
- Importing the CICSPlex SM resource definitions
- Defining the CICS for OS/2 remote MAS to CICSPlex SM
- Restarting your CICS for OS/2 system

Each of these tasks is described in detail in the remainder of this chapter. Additional information is also provided on:
- Stopping and restarting a CICS for OS/2 remote MAS
- Deleting the OS/2 components of a previous release of CICSPlex SM.

Notes:
1. The examples and figures in this chapter use:
   - **D:** as the target drive
   - **CPSM140** as the target directory to contain CICSPlex SM elements
   - **CICSTS13.CPSM.SEYUOS2** as the MVS/ESA CICSPlex SM SMP/E library that contains the installation materials

   If you use other values, be sure to specify those as you perform the setup tasks in this chapter.
2. CICSPlex SM resource monitoring is not supported in a CICS for OS/2 remote MAS. However, you can use CICSPlex SM to populate the NetView RODM data cache and use the CICSPlex SM monitoring views and real-time analysis functions to monitor the operational state of CICS for OS/2 resources.
3. A CICS for OS/2 remote MAS supports user-written programs (defined via the STATDEF view) invoked by the real time analysis (RTA) function of CICSPlex SM, as described in *Managing Resource Usage*.
4. A CICS for OS/2 remote MAS cannot act as a terminal-owning region (TOR) in the CICSPlex SM workload management environment.
5. Problem determination using CICSPlex SM facilities is the same for a CICS for OS/2 remote MAS as it is for a CICS/MVS remote MAS. However, the CICSPlex SM tools for the Interactive Problem Control System (IPCS) are not available for debugging problems in a CICS for OS/2 remote MAS.
6. Installation of the CICS for OS/2 agent code has been validated using a 3270 emulation session provided by eNetwork Communications Server for OS/2 Warp. If you experience a “no host session...” problem when using a different emulator, shut down that emulator and try again using an eNetwork Communications Server for OS/2 Warp session.

Setup requirements

The CICSPlex SM components for a single supported version of CICS for OS/2 require approximately 3.6MB of disk space.

CICSPlex SM can use up to 11 CICS for OS/2 tasks. Five of those tasks are required for basic system management functions. Up to 6 additional tasks can be required for the NetView RODM interface, depending on the number and types of resources you are monitoring.

For purposes of planning, you can assume that installing CICSPlex SM on your OS/2 workstation will take a total of approximately 90 minutes. This estimate can be broadly divided into the following increments:
- 20 minutes to download and install the IBM Software Installer for OS/2 files that are supplied with CICSPlex SM.
- 40 minutes to download and install the CICSPlex SM components for a single supported version of CICS for OS/2.
- 30 minutes to complete the remaining installation tasks that do not involve Software Installer for OS/2.

Note: Once the CICSPlex SM components have been downloaded and installed onto one workstation in the LAN, you can invoke the peer install process to install CICSPlex SM on other workstations in the LAN. The peer install process eliminates the time required to download members from the host library. For more information, see "Installing components from another workstation" on page 287.

Restarting the installation process

If you are interrupted while installing the CICSPlex SM OS/2 components, you can easily restart the installation process:

- If you have installed the Software Installer for OS/2 materials supplied with CICSPlex SM, but have not installed any CICSPlex SM components, refer to "Opening the host catalog manually" on page 286.
- If you have installed at least one CICSPlex SM component:
  - Select the Installation Utility icon from the CICSPlex SM Icon View window.
  - Continue the installation process as described in "Installing the CICSPlex SM components" on page 285.

Installing the Software Installer for OS/2

The CICSPlex SM OS/2 agent code is installed onto an OS/2 workstation using the IBM Software Installer for OS/2. Before you can install CICSPlex SM, you must first install Software Installer for OS/2. The installation of Software Installer for OS/2 is performed by the EYUIDLDS.EXE file, which resides in the CICSTS13.CPSM.SEYUOS2 library on the host.

Note: The version of Software Installer for OS/2 that is supplied with CICSPlex SM is tailored to installing the CICSPlex SM OS/2 agent code. It is designed to share any common Software Installer for OS/2 files that may have been created during the installation of other OS/2 products. You should not attempt to install CICSPlex SM with any other version of Software Installer for OS/2.

Downloading the EYUIDLDS.EXE file

To download the Software Installer for OS/2 program onto your workstation, do the following:

1. Establish an OS/2 windowed or full-screen command-line session and an MVS/ESA host session at the TSO ready prompt, using your terminal emulator.
2. Decide which drive you want to use for the Software Installer for OS/2 and CICSPlex SM. Make that drive the current drive for your OS/2 session. For example, if you want to use drive D, enter the following at the OS/2 command prompt:

   ```
   D:
   ```

3. Change to the directory where you want to install the Software Installer for OS/2 and, subsequently, CICSPlex SM. For example, if you want to use the default directory used in this setup process, you must first create that directory by entering:

   ```
   MD \CPSM140
   ```

   Then change to that directory by entering:

   ```
   CD \CPSM140
   ```

4. Download the EYUIDLDS.EXE file by entering the following at the OS/2 command prompt:

```
RECEIVE EYUIDLDS.EXE A:'CICSTS13.CPSM.SEYUOS2(EYUIDLDE)'
```

Note: The name of the member in the host dataset is EYUIDLDE, and must be received into the OS/2 and must be received into the OS/2® file EYUIDLDS.EXE.

This example assumes that you are downloading from host session A and that CICSTS13.CPSM is the high-level qualifier for the MVS/ESA CICSPlex SM data sets that were installed using SMP/E. If you are downloading from a host session other than A, change the A: to reflect the appropriate host session. If a different high-level qualifier was assigned to the CICSPlex SM data sets, change CICSTS13.CPSM.SEYUOS2 to reflect the fully qualified name of the SEYUOS2 library.

Note: Downloading the EYUIDLDS.EXE file from the CICSTS13.CPSM.SEYUOS2 library takes approximately 5 minutes.

Using EYUIDLDS.EXE to install Software Installer for OS/2

To install the Software Installer for OS/2:

1. Make sure you are referencing the directory that contains the previously downloaded EYUIDLDS.EXE file. Then, enter:

```
EYUIDLDS
```

2. Select Continue and the Install from MVS host window appears.
3. Complete the Install from MVS host window, as follows:

Dataset name
The high-level qualifier of the MVS/ESA CICSPlex SM SMP/E library that contains the elements to be installed. The value must include the period following the qualifier. For example, to use the default value shown in this setup process, enter `CICSTS13.CPSM.`.

Note: The period is required after `CICSTS13.CPSM.`.

Destination
The target drive and target directory, which must match the location of the EYUIDLDS.EXE file. For example, to use the default value, enter `D:\CPSM140`.

4. Select the correct host session and then select OK. A status window appears to report the progress of the download process. If any errors occur, check the value you specified for the MVS source data set high-level qualifier.

Note: Downloading the Software Installer for OS/2 installation materials from the host takes approximately 15 minutes.

5. When the installation materials have been downloaded, the Instructions window appears. This window indicates whether the installation program was successfully installed.
6. Select Continue.

EYUINSTS is automatically invoked and the CICSPlex SM host catalog is also downloaded and opened. When the Install window appears, you can continue the installation process as described in “Installing the CICSPlex SM components” on page 285.

If either of the following occurs:

- You decide not to continue the installation process at this time.
- The Instructions window indicates there was a problem and the Install window does not appear when you select Continue.

Exit back to the OS/2 session. You can restart the installation process as described in “Opening the host catalog manually” on page 286.

Using Software Installer for OS/2 to install CICSPlex SM

Installing the CICSPlex SM components

The Software Installer for OS/2 Install window displays the following information about the program you are installing:
- Package name
- Product number
- Version number
- Feature number

Use this information to verify that you are installing the correct program. Then, to install the CICSPlex SM components, do the following:

1. Decide if you want Software Installer for OS/2 to update your CONFIG.SYS file or if you want to update it yourself:
   - If you want the Software Installer for OS/2 to update your CONFIG.SYS file, check the Update CONFIG.SYS check box in the Options control group. The Software Installer for OS/2 saves your current CONFIG.SYS file to a file called CONFIG.BAK before it makes any changes.
   - If you want to update your CONFIG.SYS file yourself, uncheck the Update CONFIG.SYS box. The Software Installer for OS/2 creates a CONFIG.ADD file, which is your current CONFIG.SYS file with the necessary updates added. You can use this file to update your current CONFIG.SYS file.
2. Select OK and the CICSPlex SM program package file is downloaded from MVS/ESA. The Install - directories window appears.
3. Select the components of CICSPlex SM that you want to install in the Components list box of the Install - directories window.

   Note: The Product Folder Materials component must always be selected.

   As you select the components you want to install, the amount of storage required to install those components is displayed below the Components list box in the Bytes needed field.
4. Select Disk Space... to specify the disk drive onto which you want to install the CICSPlex SM components. The Disk space window is displayed.
5. Select the disk drive onto which you want to install the CICSPlex SM components. If there is sufficient disk space to install the components, Installation: possible is displayed to the right of the list box.

   If there is not sufficient disk space to install the CICSPlex SM components on the drive you selected, Installation: not possible is displayed. Select an alternate disk drive onto which the CICSPlex SM components can be installed.
6. Select Change directories to selected drive and select OK to specify that drive as the installation target.
7. Select Install... to install the CICSPlex SM components. The Install - progress window appears.

Note: Installing the CICSPlex SM components for a single supported version of CICS for OS/2 takes approximately 40 minutes.

You can select STOP at any time to cancel the installation process. If you select STOP, a message window appears asking if you want to erase the files that have already been copied. Select YES to erase the files or NO to leave the copied files on your workstation.

As part of the installation process, CICSPlex SM creates the following subdirectories, as needed, for the components you selected on the Install - directories window:

\CICSV3\BIN
: Execution files for CICS for OS/2 Version 3.0 or 3.1

\CICSV3\LIB
: Library files for CICS for OS/2 Version 3.0 or 3.1 support.

\CICSV3\SOURCE
: Source files for CICS for OS/2 Version 3.0 or 3.1 support.

\DATA
: Data files for use by CICSPlex SM (such as, EYUPARMS.DAT).

When the Install - progress window indicates that the installation is complete, continue as described in “Updating your CONFIG.SYS file” on page 288.

Opening the host catalog manually

To open the CICSPlex SM host catalog manually:

1. Change to the directory in which the installation materials were downloaded.
2. Start Software Installer for OS/2 by entering the following:

   ```
   EYUINSTS /S:<source_qualifier.> /O:<originating_system>
   ```

   where:

   /S:<source_qualifier.>
   : Is the input source high-level qualifier for the MVS/ESA CICSPlex SM SMP/E library that contains the elements to be installed. The value must include the period following the qualifier.

   /O:<originating_system>
   : Is the originating system where the elements to be installed reside. For CICSPlex SM, this value must always be MVS.

   For example, to use the default high-level qualifier shown in this setup process, enter:

   ```
   EYUINSTS /S:CICSTS13.CPSM. /O:MVS
   ```

   The Installation and Maintenance window appears.
3. On the menu bar, select the File pull-down menu and then select Open catalog. The Open catalog menu appears.
4. On the Open catalog menu, select Host...

   Note: Because you invoked Software Installer for OS/2 with /O:MVS, you must select Host... from the Open catalog menu. Do not attempt to open a drive catalog at this point; the installation process will fail when the required files are not found.

The Open host catalog window appears.

5. Under Host session on the Open host catalog window, select the active host session that is to be used to download the CICSPlex SM component files. Also ensure that MVS is selected in the Host operating system control group.

   Note: Each time you invoke Software Installer for OS/2 you must remember to open the catalog file. Otherwise, Software Installer for OS/2 can produce unpredictable results. For example, the last time you used Software Installer for OS/2, you may have specified host session B, while this time you want to use host session D. Because Software Installer for OS/2 saves the session information in a file, host session B would be used if you did not open the catalog file.

6. Any previously opened catalog files are listed in the Filename drop-down list box. You can select a file and select Description... to display a description of the catalog file.

   If the CICSPlex SM catalog file is not displayed, enter the name of the catalog file in the Filename: entry field as:

   ```
   CICSTS13.CPSM.SEYUOS2(EYUI95CF)
   ```

   If necessary, replace CICSTS13.CPSM with the high-level qualifier of the MVS/ESA CICSPlex SM SMP/E data set that contains the CICSPlex SM elements.

7. Select Open to open the catalog file. The Software Installer for OS/2 Installation and Maintenance window reappears.

8. Select the CICSPlex SM package, and select Action on the menu bar. The Action pull-down menu appears.

9. Select Install... When the Install window for CICSPlex SM appears, you can continue the installation process as described in “Installing the CICSPlex SM components” on page 285.

   Note: If you are applying service to previously installed components select Update... from the Action pull-down menu, rather than Install...

Installing components from another workstation

Once CICSPlex SM has been successfully installed on one workstation, you can install the product directly from that workstation onto any other workstation in the LAN. This process is referred to as a peer install.

Note: All of the components you want to install must have been previously installed on another workstation in the LAN. If you attempt to install a component that was not previously installed, the install process fails when the required files are not found.

To invoke the peer install process:

1. At the workstation you are installing to, change to the LAN drive and directory that contains the previously installed CICSPlex SM components. For example, to use the default high-level qualifier previously installed on LAN drive Q, enter:

   ```
   Q:
   CD \
   CD CPSM140
   ```

2. Start Software Installer for OS/2 by entering:

   ```
   EYUIPRIN
   ```

The command file EYUIPRIN invokes Software Installer for OS/2 with the parameters required to install the components from a peer workstation. The parameters passed to EYUINSTS open the product drive catalog file and select the peer install package.

When the Install window appears, you can continue the installation process as described in “Installing the CICSPlex SM components” on page 285

Updating your CONFIG.SYS file

If you chose not to have the Software Installer for OS/2 update your CONFIG.SYS file, edit your CONFIG.SYS file from an OS/2 full-screen or windowed session as follows.

Modify the LIBPATH statement to contain appropriate paths to the CICSPlex SM files that support the selected CICS for OS/2 release. The default location is:

```
D:\CPSM140\CICSV3\BIN;D:\CPSM140\CICSV3\LIB
```

Ensure that this statement in your CONFIG.SYS file is contained on a single line.

Note: If you had previously installed an earlier release of CICSPlex SM on this workstation, remove any reference to that release in the LIBPATH statement.

Reviewing your eNetwork Communications Server for OS/2 Warp definitions

CICSPlex SM uses Advanced Program-to-Program Communications (APPC) LU6.2 links for communications between the OS/2 remote MAS and the CMAS running on the host. For CICSPlex SM communications to function, you must define the following transaction programs to eNetwork Communications Server for OS/2 Warp:

COI1 CICSPlex SM receive link task

COI2 CICSPlex SM send link task

You define the COI1 and COI2 transaction programs to eNetwork Communications Server for OS/2 Warp using the SNA Features List window. COI1 and COI2 should have the following characteristics:
- A program name of FAACLPIN.EXE
- Service TP not active
- A program Parameter String of COI1 or COI2, depending on which transaction you are using.
- Background, non-queued attach manager started

Note: For more details on defining transaction programs to eNetwork Communications Server for OS/2 Warp, see the CICS for OS/2 online help or the *Intercommunication* book for the version of CICS for OS/2 you are running.

In addition to defining these transaction programs, you also need to create or review an existing Partner LU definition. In the Partner LU definition, make note of the following values:

LU Name This value should be the fully qualified VTAM Applid of the CMAS to which this OS/2 remote MAS will connect.

Alias This value is required for the Partner LU Alias field of the CICS Terminal Connection and Session (TCS) entry.

Also in the SNA Features List window, review the Local LU definition and make note of the following values:

LU Name This value is required for the Target Applid field of the CICSPlex SM CMTPMDEF view, which is used to define the OS/2 remote MAS to the CMAS.

Alias This value is required for the LU Alias field of the CICS TCS entry.

Defining a TCS entry for CICSPlex SM

You must define a Terminal Connection and Session (TCS) entry for communication between the OS/2 remote MAS and the CMAS to which it will connect:

1. Make sure your CICS for OS/2 system is running before you perform this task.
2. Invoke the CICS for OS/2 CEDA transaction.
3. Select TCS from the list and invoke the Add function. The TCS input screen appears. Use the following values for CICSPlex SM:

   Connection Name The CICS SYSID value specified in the system initialization table parameters of the CMAS to which this remote MAS will connect.

   Group Name EYUTCS or the name of another resource definition group. This value must match the group name you specify on the CicsRgrp= statement of the CICSENV.CMD file.

   Note: You must specify a name other than EYUGROUP in this field. EYUGROUP is the name of the resource definition group supplied by CICSPlex SM. If you specify EYUGROUP in this field of the TCS entry, your resource definitions will be replaced when you import the resource definitions supplied by CICSPlex SM.

   Connection Type APPC

   Connection Priority 250

   Description A description such as `CMAS sysid Connection`

   Session Count 03 or greater.

   Session Buffer Size 16384

   Attach security L for local (the default).

   Partner Code Page 00037

   Mode name #INTER, which is one of the standard mode names available with eNetwork Communications Server for OS/2 Warp.

   LU alias The eNetwork Communications Server for OS/2 Warp alias for the local LU (the Local LU Alias value).

Partner LU Alias — The eNetwork Communications Server for OS/2 Warp alias for the CICS for OS/2 system (the Partner LU Alias value).

For more information about defining TCS entries, see the *CICS for OS/2 Customization* book.

Updating the CICS for OS/2 CICSENV.CMD file

You must update the CICS for OS/2 CICSENV.CMD file for CICSPlex SM. The default location for the CICSENV.CMD file is:

Version 3.0 — CICS300\RUNTIME\CICSENV.CMD

Version 3.1 — CICS310\RUNTIME\CICSENV.CMD

Update the CICSENV.CMD file as follows:

1. Modify the UserWrk statement to include the appropriate path to the CICSPlex SM files that support the selected CICS for OS/2 release. The default location is:

   ```
   D:\CPSM140\CICSV3\BIN
   ```

   For example, for a CICS for OS/2 Version 3.0 system, you would update the path statement to include:

   ```
   UserWrk = 'D:\CPSM140\CICSV3\BIN'
   ```

   Notes:

   a. The CICSPlex SM directory need not be the first directory in the UserWrk path statement.

   b. If you had previously installed an earlier release of CICSPlex SM on this workstation, remove any reference to that release in the UserWrk variable.

2. Modify the CicsRgrp statement to include the names of the CICSPlex SM resource definition groups.

   CICSPlex SM supplies a resource definition group called **EYUGROUP** that defines certain required transactions. You must also identify a group that contains the definitions required for an OS/2 remote MAS to communicate with a CMAS. This is the group you identified in the Group Name field of the TCS entry for CICSPlex SM.

   For example, if you specified EYUTCS in the TCS entry, update the CicsRgrp statement to include:

   ```
   CicsRgrp = 'EYUGROUP,EYUTCS'
   ```

   If you omit the CicsRgrp statement from the CICSENV.CMD file, all groups defined to CICS for OS/2 are loaded during initialization.

3. If CICS Client for OS/2 is installed on your workstation to support multi-user clients, make sure the CICSENV.CMD file is set up to search the CICS for OS/2 BIN subdirectory before the CICS Client for OS/2 BIN subdirectory.

   Normally the CICS Client for OS/2 directories are placed in front of the CICS for OS/2 directories in the CONFIG.SYS file. However, CICS for OS/2 and CICS Client for OS/2 use duplicate DLL names, and some services invoked by CICSPlex SM require the CICS for OS/2 BIN directory to be searched first.

   To ensure the CICS for OS/2 BIN directory is searched before the CICS Client for OS/2 directory, execute the SET BEGINLIBPATH command in your CICSENV.CMD file. The default CICS for OS/2 paths are:

Version 3.0	SET BEGINLIBPATH=C:\CICS300\RUNTIME
Version 3.1	SET BEGINLIBPATH=C:\CICS310\RUNTIME

Note: If CICS Client for OS/2 is not installed on your workstation, do not add the SET BEGINLIBPATH command to the CICSENV.CMD file.

Reviewing the CICS for OS/2 system initialization parameters

You should review your CICS for OS/2 system initialization parameters with the following in mind:

- The **Minimum Free Tasks** value may need to be increased to accommodate CICSPlex SM tasks. CICSPlex SM uses a minimum of 5 tasks and can use up to 6 additional tasks, depending on the number and types of resources defined to the NetView RODM interface.
- Make a note of the **Local System ID** value. This value is required by the CICSPlex SM CMTPMDEF view, which is used to define the OS/2 remote MAS to the CMAS.

Customizing the CICS for OS/2 DLLs

You must customize the following CICS for OS/2 DLLs for use by CICSPlex SM:

	FAAPLTPI	Program list table post-initialization program
	FAAPLTSD	Program list table shutdown program
	FAAEXP21	Connection definition autoinstall user exit 21
	FAAEXP22	Terminal definition autoinstall user exit 22
# # #	**FAAEXP33**	Dynamic install user exit 33. Exit 33 is available only on CICS for OS/2 3.1 systems with CSD (corrective service diskette) 2 applied.

To customize these DLLs you must do one of the following:

- If you are already using your own versions, update the CICS for OS/2 DLLs that you currently use to include the commands required by CICSPlex SM. This is described in "Updating the existing CICS for OS/2 DLLs".
- If you are currently using the CICS for OS/2 defaults, copy the DLLs supplied with CICSPlex SM to have the appropriate CICS for OS/2 names.

  Note: Be sure to make copies of the DLLs (rather than rename them) and keep the originals as distributed by CICSPlex SM. The supplied DLLs are used as input to the LAN peer install process, as described in "Installing components from another workstation" on page 287.

The updated or copied DLLs become available when you restart your CICS for OS/2 system later in this setup process.

Updating the existing CICS for OS/2 DLLs

To update the CICS for OS/2 DLLs you currently use, you must edit the CICS for OS/2 source files and build new DLLs, as follows:

1. Add the following statement to your FAAPLTPI source file to ensure that CICSPlex SM program EYU9NXRM runs during CICS for OS/2 post-initialization processing:

   ```
   EXEC CICS LINK PROGRAM("EYU9NXRM");
   ```

2. Add the following statement to your FAAPLTSD source file to ensure that CICSPlex SM program EYU9NXTM runs during CICS for OS/2 shutdown processing:

```
EXEC CICS LINK PROGRAM("EYU9NXTM");
```

3. Invoke the CICSPlex SM connection definition autoinstall processing from your current user exit 21 by updating your FAAEXP21 source file as follows:

   a. Add the following statement to the existing list of INCLUDE statements:

   ```
   #INCLUDE <EYUNNX21.H>
   ```

   b. Add the following statement at a point in your logic that ensures the CICSPlex SM processing is always invoked when your exit is entered:

   ```
   EyuX21Entry(pEx21Parms);
   ```

4. Invoke the CICSPlex SM terminal definition autoinstall processing from your current user exit 22 by updating your FAAEXP22 source file as follows:

   a. Add the following statement to the existing list of INCLUDE statements:

   ```
   #INCLUDE <EYUNNXIT.H>
   ```

   b. Add the following statement at a point in your logic that will always invoke the CICSPlex SM processing when your exit is entered:

   ```
   EyuX22Entry(pExit22Block);
   ```

   Note: If you also use the FAAEXP23 terminal definition autoinstall user exit, make these changes to the FAAEXP23 source file as well. If you do not currently use FAAEXP23, no additional source changes are required.

5. Invoke the CICSPlex SM dynamic install processing from your current user exit 33 by updating your FAAEXP33 source file as follows:

   - Add the following statement to the existing list of INCLUDE statements:

   ```
   #INCLUDE <EYUNNX33.H>
   ```

   - Add the following statement at a point in your logic that will always invoke the CICSPlex SM processing when your exit is entered:

   ```
   eyuX33Entry(pExit33Block);
   ```

6. Rebuild the DLLs using the CICS for OS/2 build processing.

   Before you rebuild the FAAEXP21, FAAEXP22, FAAEXP23, or FAAEXP33 DLLs, ensure that:

   - The CICSICC environment variable is set to EYU9NXIT.LIB.
   - The CICSPlex SM header files can be found by the build process.

     The CICSPlex SM header files EYUNNX21.H, EYUNNX33.H, and EYUNNXIT.H are installed in the CICSPlex SM source subdirectory. The default location is:

     ```
     D:\CPSM140\CICSV3\SOURCE
     ```

     Either include the CICSPlex SM subdirectory in the build process or copy the header files to a subdirectory that is already included in the processing.

   The rebuilt DLLs become available when you restart your CICS for OS/2 system later in this setup process.

Copying the DLLs supplied with CICSPlex SM

CICSPlex SM supplies the necessary DLLs for each supported version of CICS for OS/2. The DLLs can be found in the CICSPlex SM execution subdirectory. The default location is:

```
D:\CPSM140\CICSV3\BIN
```

The DLLs supplied by CICSPlex SM must be copied as follows:

Change..	To..
EYU9NXPI.DLL	FAAPLTPI.DLL
EYU9NXSD.DLL	FAAPLTSD.DLL
EYU9X21.DLL	FAAEXP21.DLL
EYU9NX22.DLL	FAAEXP22.DLL
# EYU9NX33.DLL	FAAEXP33.DLL

The copied DLLs must be loaded in place of any other DLLs you use that have the same names. The updates that were made to your CONFIG.SYS file when you installed CICSPlex SM using Software Installer for OS/2 should ensure that the CICSPlex SM DLLs are loaded first. However, if you chose to update your CONFIG.SYS file manually, you must ensure that the CICSPlex SM DLLs are loaded first when you restart your CICS for OS/2 system later in this setup process.

Restarting your OS/2 workstation

At this point, you must shut down and restart your OS/2 workstation to apply the changes that were made to your CONFIG.SYS file (either by Software Installer for OS/2 or by you).

For information on restarting your workstation, see the *Using OS/2* book for the version of OS/2 you are running.

Note: Do not restart your CICS for OS/2 system until you complete the remainder of this setup process.

Editing the CICSPlex SM EYUPARMS.DAT file

You must edit the CICSPlex SM startup parameters before you can run CICSPlex SM in your CICS for OS/2 system. To edit these parameters, do the following:

1. From an OS/2 window, find the EYUPARMS.DAT file. Its default location is D:\CPSM140\DATA\EYUPARMS.DAT
2. Edit the three parameters:
   - CICSPLEX
   - CMASSYSID
   - NAME

   For a detailed description of each parameter, see “Chapter 44. CICSPlex SM system parameters” on page 403.

If you are involved in the preparation of multiple workstations, it might be more efficient to write a script to perform this function.

Importing the CICSPlex SM resource definitions

To import the resource definitions supplied with CICSPlex SM, do the following:

1. Make sure your CICS for OS/2 system is *not* running when you perform this task.
2. From an OS/2 window find the file ...\CICSV3\BIN\EYUGROUP.TXT. This file contains the definitions for the EYUGROUP resource group.

3. Review the file and amend the path to your EYUPARMS.DAT file, inside the DCT entry to the COPR resource definition, as appropriate. Look for the following line:

```
13 FAA_DCT_DEVICE_FILENAME (D:\CPSM140\DATA\EYUPARMS.DAT)
```

4. Use CICSLOAD to import the resource definitions. See the CICS for OS/2 online help or the *Customization* book for the version of CICS for OS/2 you are running. Alternatively, use the following procedure:
   a. Ensure that CICS and MKDE are not running.
   b. Copy EYUGROUP.TXT to CICSRD.TXT.
   c. Invoke CICSLOAD, supplying the CICS for OS/2 system administrator User ID and password.
   d. If this completes without errors, change to your CICS runtime data directory:

      ```
      CD \CICS300\RUNTIME
      ```

      for example.
   e. Save the old resource file as a backup:

      ```
      RENAME FAACTFTB.BTR FAACTFTB.BAK
      ```

      for example.
   f. Rename the new resource file for use on the next startup:

      ```
      RENAME FAACTFTB.SLD FAACTFTB.BTR
      ```

   You may find it useful to append the TXT file contents to other application resources being installed as part of your distribution process.

The import process defines CICS for OS/2 resource definitions for CICSPlex SM in a group called EYUGROUP. The following resources are defined in EYUGROUP:

Transaction ID	CICSPlex SM Program Name
COD0	EYU9DBG0
COIE	EYU9XLOP
COI1	EYU9XLOP
COI2	EYU9XLOP
COND	EYU9NPS2
CONL	EYU9XLEV
CONM	EYU9XLOP
CORM	EYU9NXRM
COSH	EYU9NXTM

The group, EYUGROUP, also defines the DCT entry named COPR. If you change the location of your startup parameter file, EYUPARMS.DAT, then you must review the DCT entry in the EYUGROUP.TXT file and reimport the group, as previously described.

Defining the CICS for OS/2 remote MAS to CICSPlex SM

For a CICS for OS/2 system to be managed by CICSPlex SM as a remote MAS, you must do the following:

1. Define the CICS for OS/2 system. to CICSPlex SM, as described in the *CICSPlex SM Administration*.
2. Define a communication link between the CMAS and the CICS for OS/2 remote MAS, as described in the *CICSPlex SM Administration*.

   The **Target Applid** value must match the eNetwork Communications Server for OS/2 Warp **Local LU Name** value. The **Mode Name** value must be #INTER.

The CICS for OS/2 system can now be managed by CICSPlex SM as a remote MAS the next time it is restarted.

Restarting your CICS for OS/2 system

At this point, you can restart your CICS for OS/2 system. If the setup process was successful, the CICS for OS/2 FAAPLTPI initialization program automatically starts the CICSPlex SM remote MAS agent code. Then the remote MAS agent establishes a connection to the CMAS you specified. You can watch the progress of the CICSPlex SM remote MAS initialization on the CICS for OS/2 operator log.

Note: A CICS for OS/2 remote MAS can only be known to CICSPlex SM if the CMAS to which it connects is running.

Stopping and restarting management of a CICS for OS/2 system

This section tells you how to:
- Stop management of a CICS for OS/2 system
- Restart management of a CICS for OS/2 system
- Terminate a CICS for OS/2 system.

Stopping management of a CICS for OS/2 system

To stop the CICS for OS/2 remote MAS agent code in an active CICS system, from the MAS view issue the action command STOP. Issuing the STOP action prevents CICSPlex SM from accessing the remote MAS until either the CICS system is restarted or the CORM transaction is issued (see "Restarting management of a CICS for OS/2 system").

For more information about the MAS view, see the *CICSPlex SM Operations Views Reference* manual.

Restarting management of a CICS for OS/2 system

To reactivate a running CICS system as a remote MAS, issue the CICS transaction CORM. Messages indicating the progress of the remote MAS initialization appear in the CICS for OS/2 log.

Terminating a CICS for OS/2 system

To verify that the FAAPLTSD shutdown processing is properly installed, you can terminate the CICS for OS/2 system and check the log for the following shutdown message:

```
EYUXL0016I  RMAS shutdown complete
```

To terminate a CICS system running the CICS for OS/2 remote MAS agent code, use the CICSRGN view to issue the desired shutdown command. For more information about the CICSRGN view, see the *CICSPlex SM Operations Views Reference* manual.

For more information on verifying the installation of the CICSPlex SM OS/2 agent code, see "Chapter 41. Installation verification procedure 4 (IVP4)" on page 379.

Deleting the OS/2 components of a previous release of CICSPlex SM

If you previously used an earlier release of CICSPlex SM to manage a CICS for OS/2 on this workstation, you can delete the CICSPlex SM components of that release, as follows:

1. If you wish to preserve the CICSPlex SM remote MAS parameters file for this workstation, make a backup of the EYUPARMS.DAT file before you proceed. You can then restore this file after installing the new release of the OS/2 components of CICSPlex SM.
2. Invoke Software Installer for OS/2 using the icon in the CICSPlex SM product folder that was created when you installed the CICSPlex SM components on this workstation.

   If you removed this folder, you can invoke Software Installer for OS/2 another way. If you installed CICSPlex SM from the host system, see "Opening the host catalog manually" on page 286. If you installed CICSPlex SM from another workstation in the LAN, see "Installing components from another workstation" on page 287.
3. Select the product package file for CICSPlex SM from the Software Installer for OS/2 Installation and Maintenance window.
4. Select Delete... from the Action pull-down menu. The Delete window for CICSPlex SM appears.
5. Select all the components in the component list. The Delete button is enabled.
6. Select Delete to have Software Installer for OS/2 delete the components. The progress of the delete process is displayed. When the delete process is complete, exit Software Installer for OS/2.

Chapter 35. Setting up the interface to NetView RODM

This chapter describes the steps you must perform to enable the interface between CICSPlex SM and the NetView Resource Object Data Manager (RODM). The information you need to set up the RODM interface is in the following sections:

- "An overview of the RODM interface"
- "Updating NetView for the interface" on page 299
- "Updating CICSPlex SM for the interface" on page 301.

An overview of the RODM interface

The CICSPlex SM interface to RODM makes use of the following components of the NetView environment:

Graphic Monitor Facility Host Subsystem (GMFHS)
: Defines the structure of the CICSPlex SM resource objects that are reported to RODM. In addition, GMFHS provides access to NGMF on an OS/2 workstation.

Resource Object Data Manager (RODM)
: Maintains the information that CICSPlex SM provides about the operational state of CICS resources in a data cache.

MultiSystem Manager
: Provides access from NetView to the RODM data cache.

NetView Graphic Monitor Facility (NGMF)
: Displays the operational state of CICSplex resources in a variety of views on an OS/2 workstation.

Figure 59 on page 298 illustrates the relationship between these components of the CICSPlex SM RODM interface.

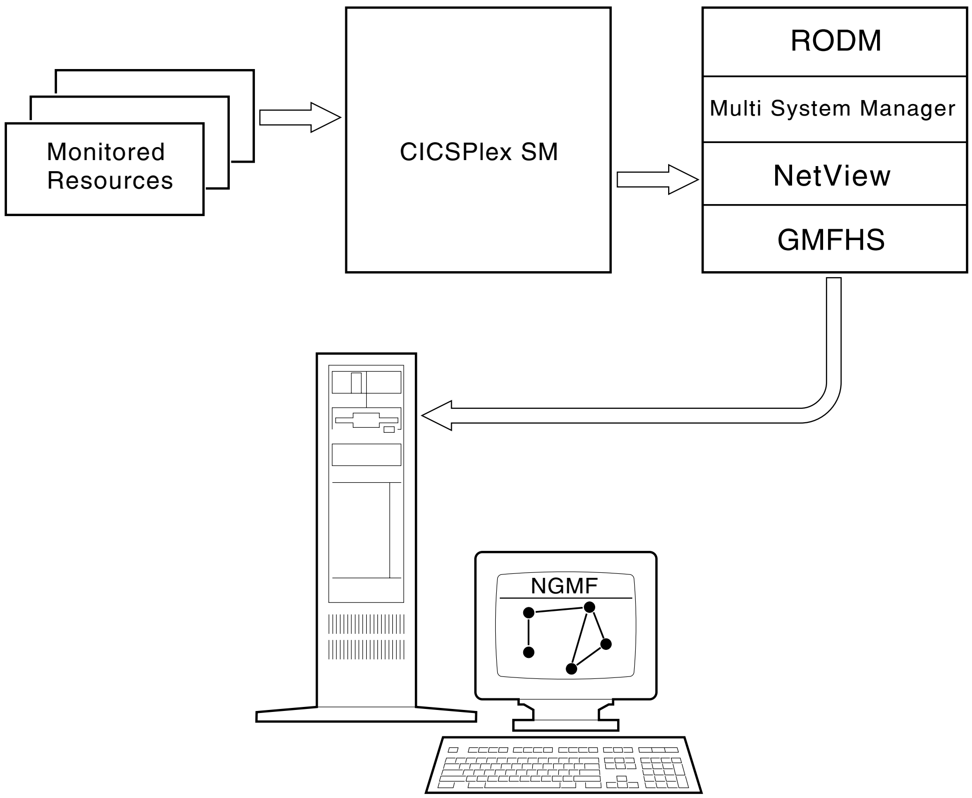

Figure 59. Components of the CICSPlex SM RODM interface

Note: For information on using the RODM interface, see the discussion of resource monitoring in the *CICSPlex SM Managing Resource Usage* manual.

What you need to use the interface

To use the CICSPlex SM RODM interface, you must have the following products and features:

- NetView 3.1 (or later) with RODM support active
- MultiSystem Manager 2.2 (or later)
- NetView Graphic Monitor Facility.

Notes:

1. If you are currently running NetView without RODM support, see the *NetView Installation and Administration Guide* for information on activating RODM.
2. If you are not running NetView with RODM support active, you can still have CICSPlex SM report on the operational state of selected CICS resources. The type of reporting depends on the CICSPlex SM system parameter RESSTATUS. For more information on the RESSTATUS parameter, see “Chapter 44. CICSPlex SM system parameters” on page 403.

How the interface is supplied

The CICSPlex SM interface to the NetView RODM facility is supplied as one load module and one REXX EXEC:

EYU9T140

A load module that runs as a NetView operator task. EYU9T140 is supplied in the SYS1.CICSTS13.CPSM.SEYULINK library.

EYU#0001
A compiled REXX EXEC that provides the operator task with an interface to RODM by way of MultiSystem Manager. EYU#0001 is supplied in the CICSTS13.CPSM.SEYUCLIB library.

Updating NetView for the interface

In order for CICSPlex SM to establish an interface to RODM, you must update the NetView system in various ways.

Update the NetView startup procedure

To update the NetView startup procedure for the CICSPlex SM interface, you need to do the following:

1. Make sure the compiled REXX EXEC, EYU#0001, resides in a library that is included in the DSICLD concatenation. EYU#0001 is supplied in the CICSTS13.CPSM.SEYUCLIB library.

   Also make sure that REXX compiled language support is defined in the NetView STEPLIB concatenation.
2. Make sure the following CICSPlex SM load modules reside in an authorized library in either the MVS linklist or the NetView STEPLIB concatenation:

   EYU9T140
   Supplied in the SYS1.CICSTS13.CPSM.SEYULINK library.

   EYU9A140
   Supplied in the SYS1.CICSTS13.CPSM.SEYULINK library.

   EYU9AB00
   Supplied in the CICSTS13.CPSM.SEYUAUTH library.

   Note: Modules EYU9A140 and EYU9AB00 are only required if you plan to run CICSPlex SM API programs under NetView.
3. Make sure the NetView module CNMNETV resides in an authorized library in the MVS linklist, the LPA library, or the NetView STEPLIB concatenation.
4. Add a DD statement like the following to the NetView startup procedure:

   ```
   //EYUTRTC DD  DSN=dsname,DISP=(NEW,CATLG),SPACE=(CYL,(1,1)),
                 UNIT=unit,VOLSER=volser,
                 DCB=(LRECL=132,BLKSIZE=blksize,DSORG=PS,RECFM=FB)
   ```

   This is an example of a DD statement that would allocate a new data set for use by the EYUTRTC diagnostic trace facility. You should modify this statement to include appropriate values for the data set you want to allocate.

Define the CICSPlex SM command processor

To define the CICSPlex SM command processor to NetView, you need to do the following:

1. Modify the DSICMD member in the DSIPARM library to include a %INCLUDE statement for DSICMDU.
2. Create an EYUCMD member in the DSIPARM library that contains the following CMDMDL statement:

   ```
   EYU9T140 CMDMDL MOD=EYU9T140, TYPE=R,RES=N
            CMDCLASS 1
   ```

   A sample CMDMDL statement is provided as member EYUIRDMC in the CICSTS13.CPSM.SEYUPARM library.

3. Create or modify a DSICMDU member in the DSIPARM library and include the following record:

```
----+----1----+
%INCLUDE EYUCMD
```

Note that column positions are important; EYUCMD must begin in column 10.

Define the CICSPlex SM operator profiles

To define the CICSPlex SM operator profiles to NetView, you need to do the following:

1. Modify the DSIOPF member in the DSIPARM library to include a %INCLUDE statement for DSIOPFU.
2. Create an EYUOPF member in the DSIPARM library that contains the following OPERATOR and PROFILEN statements:

```
EYURODM   OPERATOR PASSWORD=EYURODM
          PROFILEN EYUIRDMP
```

Sample OPERATOR and PROFILEN statements are provided in member EYUIRDMO in the CICSTS13.CPSM.SEYUPARM library. As supplied, the operator task name is EYURODM and the profile name is EYURODMP. If you specify other values, be sure to use those values in the remainder of this setup process.
3. Create or modify a DSIOPFU member in the DSIPARM library and include the following record:

```
----+----1----+
%INCLUDE EYUOPF
```

Note that column positions are important; EYUOPF must begin in column 10.
4. Using the name you specified in the PROFILEN statement of the EYUOPF member, create a profile member. The profile member must reside in a library that is included in the DSIPRF DD concatenation of the NetView startup JCL.

A sample PROFILE statement is provided as member EYUIRDMP in the CICSTS13.CPSM.SEYUPARM library. As supplied, the profile is called EYURODMP and the startup parameter member is EYURODMS. If you specify other values, be sure to use those values in the remainder of this setup process.

Define the interface startup parameters

To define the CICSPlex SM interface startup parameters, you need to do the following:

1. Using the name you specified in the PROFILE statement of the profile member, create a startup parameter member in the DSIPARM library.

A sample startup parameter member is provided as member EYUIRDMS in the CICSTS13.CPSM.SEYUPARM library. As supplied, the startup parameters are as follows:

RODMNAME
EYURODM

This value is required and should be the name of the RODM subsystem to which the CICSPlex SM operator task directs its requests.

RODMAPPL
IYZBBMSM

This value is required and should be the name of the RODM application to be used by the operator task when communicating with RODM through MultiSystem Manager. This application name should be unique within NetView; it should not be used by any other NetView application that communicates with RODM.

VIEWNAME
CPSM_World_View

This value is optional and has a maximum length of 16 characters. The VIEWNAME identifies the CICSPlex SM object that appears in the NGMF window when communication is established between RODM and the workstation.

VIEWDESC
The Open World of CPSM

This value is optional and has a maximum length of 32 characters. The VIEWDESC is a description of the CICSPlex SM object that appears in the NGMF window.

2. Make sure MultiSystem Manager is initialized by issuing the NetView INITTOPO command. The INITTOPO command should include the following:
   - A DEF_AUTOTASK value
   - A RODMNAME value that matches the name you specified in the DSIPARM startup parameter member.

   You can include INITTOPO in the NetView automation table member.

   For more information on the INITTOPO command, see the *NetView MultiSystem Manager Open Topology Interface* book.

Start the CICSPlex SM operator task

To start the CICSPlex SM operator task automatically, you need to modify the startup command list in the NetView DSICLD library as follows:

1. Create a command list to be invoked by the startup command list.

   This command list must reside in a library that is included in the DSICLD DD concatenation and must contain the following NetView commands:

   ```
   LOADCL EYU#0001
   AUTOTASK OPID=EYURODM
   DEFAULTS REXXSTRF=ENABLE
   DEFAULTS REXXSLMT=200
   ```

   A sample command list is provided as member EYUIRDMA in the CICSTS13.CPSM.SEYUPARM library. As supplied, the operator task name is EYURODM.
2. Insert the name of the nested command list that you created in the startup command list.

Note: Alternatively, you can issue the LOADCL, AUTOTASK, and DEFAULTS commands from the console once NetView is active.

Updating CICSPlex SM for the interface

In order for CICSPlex SM to report on the operational state of selected resources, you must perform the following steps:

1. Use the CICSPlex SM end-user interface to update the following definitions, as appropriate:

   CPLEXDEF — Indicate whether a CICSplex and the CICS systems in that CICSplex should be reported to RODM.

   MONSPEC — Identify the CMAS that is responsible for reporting resource status changes to RODM.

   MONDEF — Identify the specific resources that should be reported to RODM.

   For a description of the CPLEXDEF view, see *CICSPlex SM Administration*. For descriptions of the MONSPEC and MONDEF views, see the *CICSPlex SM Managing Resource Usage* manual.

   Note: If you plan to use the CICSPlex SM API or automation products other than NetView to access this CICS resource data (by specifying the MSG or CONMSG option on the RESSTATUS system parameter), the remaining steps are not necessary.
2. Identify one or more CMASs that will participate in the RODM interface.

   The recommended configuration is to identify one CMAS that is responsible for communicating information about an entire CICSplex to RODM.

   If there are multiple CMASs on different MVS/ESA images involved in managing a CICSplex, you can identify a separate RODM subsystem to each CMAS. In that case, each CMAS reports on only those CICS systems associated with a MONSPEC that names the CMAS. However, this configuration is less efficient and can cause additional processing overhead. So even if there are multiple CMASs managing a CICSplex, you should select one of those CMASs as the connection point to RODM.

   Notes:

   a. CICSPlex SM does not support a configuration where multiple CMASs that manage the same CICSplex on the same MVS/ESA image communicate with the same RODM subsystem. This configuration can produce unpredictable results.
   b. A single RODM subsystem cannot communicate with CMASs running different releases of CICSPlex SM. Each release of CICSPlex SM requires its own RODM subsystem.
3. Use the CICSPlex SM end-user interface to update the definition for each CMAS that should communicate with RODM by doing the following:
   a. Issue the view command:

      ```
      CMASD cmas
      ```

      to display detailed information about the specified CMAS.
   b. In the RODM Name field, type the name of the RODM subsystem to which the CMAS should establish a connection and press Enter. RODM support becomes available the next time the CMAS starts up.

Chapter 36. Configuring the Starter Set

The CICSPlex SM Starter Set establishes a sample CICSPlex SM environment of nine managed CICS systems (MASs) across three MVS images, which are referred to as system A, system B, and system C. This chapter describes:

- “The Starter Set samples libraries”
- “Creating the Starter Set environment” on page 307
- “Deleting the Starter Set” on page 310
- “Using the Starter Set as a model” on page 311.

For a description of the structure and purpose of the Starter Set, see the *CICSPlex SM Concepts and Planning* manual.

The Starter Set samples libraries

The Starter Set is in two samples libraries that are installed automatically when CICSPlex SM itself is installed. The libraries are:

- CICSTS13.CPSM.SEYUJCL, which contains sample JCL for creating, starting, and deleting the Starter Set components
- CICSTS13.CPSM.SEYUDEF, which contains definitions, such as CICS tables and VTAM definitions, required by the Starter Set

The contents of the data sets CICSTS13.CPSM.SEYUJCL and CICSTS13.CPSM.SEYUDEF are described in the remainder of this section.

JCL in CICSTS13.CPSM.SEYUJCL for creating the Starter Set

Table 20, Table 21, and Table 22 on page 304 identify the JCL supplied in CICSTS13.CPSM.SEYUJCL for creating the Starter Set.

Table 20. JCL for creating the system A components of the Starter Set

Sample name	Description
EYUJBBIA	Creates the CAS data sets EYUSDEF and EYUIPRM
EYUJCICA	Creates all data sets for MASs EYUMAS1A, EYUMAS2A, EYUMAS3A, and EYUMAS4A
EYUJCMSA	Creates all data sets for CMAS EYUCMS1A
EYUJDRPA	Creates the data repository for CMAS EYUCMS1A
EYUJCSDA	Creates DFHCSD data set for MASs and CMAS

Table 21. JCL for creating the system B components of the Starter Set

Sample name	Description
EYUJBBIB	Creates the CAS data sets EYUSDEF and EYUIPRM
EYUJCICB	Creates all data sets for MASs EYUMAS1B, EYUMAS2B, EYUMAS3B, and EYUMAS4B
EYUJCMSB	Creates all data sets for CMAS EYUCMS1B
EYUJDRPB	Creates the data repository for CMAS EYUCMS1B
EYUJCSDB	Creates DFHCSD data set for MASs and CMAS

Table 22. JCL for creating the system C components of the Starter Set

Sample name	**Description**
EYUJCICC	Creates all data sets for MAS EYUMAS1C
EYUJCSDC	Creates DFHCSD data set for MAS EYUMAS1C

To create those components of the Starter Set belonging to CICSplex EYUPLX01 only, you must run both the system A JCL and the system B JCL.

To create those components of the Starter Set belonging to CICSplex EYUPLX02 only, you must run both the system B JCL and the system C JCL.

JCL in CICSTS13.CPSM.SEYUJCL for running the Starter Set

Table 23, Table 24, and Table 25 list and describe the JCL supplied in CICSTS13.CPSM.SEYUJCL for running the Starter Set.

Table 23. JCL for running the system A components of the Starter Set

Sample name	**Description**
EYUJCS1A	Starts CAS EYUCAS1A
EYUJCSSA	Starts CAS EYUCAS1A as a started task
EYUJCM1A	Starts CMAS EYUCMS1A
EYUJMS1A	Starts MAS EYUMAS1A
EYUJMS2A	Starts MAS EYUMAS2A
EYUJMS3A	Starts MAS EYUMAS3A
EYUJMS4A	Starts MAS EYUMAS4A

Table 24. JCL for running the system B components of the Starter Set

Sample name	**Description**
EYUJCS1B	Starts CAS EYUCAS1B
EYUJCSSB	Starts CAS EYUCAS1B as a started task
EYUJCM1B	Starts CMAS EYUCMS1B
EYUJMS1B	Starts MAS EYUMAS1B
EYUJMS2B	Starts MAS EYUMAS2B
EYUJMS3B	Starts MAS EYUMAS3B
EYUJMS4B	Starts MAS EYUMAS4B

Table 25. JCL for running the system C components of the Starter Set

Sample name	**Description**
EYUJMS1C	Starts MAS EYUMAS1C

To run those components belonging to CICSplex EYUPLX01 only, you use both the system A JCL and the system B JCL.

To run those components belonging to CICSplex EYUPLX02 only, you use both the system B JCL and the system C JCL.

Definitions in CICSTS13.CPSM.SEYUDEF for the Starter Set environment

Table 26 on page 305, Table 27 on page 305, and Table 28 on page 305 identify the supplied Starter Set definitions that are required on system A, system B, and system C.

Table 26. Starter Set definitions in CICSTS13.CPSM.SEYUDEF for system A

Sample name	Description
EYUDVTMA	VTAM definitions
EYUDCSDU	CICS/ESA 3.3 DFHCSDUP definitions for Starter Set
EYUDCSD4	CICS/ESA 4.1 DFHCSDUP definitions for Starter Set
EYUDCSDV	CICS TS for OS/390 DFHCSDUP definitions for Starter Set
EYUDCDMA	CDRM definitions
EYUDCDSA	CDRSC definitions
EYUMDTAB	Modetable for CAS EYUCAS1A
EYUTDCTC	DFHDCT for CMAS EYUCMS1A
EYUTDCTR	DFHDCT for remote DCT entries
EYUTDCTL	DFHDCT for standard DCT entries
EYUTJCTS	DFHJCT for MASs
EYUTPLTC	DFHPLT for CMAS EYUCMS1A
EYUTPLTL	DFHPLT for local MASs
EYUTSRTS	DFHSRT for CMAS EYUCMS1A and for MASs
EYU@ISPF	ISPF logon procedure
EYU@PRIM	ISPF primary option panel

Table 27. Starter Set definitions in CICSTS13.CPSM.SEYUDEF for system B

Sample name	Description
EYUDVTMB	VTAM definitions
EYUDCSDU	DFHCSDUP definitions for Starter Set
EYUDCDMB	CDRM definitions
EYUDCDSB	CDRSC definitions
EYUMDTAB	Modetable for CAS EYUCAS1B
EYUTDCTC	DFHDCT for CMAS EYUCMS1B
EYUTDCTR	DFHDCT for remote DCT entries
EYUTDCTL	DFHDCT for standard DCT entries
EYUTJCTS	DFHJCT for MASs
EYUTPLTC	DFHPLT for CMAS EYUCMS1B
EYUTPLTL	DFHPLT for local MASs
EYUTSRTS	DFHSRT for CMAS EYUCMS1B and for MASs
EYU@ISPF	ISPF logon procedure
EYU@PRIM	ISPF primary option panel

Table 28. Starter Set definitions in CICSTS13.CPSM.SEYUDEF for system C

Sample name	Description
EYUDVTMC	VTAM definitions
EYUDCSDU	DFHCSDUP definitions for Starter Set
EYUDCDMC	CDRM definitions
EYUDCDSC	CDRSC definitions
EYUTDCTR	DFHDCT for remote DCT entries
EYUTDCTL	DFHDCT for standard DCT entries
EYUTJCTS	DFHJCT for MASs
EYUTPLTR	DFHPLT for remote MAS
EYUTSRTS	DFHSRT for MAS

CICSplex EYUPLX01 uses both the system A and the system B definitions.

CICSplex EYUPLX02 uses both the system B and the system C definitions.

The Starter Set naming convention

The CICSPlex SM components of the Starter Set are named according to the following convention:

Table 29. Starter Set naming convention: CICSPlex SM resources

CICSPlex SM resource	Convention
Coordinating address space (CAS)	EYUCASxx
CICS system group	EYUCSGxx
CICSplex	EYUPLXxx
CICSPlex SM address space (CMAS)	EYUCMSxx
Managed address space (MAS)	EYUMASxx
Monitor definition	EYUMODxx
Monitor group	EYUMOGxx
Monitor specification	EYUMOSxx
Workload definition	EYUWLDxx
Workload group	EYUWLGxx
Workload specification	EYUWLSxx
Transaction group	EYUTRGxx
Analysis definition	EYURTDxx
Evaluation definition	EYURTExx
Analysis group	EYURTGxx
Analysis specification	EYURTSxx
Analysis point specification	EYURAPxx
Action definition	EYURTAxx
Status definition	EYURSTxx
Time Period definitions	EYUPDFxx
Resource group	EYUBAGxx
Resource description	EYUBADxx
Resource assignment	EYUBAAxx

CICS resource definitions used by the Starter Set are named according to the following convention:

Table 30. Starter Set naming convention: CICS resources

CICS resource definition type	Convention
Connections	xxxx
Files	EYUFILxx
Journals	EYUJNLxx
Modenames	EYUMDNxx
Programs	EYUPRGxx
Terminals	Exxx
Transactions	ETxx
Transient data queues	EQxx

Creating the Starter Set environment

To configure the Starter Set on any MVS image, you must have access on that MVS image to:

- The Starter Set data sets CICSTS13.CPSM.SEYUDEF and CICSTS13.CPSM.SEYUJCL
- CICS for MVS/ESA 4.1 (or higher) load libraries
- CICS for MVS/ESA 4.1 (or higher) table-assembly JCL
- SYS1.PARMLIB and SYS1.VTAMLST (or be able to add definitions to SYS1.PARMLIB and SYS1.VTAMLST)
- The MVS console log via TSO SDSF.

Selecting the Starter Set configuration

The complete Starter Set is installed across three MVS images and comprises two CICSplexes, EYUPLX01 and EYUPLX02. You can install the complete Starter Set, or you can install a specific subset of it. That is, you can install:

- The system A components only
- The system B components only
- EYUPLX01 only (which comprises the system A components and the system B components)
- EYUPLX02 only (which comprises the system B components and the system C components).

When you have identified those parts of the Starter Set you want to install, locate the appropriate tables of JCL and definitions in this chapter. For example, to define and start the system A components only, you will:

- Run the JCL described in Table 20 on page 303
- Run the JCL described in Table 23 on page 304
- Use the definitions described in Table 26 on page 305.

When you have identified the JCL and sample definitions you will be using, follow the procedure described in "Defining the Starter Set environment".

Defining the Starter Set environment

This section describes the tasks you must perform to incorporate the Starter Set in your MVS environment.

Notes:

1. If you have already run an IVP (as described in "Chapter 38. CICSPlex SM installation verification procedures" on page 317) on the MVS image on which you are planning to configure the Starter Set, you will already have performed most of the steps described below. You do not need to repeat those steps, unless the Starter Set components created during the IVP have been deleted.
2. The Starter Set MAS JCL and the CSD update job do not support languages other than assembler. If you require support for other languages, please make appropriate changes to DFHRPL (for the MAS JCL) and to DFHCSDUP.

1. If all your CMAS and MAS jobs are to be run with CICS/ESA 4.1, proceed directly to the next step.

   Versions of CICS in CICS Transaction Server for OS/390 use MVS log streams for their system logs and require appropriate MVS and CICS definitions to be in place. If you already have CICS TS levels of CICS installed, and if you use the default naming convention of userid.applid.DFHLOG and userid.applid.DFHSHUNT for the system log streams, you can proceed to the next step without taking any further action. However, you might want to review the coupling facility space implications of creating new CICS system logs.

If you do not use the default naming convention for your system logs, or you have never previously brought up a CICS Transaction Server level of CICS, you should seek assistance from your CICS and MVS system programmers to set up the logger definitions for the sets of system logs that you require. For a full description of how to create the required MVS and CICS definitions for MVS log streams, see the appropriate edition of the*CICS Installation Guide* and the *CICS System Definition Guide*.

Whichever naming convention you adopt, do not define the CICS system log as type DUMMY, as this would compromise data integrity on the CICSPlex SM data repository.

2. Run the EYUISTRT job to tailor the Starter Set JCL for your environment. EYUISTRT runs the EYUINST EXEC to tailor the Starter Set members. For more information about using EYUISTRT, see "Chapter 43. Using the EYUINST EXEC to tailor skeleton jobs" on page 393. Table 31 identifies those EYUINST EXEC parameters that are applicable to the Starter Set.

Table 31. EYUINST EXEC parameters required for the Starter Set

Parameter	**CMAS**	**MAS**	**Default**
CINDEXnnn	Yes	Yes	None
CMASNAME	Yes		None
CRELEASE	Yes	Yes	5.3.0
DSINFO	Yes	Yes	index defvol defunit
ENVIRONMENT	Yes	Yes	None
INDEX	Yes	Yes	index
JOB	Yes	Yes	//XXXXXXXX JOB
LIB	Yes	Yes	CICSTS13.CPSM.XEYUINST
PREFIX	Yes	Yes	EYU
SCOPE	Yes	Yes	ALL
Note: The SCOPE value must be set to STARTER.			
SELECT	Yes		None
TEMPLIB	Yes	Yes	CICSTS13.CPSM
Note: For more information about TEMPLIB, see "EYUINST EXEC parameters" on page 395			

3. Add VTAM definitions for the CAS, CMAS, and MASs (as appropriate) to the VTAM table. For example, for the system A Starter Set components, the relevant VTAM definitions are in members EYUDVTMA, EYUDCDMA, and EYUDCDSA of CICSTS13.CPSM.SEYUDEF.

   Note: If you use Advanced Communications Function (ACF) Network Control Programs (NCPs), you may need to create a mode table, using the sample entry shown in EYUMDTAB, in order to control the VTAM RUSIZE (request unit size) parameter.

4. Run the JCL EYUJBBIx to define the CAS data sets.
5. Run the JCL EYUJCMSx to define the CMAS data sets.
6. Run the JCL EYUJCICx to define the MAS data sets.
7. Run the JCL EYUJDRPx to define the CMAS data repository.

8. Run the JCL EYUJCSDx to define, initialize, and load the CSD.
9. Make any necessary site-specific changes to the CSD. For example, you might need to add TYPETERMs, TERMINALs, or AUTOINSTALL MODELs.
10. Assemble the sample CICS tables (EYUTxxxx) into a load library.
11. Update ISPF to reflect the addition of CICSPlex SM. A sample of the changes required is in EYU@ISPF and EYU@PRIM in CICSTS13.CPSM.SEYUDEF.

Starting the Starter Set components

Before you can use the Starter Set, you must:
- Start the CAS
- Start the CMAS
- Add definitions to the CMAS data repository
- Start the MASs.

These steps must be performed on system A or system B (or both).

Start EYUCAS1A or EYUCAS1B

To start the CAS, you submit JCL EYUJCSx or EYUJCSSx (to start the CAS as a started task). For example, to start EYUCAS1B as a started task, you use JCL EYUJCSS2.

Start EYUCMS1A or EYUCMS1B

Check the SIT parameters in JCL EYUJCM1A or EYUJCM1B (as appropriate), in particular the SVC numbers and the default user, to ensure that they are suitable for your environment. To start the CMAS, submit JCL EYUJCM1x. For example, to start CMAS EYUCMS1B, you submit JCL EYUJCM1B.

Add definitions to the data repository

You define CICSplex EYUPLX01 or EYUPLX02, or both, via the CICSPlex SM user interface. Then you use the batched repository update facility to load the remaining Starter Set definitions.

Note: If you have run an IVP on the target MVS image (system A or system B), and have not deleted the IVP components from that image, you must run step 4 and step 7 in the section “Defining the Starter Set environment” on page 307 before continuing with steps 1 through 4 below.

1. On system A, define CICSplex EYUPLX01, specifying EYUCMS1A as the maintenance point CMAS. Also on system A, identify EYUCMS1B as a secondary CMAS for EYUPLX01 if you are planning to define the system B components of the Starter Set. For more information about defining CICSplexes, see *CICSPlex SM Administration*. (Alternatively, you can follow the instructions in “Starting up and verifying CICSPlex SM components on system A” on page 322.)
2. If you are installing the system B components, define EYUPLX02 on system B; EYUCMS1B is the maintenance point CMAS.
3. If you have defined both EYUCAS1A and EYUCAS1B, you must define a link from EYUCAS1A to EYUCAS1B, and from EYUCAS1B to EYUCAS1A. For information about defining CAS-to-CAS links, see *CICSPlex SM Administration*. (Alternatively, you can follow the instructions in “2: Define CAS-to-CAS connections” on page 346.)
4. To add the Starter Set CICSPlex SM definitions to the data repository on system A or system B (or both), you run the batched repository update facility. Definitions to be added to the data repository on system A are in member EYUDDRPA of CICSTS13.CPSM.SEYUDEF, and those to be added to the data repository on system B are in member EYUDDRPB of

CICSTS13.CPSM.SEYUDEF. For information about the batched repository update facility, see *CICSPlex SM Administration*. (Alternatively, see the instructions for using the batched repository update facility during the IVPs in “Chapter 38. CICSPlex SM installation verification procedures” on page 317.)

Start the MASs

To start the MASs, submit the JCL EYUJMSnx. For example, to start MAS EYUMNS2B, submit the JCL EYUJMS2B. JCL for starting the MASs is identified in Table 23 on page 304, Table 24 on page 304, and Table 25 on page 304. The CICSPlex SM Starter Set is now ready to use.

If errors occur while defining or using the Starter Set

If errors occur while you are setting up the Starter Set or while you are using it, one or more error messages might be issued. Please refer to the *CICSPlex SM Messages and Codes* manual for a detailed description of any CICSPlex SM error message.

Deleting the Starter Set

CICSPlex SM provides sample JCL (in data set CICSTS13.CPSM.SEYUJCL) that you can run to delete the Starter Set components from one or more of the MVS images on which it is installed. Table 32, Table 33, and Table 34 list the supplied deletion JCL and identify, for each sample, the components that it deletes. For example, if you want to delete the Starter Set components on system B only, you run the deletion samples EYUJBBDB, EYUJCIDB, EYUJDRDB, EYUJCDDB, and EYUJCMDB on system B. When you have deleted the Starter Set components, you must also remove the relevant VTAM definitions.

Table 32. JCL in CICSTS13.CPSM.SEYUJCL for deleting the Starter Set from system A

Sample name	Description
EYUJBBDA	Deletes the CAS data sets EYUSDEF and EYUIPRM
EYUJCIDA	Deletes the MAS data sets
EYUJDRDA	Deletes the data repository
EYUJCDDA	Deletes the DFHCSD dataset
EYUJCMDA	Deletes the CMAS data sets

Table 33. JCL in CICSTS13.CPSM.SEYUJCL for deleting the Starter Set from system B

Sample name	Description
EYUJBBDB	Deletes the CAS data sets EYUSDEF and EYUIPRM
EYUJCIDB	Deletes the MAS data sets
EYUJDRDB	Deletes the data repository
EYUJCDDB	Deletes the DFHCSD data set
EYUJCMDB	Deletes the CMAS data sets

Table 34. JCL in CICSTS13.CPSM.SEYUJCL for deleting the Starter Set from system C

Sample name	Description
EYUJCIDC	Deletes the MAS data sets
EYUJCDDC	Deletes the DFHCSD data set

To delete those components belonging to CICSplex EYUPLX01, you must run both the system A deletion JCL and the system B deletion JCL.

To delete those components belonging to CICSplex EYUPLX02, you must run both the system B deletion JCL and the system C deletion JCL.

Using the Starter Set as a model

The CICSPlex SM Starter Set is provided primarily as instructional material. However, you can copy many of the Starter Set definitions, and use them as a basis for your own configuration, as follows:

1. Examine the Starter Set definitions and identify candidates for inclusion in your own configuration.
2. In the CICSTS13.CPSM.SEYUDEF members EYUDDRPA and EYUDDRPB (as appropriate), locate the statements that the batched repository update facility uses to create the definitions you want to use.
3. Copy those statements into your own PDS member and provide a valid CONTEXT statement.
4. Load those definitions into your own data repository by running the batched repository update facility and specifying the maintenance point CMAS as the context.

   For more information about the batched repository update facility, see *CICSPlex SM Administration*.

Chapter 37. Applying service to CICSPlex SM

This section contains information about the service material for CICSPlex SM that is distributed as corrective or preventive service. Both types of changes are called system modifications (SYSMODs). SYSMODs are processed using SMP/E control statements.

For background information on SMP/E operations, see the *System Modification Program Extended: General Information* book. For more detailed information, see the *System Modification Program Extended: Reference* book. For information about how to apply corrective service using SMP/E, see the *System Modification Program Extended: User's Guide*.

The following sections provide information about:
- "CICS TS for OS/390-supplied SMP/E procedure"
- "Applying service to a CICS/VSE remote MAS"
- "Applying service to the CICS for OS/2 components".

CICS TS for OS/390-supplied SMP/E procedure

For all CICS/ESA and CICS Transaction Server systems, the procedure for applying service is called DFHSMPE. This procedure is customized by the DFHISTAR job stored in the CICSTS13.CICS.XDFHINST library.

For full details about applying service to the CICSPlex SM component of CICS TS, see "Chapter 21. Applying service to CICS Transaction Server for OS/390" on page 109.

Applying service to a CICS/VSE remote MAS

For information about how to apply service to a CICS/VSE remote MAS, refer to the *VSE/ESA Installation and Service* book.

Applying service to the CICS for OS/2 components

Maintenance for the CICSPlex SM OS/2 Feature, which includes the CICS for OS/2 remote MAS, is provided as SMP/E APARs and PTFs. The maintenance must be applied, using SMP/E, to the CICSTS13.CPSM.SEYUOS2 library on the host system before it can be installed on your OS/2 workstation.

Each update to the CICSPlex SM OS/2 Feature consists of several updated members in the CICSTS13.CPSM.SEYUOS2 library:
- The Software Installer for OS/2 package file for installing from the host system library
- The Software Installer for OS/2 package file for installing from a workstation disk drive
- One or more updated component files for the CICSPlex SM OS/2 Feature

Each time an APAR or PTF is created, new Software Installer for OS/2 package files are produced containing the new date and time stamps for the updated OS/2 files. The current package files contain the date and time stamps of all files updated by previous APARs and PTFs. When you install a new package on your workstation, all files that have been updated by maintenance but have not yet been updated on your workstation, are installed. Maintenance can be installed from:

- The host system library that was updated by SMP/E
- A LAN workstation disk drive that was previously updated with maintenance from the host system

The CICSPlex SM OS/2 Feature package file used to update your workstation is one of the following:

Source Location	**Package File**
Host system	EYUIMNPE in the CICSTS13.CPSM.SEYUOS2 library for the CICSPlex SM OS/2 Feature
LAN workstation	EYUIPRPE.PKG on the source disk drive for any other CICSPlex SM component

Maintenance must be installed from the same source location (either host system or LAN workstation) as the current version of CICSPlex SM components on your workstation. To determine the current source location, check the settings of the Installation Utility object in the CPSM folder. The /S: parameter identifies the current source location.

If the current source location no longer exists, you must delete CICSPlex SM from your workstation and reinstall it from a new source location. To delete CICSPlex SM components, continue with this maintenance procedure until you have shut down CICS for OS/2. Then, refer to "Deleting CICSPlex SM components" on page 316.

Accessing the Installation and Maintenance window

The Software Installer for OS/2 Installation and Maintenance window is the starting point for applying service to the CICSPlex SM OS/2 components on your workstation. The method for accessing this window depends on the components you have installed.

For any component:

1. Select the CICSPlex SM product folder from your desktop.

   The CICSPlex SM Icon View window appears.
2. Select the **Installation Utility** icon for Software Installer for OS/2.

   If you are installing maintenance from the host system library, you are prompted for the host session identifier. Enter the host session identifier to open the host catalog.

   If you are installing maintenance from a LAN workstation disk drive, the drive catalog is opened automatically.

   Once the appropriate catalog file is opened, the Installation and Maintenance window appears.

Checking the current service level

The CICSPlex SM service level is identified at the beginning of the CICSPlex SM OS/2 Feature package file. Be sure this service level is later than the service level currently installed on your workstation.

To determine the current service level on your workstation:

1. From the Software Installer for OS/2 Installation and Maintenance window, select the package file containing the components installed on your workstation.

The OS/2 RMAS is selected by default.

2. From the **Details** pull-down menu select **Product Status...**.

   The Product Status window for CICSPlex SM appears.

3. Select any CICSPlex SM component in the **Components currently installed** list. Then, select the **Service Level...** button to display the CICSPlex SM service level currently installed on your workstation.

4. Exit back to the Software Installer for OS/2 Installation and Maintenance window.

Shutting down CICS for OS/2

Before you begin the update process, you should shut down CICS for OS/2. If you do not shut down CICS for OS/2 and any of the CICSPlex SM files are in use during the update, you will have to restart your OS/2 workstation when the update is complete. The reason for this is that Software Installer for OS/2 does not automatically replace files that are in use.

If any files are in use when the update process is run, Software Installer for OS/2 builds a protect shell file to be executed when you restart your workstation. Your CONFIG.SYS file is modified by the update process to include a PROTSHELL command that invokes Software Installer for OS/2 when your workstation is restarted. The Software Installer for OS/2 protect shell processing replaces those CICSPlex SM files that were in use at the time you updated the OS/2 Feature. Software Installer for OS/2 also removes the PROTSHELL command from the CONFIG.SYS file when it completes the update.

To avoid the Software Installer for OS/2 protect shell processing and having to restart your workstation, shut down CICS for OS/2. Now you are ready to either update or delete the CICSPlex SM components.

Updating CICSPlex SM components

To update the CICSPlex SM components on your workstation:

1. Display the Software Installer for OS/2 Installation and Maintenance window, as described in “Accessing the Installation and Maintenance window” on page 314.

2. From the **Action** pull-down menu, select **Update...**.

   The Software Installer for OS/2 Update window appears.

3. Select the **Save a backup version?** option to have Software Installer for OS/2 create a backup of the current CICSPlex SM files.

4. Select **Update** to have Software Installer for OS/2 process the new CICSPlex SM package file and any other files that have been updated at the source location.

If you shut down CICS for OS/2 before running the update, you can restart CICS for OS/2 at this time.

If you did not shut down CICS for OS/2, Software Installer for OS/2 indicates whether any files were in use during the update. If there were files in use, you must restart your OS/2 workstation to run the Software Installer for OS/2 protect shell process. This process replaces those CICSPlex SM files that were in use.

Deleting CICSPlex SM components

If the source location from which your CICSPlex SM components were installed no longer exists, you must delete CICSPlex SM from your workstation and reinstall it from a new source location.

To delete the CICSPlex SM components from your workstation:

1. Display the Software Installer for OS/2 Installation and Maintenance window, as described in "Accessing the Installation and Maintenance window" on page 314.
2. From the **Action** pull-down menu, select **Delete...**.

   The Software Installer for OS/2 Delete window appears.
3. Select the **Select all** option to delete all CICSPlex SM components.
4. Select **Delete** to have Software Installer for OS/2 delete the CICSPlex SM components.

   Note: Your existing CICSPlex SM parameter definition files are not deleted.

If you shut down CICS for OS/2 before performing the delete process, you can restart CICS for OS/2 at this time.

If you did not shut down CICS for OS/2, Software Installer for OS/2 indicates whether any files were in use during the delete process. If there were files in use, you must restart your OS/2 workstation to run the Software Installer for OS/2 protect shell process. This process deletes those CICSPlex SM files that were in use.

Once all the CICSPlex SM components are deleted, you can reinstall the components from a new source location. The newly installed components will have the service level of the new source location.

Depending on which components you want to reinstall and the source location, refer to one of these sections:

- To install any CICSPlex SM component from the host system, see "Opening the host catalog manually" on page 286.

Chapter 38. CICSPlex SM installation verification procedures

This chapter describes how to run the CICSPlex SM installation verification procedures (IVPs) to confirm that CICSPlex SM has been installed successfully. It is recommended that you run the IVPs before you complete the setup and configuration tasks for your environment.

There are two IVPs for the installation of CICSPlex SM on MVS, IVP1 and IVP2:

- IVP1 verifies the installation of CICSPlex SM on the first or only MVS image.
- IVP2 verifies the installation of CICSPlex SM on the second and subsequent MVS images.

IVP1 and IVP2 are largely the same, except that IVP2 incorporates tests of links to and from the CICSPlex SM components established by IVP1.

Additional IVPs are provided for the installation and set up of specific CICSPlex SM components:

IVP3 Verify that a VSE remote MAS has been properly installed and defined to the CMAS.

IVP4 Verify that an OS/2 remote MAS has been properly installed and defined to the CMAS.

IVP5 Verify that the interface to NetView Resource Object Data Manager (RODM) has been properly installed.

Please note the following:

- While you are running the IVPs, you will encounter the CICSPlex SM term *view*. A view is simply a formatted display of data relating to one or more CICS resources or CICSPlex SM definitions.
- You enter commands throughout the IVPs by typing the command name in the COMMAND field of the current view and pressing Enter. However, if any particular command is assigned to a PF key, you may use the PF key instead of typing the command name.

For general information about the CICSPlex SM ISPF user interface, see the *CICSPlex SM User Interface Guide*.

If the IVPs do not work as described

You run the IVPs to verify that CICSPlex SM has been installed successfully. Therefore, the failure of an IVP is likely to mean that either the installation of CICSPlex SM has not succeeded, or preceding steps of the IVP have failed. Error messages may be issued at any stage of the IVPs: please refer to the *CICSPlex SM Messages and Codes* manual for detailed descriptions of CICSPlex SM error messages.

The stages of IVP1 and IVP2

During the course of performing the tasks of IVP1 and IVP2, you install a subset of the CICSPlex SM Starter Set that is sufficient to test all major components and functions of CICSPlex SM. The structure and purpose of the Starter Set are described in the *CICSPlex SM Concepts and Planning* manual. How to configure the Starter Set for use in your enterprise is described in "Chapter 36. Configuring the Starter Set" on page 303.

The main stages of IVP1 and IVP2 are:

1. Setting up the CICSPlex SM environment
2. Starting the CICSPlex SM components
   a. Starting the CAS
   b. Starting the CMAS
   c. Defining a CICSplex
   d. Loading definitions using the batched repository update facility
   e. Starting the MAS
3. Testing the remaining CICSPlex SM functions
   a. Topology
   b. Operations
   c. Monitoring
   d. Real-time analysis
   e. Workload management

When you have defined your own CICSPlex SM configuration, you might want to rerun IVP1 and IVP2 using your own CASs, CMASs, and MASs rather than those of the Starter Set. Instructions for running IVP1 and IVP2 with your own configuration are supplied in "Customizing the installation verification procedures" on page 371.

The IVP samples libraries

The JCL and sample definitions you need to run IVP1 and IVP2 are in the Starter Set samples libraries CICSTS13.CPSM.SEYUJCL and CICSTS13.CPSM.SEYUDEF. The library CICSTS13.CPSM.SEYUJCL includes sample JCL for creating, running, and deleting the Starter Set components created during IVP1 and IVP2. The library CICSTS13.CPSM.SEYUDEF includes samples such as VTAM definitions and CICS tables. Table 35, Table 36 on page 319, Table 37 on page 319, and Table 38 on page 319 identify the JCL and definitions used during IVP1 and IVP2.

Table 35. JCL in CICSTS13.CPSM.SEYUJCL for creating the IVP components

Sample name	IVP1	IVP2	Description
EYUIBBIA	✓	✓	Creates CAS data sets EYUSDEF and EYUIPRM on system A
EYUIBBIB		✓	Creates CAS data sets EYUSDEF and EYUIPRM on system B
EYUICICA	✓	✓	Creates MAS data sets on system A
EYUICICB		✓	Creates MAS data sets on system B
EYUICMSA	✓	✓	Creates CMAS data sets on system A
EYUICMSB		✓	Creates CMAS data sets on system B
EYUIDRPA	✓	✓	Creates data repository on system A
EYUIDRPB		✓	Creates data repository on system B
EYUICSDA	✓	✓	Creates DFHCSD data set on system A
EYUICSDB		✓	Creates DFHCSD data set on system B

Table 36. JCL in CICSTS13.CPSM.SEYUJCL for running the IVPs

Sample name	IVP1	IVP2	Description
EYUICM1A	✓	✓	Starts CMAS EYUCMS1A on system A
EYUICM1B		✓	Starts CMAS EYUCMS1B on system B
EYUIMS1A	✓	✓	Starts MAS EYUMAS1A on system A
EYUIMS1B		✓	Starts MAS EYUMAS1B on system B
EYUICS1A	✓	✓	Starts CAS EYUCAS1A on system A
EYUICS1B		✓	Starts CAS EYUCAS1B on system B
EYUICSSA	✓	✓	Starts CAS EYUCAS1A on system A as a started task
EYUICSSB		✓	Starts CAS EYUCAS1B on system B as a started task

Table 37. Starter Set definitions in CICSTS13.CPSM.SEYUDEF used by the IVPs

Sample name	IVP1	IVP2	Description
EYUDVTIA	✓	✓	VTAM definitions for system A
EYUDVTIB		✓	VTAM definitions for system B
EYUDCDMA		✓	CDRM definitions for system A
EYUDCDMB		✓	CDRM definitions for system B
EYUDCDMC		✓	CDRM definitions for system C
EYUMDTAB	✓	✓	Modetable for CASs
EYUTDCTC	✓	✓	DFHDCT for CMASs
EYUTDCTR	✓	✓	DFHDCT for remote DCT entries
EYUTDCTL	✓	✓	DFHDCT for standard DCT entries
EYUTJCTS	✓	✓	DFHJCT for MASs
EYUTPLTC	✓	✓	DFHPLT for CMASs
EYUTPLTL	✓	✓	DFHPLT for local MAS
EYUTSRTS	✓	✓	DFHSRT for CMASs and MASs
EYU@ISPF	✓	✓	ISPF logon procedure
EYU@PRIM	✓	✓	ISPF primary option panel

Table 38. JCL in CICSTS13.CPSM.SEYUJCL for deleting components created by the IVP s

Sample name	IVP1	IVP2	Description
EYUIBBDA	✓	✓	Deletes CAS data sets on system A
EYUIBBDB		✓	Deletes CAS data sets on system B
EYUICIDA	✓	✓	Deletes MAS data sets on system A
EYUICIDB		✓	Deletes MAS data sets on system B
EYUIDRDA	✓	✓	Deletes the data repository on system A
EYUIDRDB		✓	Deletes the data repository on system B
EYUICDDA	✓	✓	Deletes the DFHCSD data set on system A
EYUICDDB		✓	Deletes the DFHCSD data set on system B
EYUICMDA	✓	✓	Deletes the CMAS data sets on system A
EYUICMDB		✓	Deletes the CMAS data sets on system B

Note: When you have run IVP1 and IVP2, you might want to use the JCL listed in Table 38 to delete the Starter Set components you have created. However, if you are planning to configure the Starter Set for use on an MVS image on which you have run an IVP, keeping the IVP components might save you some effort at a later stage. See "Chapter 36. Configuring the Starter Set" on page 303 for more information.

Installation verification procedure 1 (IVP1)

It is recommended that you run IVP1 on the first or only MVS image on which you install CICSPlex SM. Before you begin, ensure that the CICSPlex SM data sets are authorized as described in “Authorizing libraries (CAS)” on page 203. On the MVS image on which you run IVP1 (which is referred to in the remainder of this section as “system A”) you must have access to:

- The CICSPlex SM samples data sets CICSTS13.CPSM.SEYUDEF and CICSTS13.CPSM.SEYUJCL
- CICS/ESA 4.1 (or higher) load libraries
- CICS/ESA 4.1 (or higher) table-assembly JCL
- The CEDA transaction on MAS EYUMAS1A
- The MVS console log via TSO SDSF.

Figure 60 shows those components of the CICSPlex SM Starter Set that are defined during IVP1.

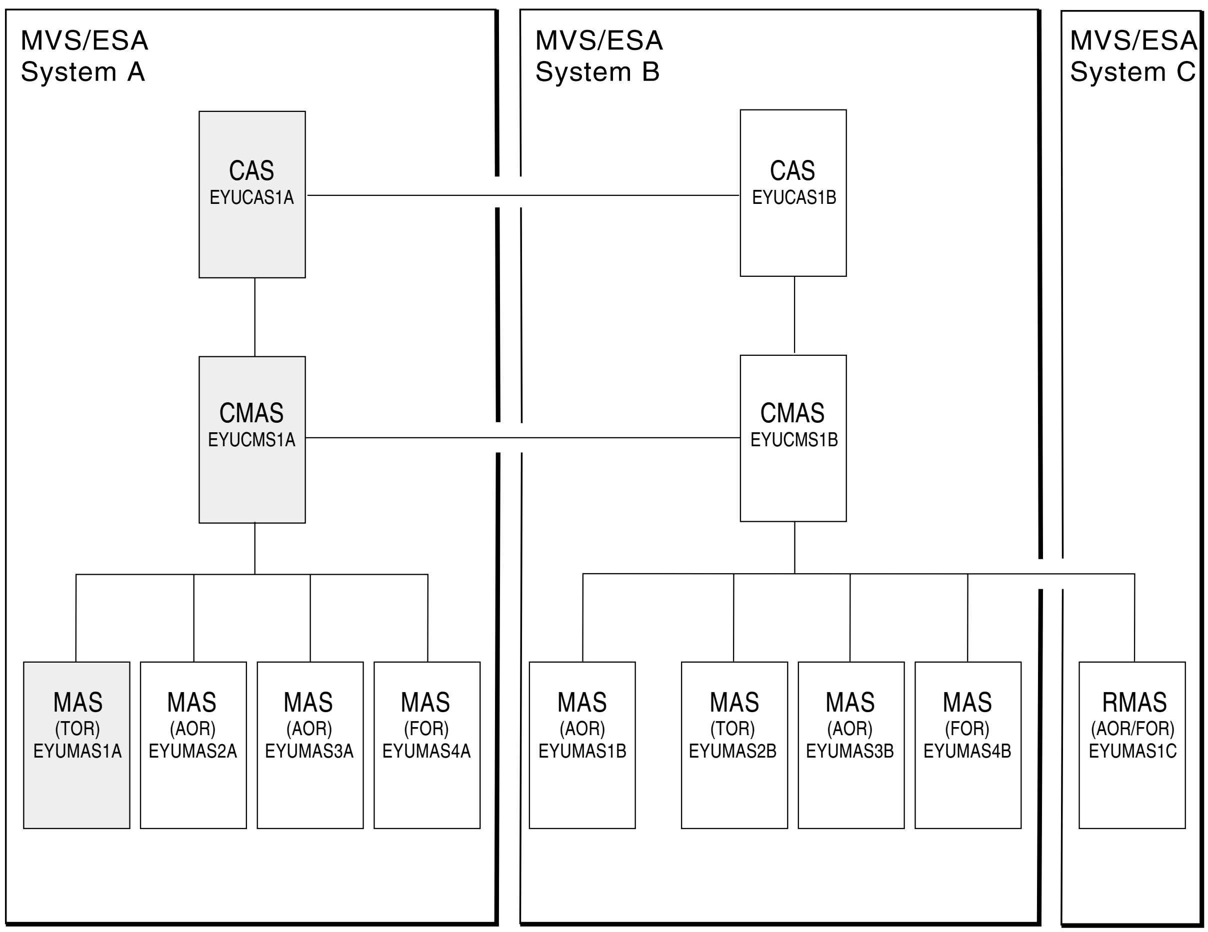

Figure 60. Starter Set components for IVP1. Shaded components—EYUCAS1A, EYUCMS1A, and EYUMAS1A—are used during IVP1

Setting up the CICSPlex SM environment on system A

Perform the following steps to prepare the MVS environment on system A for CICSPlex SM:

1. Run EYUISTRT on system A to tailor the skeleton jobs for the Starter Set (and thereby for the IVPs). EYUISTRT runs the EYUINST EXEC to tailor the Starter

Set members. For more information about EYUISTRT, see “Chapter 43. Using the EYUINST EXEC to tailor skeleton jobs” on page 393. Table 39 identifies those EYUINST EXEC parameters that are applicable to the Starter Set.

Table 39. EYUINST EXEC parameters required for the Starter Set

Parameter	CMAS	MAS	Default
CINDEXnnn	✓	✓	None
CMASNAME	✓		None
CRELEASE	Yes	Yes	None
DSINFO	✓		index defvol defunit
ENVIRONMENT	✓	✓	None
INDEX	Yes	Yes	index
JOB	✓	✓	//XXXXXXXX JOB
LIB	✓	✓	CICSTS13.CPSM.XEYUINST
PREFIX	✓	✓	EYU
SCOPE	✓	✓	ALL
Note: The SCOPE value should be set to STARTER.			
SELECT	✓		None
TEMPLIB	✓	✓	CICSTS13.CPSM
Note: For more information about TEMPLIB, see “EYUINST EXEC parameters” on page 395.			

2. Add VTAM definitions for EYUCAS1A, EYUCMS1A, and EYUMAS1A to the VTAM table on system A. An example of the VTAM definitions for these three CICSPlex SM components is provided in sample EYUDVTIA.

   You need not add the VTAM definitions now to system B if you plan to not run IVP2. (Remember that IVP2 should be run when you will have CMAS-to-CMAS communication links.)

   EYUDVTIA is a subset of the VTAM definitions required on system A for the complete Starter Set. It holds the basic definitions required to run IVP1.

   Note: The sample VTAM definitions use MODETAB(EYUMDTAB). The source of this is in CICSTS13.CPSM.SEYUDEF, member EYUMDTAB. If you use the starter set VTAM definitions, you must assemble this table and put it into the VTAMLST library.

   If you use Network Control Programs (NCP), you may need to create a mode table, using the sample entry shown in EYUMDTAB, in order to control the VTAM RUSIZE (request unit size) parameter.
3. Run the JCL EYUIBBIA, which defines the BBIPARM data set for CAS EYUCAS1A.
4. Run the JCL EYUICMSA, which defines all data sets required by CMAS EYUCMS1A.
5. Run the JCL EYUICICA, which defines all data sets required by MAS EYUMAS1A.
6. Run the JCL EYUIDRPA, which defines the CICSPlex SM data repository on system A.

   Note: This data repository can be used with the Starter Set on system A: it does not need to be recreated after the IVPs have been run.)

7. Run the JCL EYUICSDA, which defines, initializes, and loads the CSD to be used by both EYUCMS1A and EYUMAS1A.
8. Make any necessary site-specific changes to the CSD created in step 7. For example, you might need to add TYPETERMs, TERMINALs or AUTOINSTALL MODELs.
9. Assemble the following sample CICS tables into a load library:
   EYUTDCTC (DCT)
   EYUTDCTL (DCT)
   EYUTPLTC (PLT for EYUCMS1A)
   EYUTPLTL (PLT for EYUMAS1A)
   EYUTSRTS (SRT)
   EYUTJCTS (JCT)

   Notes:
   a. EYUTJCTS (JCT) is required for CICS/ESA 4.1 only. It is not needed if you are using releases of CICS/ESA from CICS TS. If using releases of CICS/ESA from CICS TS, ensure that you have a model installed for the system log stream. The default naming convention is userid.applid.DFHLOG and userid.applid.DFHSHUNT for a system log stream, and userid.applid.DFHJnn (where nn is 01 through 99) for a user journal. See "Chapter 20. Defining the logger environment for CICS journaling" on page 73 and the *CICS System Definition Guide* for more information about creating log streams.
   b. The DCT assembly may complete with RC=4. This is a valid return code, because the DCT entries contain queues with a "C" prefix, which is reserved for CICS.
   c. For details on assembling CICS control tables, see the *CICS/ESA System Definition Guide.*
10. Update ISPF on system A to reflect the addition of CICSPlex SM. You can find an example of the required changes in EYU@ISPF and EYU@PRIM. Note that any changes you make to ISPF are generally applicable on system A and are not confined to IVP1 only. Therefore, you should try to make a permanent change at this stage so that you don't have to repeat this step later. For more information, see "Preparing user access to CICSPlex SM" on page 211.

Starting up and verifying CICSPlex SM components on system A

When the system A environment for CICSPlex SM is established, you are ready to:
1. Start the CAS EYUCAS1A
2. Start the CMAS EYUCMS1A
3. Define a CICSplex
4. Run the batched repository update facility
5. Start the MAS EYUMAS1A

1: Start the CAS EYUCAS1A

1. Log on to system A and start the CAS using either JCL EYUICS1A or (to start the CAS as a started task) JCL EYUICSSA. When you start the CAS, output similar to this appears in the JES2 job log:

```
 COMMAND INPUT ===>                                            SCROLL ===> PAGE
********************************* TOP OF DATA **********************************
                  J E S 2  J O B  L O G  --  S Y S T E M  S S G 1  --  N O D E

13.35.07 JOB00024  BBMYAB50I Reading CAS Definition Mamber 00
13.35.08 JOB00024  BBMXCL41I Default system values used for target definition
13.35.08 JOB00024  BBMXCL40W SSI Context Definition member 00 not found in BBIPARM
13.35.08 JOB00024  BBMXBI30I Security Parameter Modification member BBMTSS00 in
13.35.12 JOB00024  BBMXBI29I Security Class Modification member BBMTSP00 not fou
13.35.16 JOB00024  BBMXBI26I Default security resource properties used
13.35.16 JOB00024  BBMXCL36I Default security resource definition used for COMMO
13.35.18 JOB00024  BBMSS002I ESMTYPE(AUTO) selected RACF (RCVT DEFINED, RACF MAR
13.35.18 JOB00024  BBMSS001I Security - ESMTYPE(RACF) SUBSYS(EYUA) REQSTOR
13.35.18 JOB00024  BBMZA001I CAS(MV30) SSID(EYUA) INITIALIZATION COMPLETE R3.3.8
```

2. Look for message number BBMZA001I in the output to confirm that the CAS EYUCAS1A is started.

2: Start the CMAS EYUCMS1A

1. Check the CICS/ESA system initialization table (SIT) parameters in JCL EYUICM1A, in particular the SVC numbers and the default user, to ensure that they are suitable for your environment.
2. Submit JCL EYUICM1A. The output from EYUICM1A is similar to this:

```
 COMMAND INPUT ===>                                            SCROLL ===> PAGE
13.36.57 JOB00025  +DFHCP0102I EYUCMS1A CPI initialization has ended.
13.36.57 JOB00025  +DFHPR0105I EYUCMS1A Partner resource manager initialization
13.36.57 JOB00025  +DFHAI0102I EYUCMS1A AITM initialization has ended.
13.36.57 JOB00025  +DFHSI1511I EYUCMS1A Installing group list CMS1AGPL.
13.37.12 JOB00025  +DFHSI8430I EYUCMS1A About to link to PLT programs during the
13.37.12 JOB00025  +EYUXL0001I EYUCMS1A CMAS PLTPI program starting
13.37.12 JOB00025  +EYUXL0002I EYUCMS1A CICS/ESA TRACE active
13.37.12 JOB00025  +EYUXL0017I EYUCMS1A CMAS PLTPI program terminating
13.37.12 JOB00025  +DFHSI8434I EYUCMS1A Control returned from PLT programs durin
13.37.12 JOB00025  +DFHSI1517 EYUCMS1A Control is being given to CICS.
13.37.13 JOB00025  +EYUXL0003I EYUCMS1A CPSM Version 140 CMAS startup in progres
13.37.19 JOB00025  +EYUXL0022I EYUCMS1A CMAS Phase I initialization complete
13.37.19 JOB00025  +EYUXL0020I EYUCMS1A ESSS connection in progress
13.37.19 JOB00025  +EYUXL0004I EYUCMS1A ESSS connection complete
13.37.22 JOB00025  +EYUCR0006W EYUCMS1A Security checking disabled per SEC(NO) E
13.37.22 JOB00025  +EYUCW0108I EYUCMS1A Time Zone offset from GMT computed based
13.37.24 JOB00025  +EYUXL0007I EYUCMS1A CMAS Phase II initialization complete
13.37.24 JOB00025  +EYUXL0007I EYUCMS1A CMAS Phase III initialization complete
13.37.24 JOB00025  +EYUXL0007I EYUCMS1A CMAS Phase IV initialization complete
13.37.24 JOB00025  +EYUXL0010I EYUCMS1A CMAS initialization complete
13.37.27 JOB00025  +EYUXL0008I EYUCMS1A CICSPlex registration complete
13.37.27 JOB00025  +EYUXL0009I EYUCMS1A CAS connection established
```

3. In the output from EYUICM1A, look for messages EYUXL0009I and EYUXL0008I to confirm that the CMAS EYUCMS1A is started.

3: Define a CICSplex to CICSPlex SM

During this stage, you define a CICSplex to CICSPlex SM via the CICSPlex SM end-user interface.

1. Log on to TSO on system A and select the CICSPlex SM option from the main ISPF panel; the CICSPlex SM option is CP if you are using the supplied samples. Ensure that “EYUA” is specified as the subsystem ID. (This can be changed using option 0.1 from the main ISPF panel.) The CICSPlex System Manager entry panel is displayed:

```
--------------------------- CICSPlex System Manager ----------------------------
OPTION ===>

   0  PROFILE      - User Session Parameters
   1  PLEXMGR      - List of Service Points
   2  CPSM         - CICSPlex SM


         Default Criteria for CPSM:

     Context             ===> EYUCMS1A
     Scope               ===> EYUCMS1A
     Warning Record Count ===> 0          0 for no checking
     Require Set         ===> YES        YES, NO



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```

2. Select CICSPlex SM by typing the value “2” in the OPTION field. Before pressing Enter, ensure that both the Context field and the Scope field contain the name of the CMAS, which is EYUCMS1A. The MENU menu is displayed:

```
 26MAR1999  13:38:17 ----------- INFORMATION DISPLAY ---------------------------
 COMMAND  ===>                                                  SCROLL ===> PAGE
 CURR WIN ===> 1        ALT WIN ===>
  W1 =MENU=============EYUCMS1A=EYUCMS1A=26MAR1999==13:38:17=CPSM=========14===
 CMD Name                Description
 --- ----------------------------------
     ANALYSIS   Real Time Analysis Operations Views
     CONFIG     CMAS Configuration Operations Views
     MONITOR    Monitoring Views
     OPERATE    Operations Views
     TOPOLOGY   Topology Operations Views
     WORKLOAD   Workload Operations Views
     ========   ================================================================
     ADMSAM     RTA System Availability Monitoring Administration Views
     ADMMRM     RTA MAS Resource Monitoring Administration Views
     ADMAPM     RTA Analysis Point Monitoring Administration Views
     ADMCONFG   CMAS Configuration Administration Views
     ADMMON     Monitor Administration Views
     ADMTOPOL   Topology Administration Views
     ADMWLM     Workload Manager Administration Views
     ADMBAS     Business Application Services Administration Views
     ADMRES     Business Application Services Resource Views
```

3. From the MENU menu, select ADMCONFG. You can select ADMCONFG in one of three ways. You can:
   - Type ADMCONFG in the COMMAND field and press Enter.
   - Move the cursor down to the ADMCONFG line, type S (for select) in the C column, and press Enter.
   - Move the cursor to the ADMCONFG value or its description and press Enter.

   Note: You can select any view from a menu of views using any of these methods.

The ADMCONFG menu is displayed:

```
26MAR1999  13:38:28 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU==============EYUCMS1A=EYUCMS1A=26MAR1999==13:38:28=CPSM==========6===
CMD Name             Description
--- -------------------------------
    ADMCONFG   CMAS Configuration Administration Views
      BATCHREP   Batched Repository Updates
      CPLEXDEF   CICSplex Definitions
      CPLXCMAS   CMAS in CICSplex Definitions
      CMTCMDEF   CMAS-to-CMAS Link Definitions
      CMTPMDEF   CMAS-to-RMAS Link Definitions
```

4. From the ADMCONFG menu, select CPLEXDEF. The CPLEXDEF view is displayed:

```
26MAR1999  13:39:00 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CPLEXDEF==========EYUCMS1A=EYUCMS1A=26MAR1999==13:38:28=CPSM==============
BBMXBD15I There is no data which satisfies your request
```

The CPLEXDEF view contains message BBMXBD15I because, at this stage, there are no CICSplexes defined to CMAS EYUCMS1A.

5. To create a CICSplex definition, type CRE in the COMMAND field of the CPLEXDEF view and press Enter. The Create CICSPlex input panel is displayed:

```
------------------------- Create CICSPlex for EYUCMS1A ------------------------
COMMAND  ===>

CICSPlex name          ===>
Description            ===>

Monitor Interval       ===> 480    Performance interval duration (15-1440 min)
Daylight Savings Time  ===> NO     YES or NO
Time Zone              ===> B      Time zone for interval (B-Z)
Time Zone Adjustment   ===> 0      Offset from time zone (0-59)
Populate in RODM       ===> NO     Build a RODM object
CICS Command Checking  ===> NO     Simulated CICS Command Checks
CICS Resource Checking ===> NO     Simulated CICS Resource Checks
Exemption Checking     ===> YES    Check for Exempt Users

Press ENTER to create CICSplex.
Type END or CANCEL to cancel without creating.
```

In the CICSPlex Name field, type the value EYUPLX01, and supply a brief description (for example, “IVP 1 CICSPLEX”) in the Description field. In the Number of CICSPlex SM Managed region features licensed field, enter **5** (the number of MASs in EYUPLX01). Leave all other fields to default and press Enter. The CPLEXDEF view is redisplayed:

```
26MAR1999  13:39:25 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CPLEXDEF==========EYUCMS1A=EYUCMS1A=26MAR1999==13:39:25=CPSM=========1===
CMD Name     Mon  Time Zone Day  Cmd Res Xmp ROD Description
--- -------- Intv Zone Adj  Save Chk Chk Chk --- ------------------------------
    EYUPLX01  480 B       0 NO   NO  NO  NO  NO  IVP 1 CICSPLEX
```

The CPLEXDEF view now contains an entry for CICSplex EYUPLX01.

6. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the CPLEXDEF view and pressing Enter.

4: Run the batched repository update facility on system A

During this stage you load several definitions into the data repository of CMAS EYUCMS1A using the batched repository update facility.

1. From the CICSPlex SM MENU menu, select ADMCONFG. From the ADMCONFG menu, select BATCHREP. The BATCHREP view is displayed:

```
26MAR1999  13:39:36 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =BATCHREP==========EYUCMS1A=EYUCMS1A=26MAR1999==13:39:36=CPSM=============
BBMXBD15I There is no data which satisfies your request
```

2. To submit a job to update the data repository, type the value SUB in the COMMAND field of the BATCHREP view and press Enter. The Start Batch Run input panel is displayed:

```
COMMAND ===>

 Data Set Name   ===> 'CICSTS13.CPSM.SEYUDEF'

 Data Set Member ===> EYUDDRIA

 Print Class     ===> H

 Print Node      ===> *

 Output Userid   ===> *

 Run Type        ===> EXECUTE                       (CHECK or EXECUTE)

Press ENTER to Run the Job.
Type END or CANCEL to cancel without Running.
```

Complete the Start Batch Run screen as shown above and press Enter. The supplied sample data repository definitions are loaded into the data repository of EYUCMS1A.

Note: The Print Class, Print Node, and Output Userid values are site specific. Consult your MVS administrator for valid values for these fields. Be aware, however, that the Print Class value should identify a HELD output class so that the results of the batch run may be validated.

3. Verify that the batched repository update facility has created the definitions by examining the JOBLOG of EYUICM1A, which is in the HELD output queue. Look for message EYUXU0218I to verify this.

```
 COMMAND INPUT ===>                                            SCROLL ===> PAGE
 CREATE LNKSMSCG  SPEC(EYUMOS03)
                  GROUP(EYUCSG05)
                  FORCE
                  ;
EYUXD0002I EYUCMS1A Add CONTEXT(EYUPLX01) MAJOR_ID(LNKSMSCG) MAJOR_NAME(EYUMOS03
EYUXD0002I EYUCMS1A  MINOR_NAME(EYUCSG05) By User(DAVEJEF) On System(*) Date(357
EYUXD0002I EYUCMS1A Add CONTEXT(EYUPLX01) MAJOR_ID(LNKSMSCS) MAJOR_NAME(EYUMOS03
EYUXD0002I EYUCMS1A  MINOR_NAME(EYUMAS1B) By User(DAVEJEF) On System(*) Date(357
EYUXU0218I EYUCMS1A Batch CREATE request complete - Status(OK)
 CREATE LNKSRSCS  SPEC(EYURTS01)
                  SYSTEM(EYUMAS1A)
                  ;
EYUXD0002I EYUCMS1A Add CONTEXT(EYUPLX01) MAJOR_ID(LNKSRSCS) MAJOR_NAME(EYURTS01
EYUXD0002I EYUCMS1A  MINOR_NAME(EYUMAS1A) By User(DAVEJEF) On System(*) Date(357
EYUXU0218I EYUCMS1A Batch CREATE request complete - Status(OK)
 CREATE LNKSRSCS  SPEC(EYURTS01)
                  SYSTEM(EYUMAS4A)
                  ;
EYUXD0002I EYUCMS1A Add CONTEXT(EYUPLX01) MAJOR_ID(LNKSRSCS) MAJOR_NAME(EYURTS01
EYUXD0002I EYUCMS1A  MINOR_NAME(EYUMAS4A) By User(DAVEJEF) On System(*) Date(357
EYUXU0218I EYUCMS1A Batch CREATE request complete - Status(OK)
******************************** BOTTOM OF DATA ********************************
```

4. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the BATCHREP view and pressing Enter.

5: Start the MAS EYUMAS1A

1. Check the SIT parameters in JCL EYUIMS1A, in particular the SVC numbers and the default user, to ensure that they are suitable for your environment.
2. Submit JCL EYUIMS1A from TSO. Output similar to this appears in the job log:

```
 COMMAND INPUT ===>                                            SCROLL ===> PAGE
13.41.52 JOB00026  IEC161I CPSM140.SAMPLES.EYUMAS1A.DFHINTRA,
13.41.52 JOB00026  IEC161I CPSM140.SAMPLES.EYUMAS1A.DFHINTRA.DATA,
13.41.52 JOB00026  IEC161I ICFCAT.CPSM.CATALOGA
13.41.53 JOB00026  +DFHTD0101I EYUMAS1A Transient Data initialization has ended.
13.41.53 JOB00026  +DFHFC0101I EYUMAS1A File Control initialization has ended.
13.41.53 JOB00026  +DFH4508 - EYUMAS1A - CICS SYSTEM LOG. PRIMARY   DATA SET NOW
13.41.53 JOB00026  +DFH4500 - 02 OF 02 JOURNALS SUCCESSFULLY OPENED
13.41.54 JOB00026  +DFHCP0102I EYUMAS1A CPI initialization has ended.
13.41.54 JOB00026  +DFHPR0105I EYUMAS1A Partner resource manager initialization
13.41.54 JOB00026  +DFHAI0102I EYUMAS1A AITM initialization has ended.
13.41.54 JOB00026  +DFHSI1511I EYUMAS1A Installing group list MAS1AGPL.
13.41.54 JOB00026  CSV003I REQUESTED MODULE IGWABWO  NOT FOUND
13.42.10 JOB00026  +DFHSI1519I EYUMAS1A The interregion communication session wa
13.42.10 JOB00026  +DFHSI8430I EYUMAS1A About to link to PLT programs during the
13.42.10 JOB00026  +EYUNX0001I EYUMAS1A LMAS PLTPI program starting
13.42.11 JOB00026  +DFHSI8434I EYUMAS1A Control returned from PLT programs durin
13.42.11 JOB00026  +DFHSI1517 EYUMAS1A Control is being given to CICS.
13.42.12 JOB00026  +EYUXL0003I EYUMAS1A CPSM Version 140 LMAS startup in progres
13.42.16 JOB00026  +EYUXL0022I EYUMAS1A LMAS Phase I initialization complete
13.42.16 JOB00026  +EYUXL0020I EYUMAS1A ESSS connection in progress to CICSPLEX(
13.42.16 JOB00026  +EYUXL0004I EYUMAS1A ESSS connection complete
13.42.16 JOB00026  +EYUXL0007I EYUMAS1A LMAS Phase II initialization complete
```

3. Look for messages EYUXL0004I and EYUXL0007I to confirm that MAS EYUMAS1A is started.

Testing CICSPlex SM functions

During this part of IVP1, you test the topology, operations, monitoring, analysis, and workload-management functions of CICSPlex SM on system A.

Test the topology functions on system A

To test the topology functions of CICSPlex SM, you first install a resource in a CICS system and then delete that resource, checking after each action that the change is known to CICSPlex SM.

1. From the MENU menu, change the context and scope values from EYUCMS1A to EYUPLX01 by typing SET in the COMMAND field and pressing Enter. The SET WINDOW CONTEXT, PRODUCT, SCOPE AND VIEW input panel is displayed:

```
----------- SET WINDOW CONTEXT, PRODUCT, SERVER, SCOPE AND VIEW ----------------
COMMAND ===>

  Window Parameters:

  Context     ===> EYUPLX01
  Product     ===> CPSM
  Server      ===> *
  Scope       ===> EYUPLX01
  View        ===> MENU


  Type End to Set Window Parameters
       Cancel to quit without setting
```

2. Complete the input panel as shown above and type End. The MENU menu is redisplayed. From the MENU menu, select TOPOLOGY. The TOPOLOGY menu is displayed:

```
26MAR1999  13:43:50 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =TOPOLOGY==========EYUPLX01=EYUPLX01=26MAR1999==13:43:50=CPSM==========1===
C View Name  Description
- ---------- ------------------------------
  MAS        Managed Address Spaces
```

3. From the TOPOLOGY menu select the MAS entry. The MAS view, showing all active regions belonging to CICSplex EYUPLX01, is displayed:
   The status of EYUMAS1A is ACTIVE.

```
26MAR1999  13:44:00 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =MAS===============EYUPLX01=EYUPLX01=26MAR1999==13:44:00=CPSM==========5===
CMD Name     Type   CMAS     Status   MON RTA WLM Description
--- -------- ------ -------- -------- Act Act Act -----------------------------
    EYUMAS1A LOCAL  EYUCMS1A ACTIVE   YES YES NO  Starter Set TOR 1 on System A
    EYUMAS1B N/A             INACTIVE N/A N/A N/A Starter Set AOR 3 on System B
    EYUMAS2A N/A             INACTIVE N/A N/A N/A Starter Set AOR 1 on System A
    EYUMAS3A N/A             INACTIVE N/A N/A N/A Starter Set AOR 2 on System A
    EYUMAS4A N/A             INACTIVE N/A N/A N/A Starter Set FOR 1 on System A
```

4. Type OPERATE in the COMMAND field of the MAS view and press Enter. The OPERATE menu is displayed.
5. In the COMMAND field of the OPERATE menu, type PROGRAM EYUZZZZZ and press Enter. This command requests a display of programs named EYUZZZZZ. The PROGRAM view is displayed.
6. In the PROGRAM view, the message: “There is no data which satisfies your request” is displayed. (However, if you have run IVP1 before but have not deleted the entry for program EYUZZZZZ, data for EYUZZZZZ might be displayed. If this happens, delete the program definition as described in step 13 on page 331 before continuing with IVP1.)
7. From a second display, and following your local procedure, log on to CICS system EYUMAS1A.

```
 ******\  ******\  ******\   ******\
********\ ******\ ********\ ********\
**\\\\**\   **\\\ **\\\\**\ **\\\\**\
**\    \\   **\   **\    \\ **\    \\
**\         **\   **\        *******\
**\         **\   **\         *******\
**\         **\   **\          \\\\**\
**\   **\   **\   **\   **\ **\   **\
********\ ******\ ********\ ********\
 ******\\ ******\  ******\\  ******\\
  \\\\\\   \\\\\\   \\\\\\    \\\\\\ TM
```

8. From the CICS screen, start the CEDA transaction to define program EYUZZZZZ in group EYUIVP:
   Allow the remainder of the definition values to default.

```
 OVERTYPE TO MODIFY                                       CICS RELEASE = 0530
  CEDA  DEFine
   PROGram        : EYUZZZZZ
   Group          : EYUIVP
   DEscription  ==>
   Language     ==> CObol              CObol | Assembler | Le370 | C | Pli
   RELoad       ==> No                 No | Yes
   RESident     ==> No                 No | Yes
   USAge        ==> Normal             Normal | Transient
   USElpacopy   ==> No                 No | Yes
   Status       ==> Enabled            Enabled | Disabled
   RSl            : 00                 0-24 | Public
   Cedf         ==> Yes                Yes | No
   DAtalocation ==> Below              Below | Any
   EXECKey      ==> User               User | Cics
   COncurrency  ==> Quasirent          Quasirent | Threadsafe
  REMOTE ATTRIBUTES
   DYnamic      ==> No                 No | Yes
   REMOTESystem ==>
+  REMOTEName   ==>
  I New group EYUIVP created.
                                                              APPLID=EYUMAS1A
  DEFINE SUCCESSFUL                         TIME:  13.45.31  DATE: 98.357
PF 1 HELP 2 COM 3 END           6 CRSR 7 SBH 8 SFH 9 MSG 10 SB 11 SF 12 CNCL
```

9. Using CEDA, install the group EYUIVP in the running CICS system EYUMAS1A:
Exit CEDA and clear the screen.

```
 OVERTYPE TO MODIFY
  CEDA  Install
   Connection   ==>
   DB2Conn      ==>
   DB2Entry     ==>
   DB2Tran      ==>
   DOctemplate  ==>
   Enqmodel     ==>
   File         ==>
   Journalmodel ==>
   Lsrpool      ==>
   Mapset       ==>
   PARTItionset ==>
   PARTNer      ==>
   PROCesstype  ==>
   PROFile      ==>
   PROGram      ==> EYUZZZZZ
   Requestmodel ==>
   Sessions     ==>
   TCpipservice ==>
   TDqueue      ==>
   TErminal     ==>
   TRANClass    ==>
   TRansaction  ==>
   TSmodel      ==>
   TYpeterm     ==>
   Group        ==> EYUIVP


                                                           APPLID=EYUMAS1A
  INSTALL SUCCESSFUL                           TIME:  13.45.44  DATE: 98.357
PF 1 HELP       3 END             6 CRSR 7 SBH 8 SFH 9 MSG 10 SB 11 SF 12 CNCL
```

10. Return to the CICSPlex SM session where the PROGRAM view is still displayed and press Enter. The contents of the view are refreshed and an entry for program EYUZZZZZ appears:

```
26MAR1999  13:46:26 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                              SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =PROGRAM===========EYUPLX01=EYUPLX01=26MAR1999==13:46:26=CPSM=========1===
CMD Program  CICS     Enabled  Use     Current Program   Shared  CEDF
--- Name---- System-- Status-- Count-- Use---- Language- Status  Option
    EYUZZZZZ EYUMAS1A ENABLED        0       0 COBOL     PRIVATE CEDF
```

The appearance of an entry for program EYUZZZZZ confirms that the CICSPlex SM TOPOLOGY function is working.

11. To verify CICSPlex SM’s ability to act on the resource, discard the program by moving the cursor to the CMD field of the EYUZZZZZ entry, typing DSC, and pressing Enter. The program is discarded from the running CICS system and the message “There is no data which satisfies your request” appears again.

12. To verify that the program has been discarded from the running CICS system, return to the CICS (EYUMAS1A) display and enter CEMT INQUIRE PROGRAM(EYUZZZZZ). The “NOT FOUND” message is displayed:

```
 STATUS:  RESULTS - OVERTYPE TO MODIFY
  Prog(EYUZZZZZ)                                              NOT FOUND















                                                  SYSID=MS1A APPLID=EYUMAS1A
  RESPONSE: 1 ERROR                             TIME:  13.47.35  DATE: 23.12.98
PF 1 HELP       3 END                     7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

Exit CEMT.

13. Using CEDA, delete the definition for program EYUZZZZZ in CICS system EYUMAS1A:

```
 OVERTYPE TO MODIFY
  CEDA  DELete
   All          ==>
   Connection   ==>
   DB2Conn      ==>
   DB2Entry     ==>
   DB2Tran      ==>
   DOctemplate  ==>
   Enqmodel     ==>
   File         ==>
   Journalmodel ==>
   Lsrpool      ==>
   Mapset       ==>
   PARTItionset ==>
   PARTNer      ==>
   PROCesstype  ==>
   PROFile      ==>
   PROGram      ==> EYUZZZZZ
   REQuestmodel ==>
   Sessions     ==>
   TCpipservice ==>
   TDqueue      ==>
   TErminal     ==>
   TRANClass    ==>
   TRansaction  ==>
   TSmodel      ==>
   TYpeterm     ==>
   Group        ==> EYUIVP

  I Group EYUIVP deleted.
                                                             APPLID=EYUMAS1A
  DELETE SUCCESSFUL                             TIME:  13.47.59  DATE: 98.357
PF 1 HELP       3 END              6 CRSR 7 SBH 8 SFH 9 MSG 10 SB 11 SF 12 CNCL
```

End the CICS terminal session using CESF LOGOFF and return to the CICSPlex SM terminal session.

14. In the COMMAND field of the PROGRAM view type MENU and press Enter to return to the CICSPlex SM MENU menu.

Test the operations functions on system A

During this stage of IVP1 you:

- Change the value of a CICS resource via CICSPlex SM
- Test the CICSPlex SM help facility.

1. From the CICSPlex SM MENU menu, check that the context and scope are still set to EYUPLX01 by looking at the window information line, which is the fourth line down from the top of the display. Following the two occurrences of the menu name (MENU) are the context (EYUPLX01) and scope (EYUPLX01) values.

   From the MENU menu, select OPERATE. The OPERATE menu is displayed:

```
26MAR1999  13:48:12 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=============EYUPLX01=EYUPLX01=26MAR1999==13:48:12=CPSM=========15===
CMD Name            Description
--- ------------------------------
    OPERATE     Operations Views
      CICSBTS     CICS BTS Views
      CONNECT     Connection Views
      DB2         DB2 and DBCTL Views
      DOCTEMP     Document Template Views
      ENQUEUE     Global Enqueue Views
      EXIT        Exit Views
      FEPI        FEPI Views
      FILE        File Views
      JOURNAL     Journal Views
      PROGRAM     Program Views
      REGION      CICS Region Views
      TASK        Task Views
      TCPIPS      TCP/IP Service Views
      TDQ         Transient Data Queue Views
      TEMPSTOR    Temporary Storage Queue Views
      TERMINAL    Terminal Views
      TRANS       Transaction Views
      UOW         Unit of Work Views
```

2. From the OPERATE menu, enter CICSRGN to display details of CICS systems belonging to EYUPLX01. From the CICSRGN view, display a detailed view of data for region EYUMAS1A by moving the cursor to the entry for EYUMAS1A and pressing Enter.

   Note: It is not sufficient to tab to the desired line on the display, the cursor must be placed under one of the letters of the name of the region, for example EYUMAS1A.

3. The CICSRGND view for EYUMAS1A is displayed. Move the cursor to the Current Tasks field and press Enter. The CICSRGN3 view is displayed.
4. Verify that the CICSPlex SM help function is working by typing HEL in the COMMAND field of the CICSRGN3 view, moving the cursor to the MAxtasks field, and pressing Enter. A pop-up panel [3] in which the MAxtasks field is described, overwrites the CICSRGN3 view.
5. Type END in the COMMAND field of the help panel and press Enter to return to the CICSRGN3 view.

3. If you are using a version of ISPF prior to Version 3 Release 1, all help information is provided in full-screen panels.

6. From a second display, and following your local procedure, log on to CICS system EYUMAS1A. Type CEMT INQUIRE SYSTEM and press Enter. A summary of current values for CICS system EYUMAS1A is displayed: Take a note of the current MAxtasks value.

```
 STATUS:  RESULTS - OVERTYPE TO MODIFY
   Actopentcbs(000)                 Progautoexit( DFHPGADX )
   Aging( 00001 )                   Progautoinst( Autoinst )
   Akp( 00200 )                     Reentprotect(Noreentprot)
   Cicstslevel(010300)              Release(0530)
   Cmdprotect(Cmdprot)              Runaway( 0020000 )
   Db2conn( )                       Scandelay( 0100 )
   Dfltuser(CPSM)                   Sdtran(CESD)
   Dsalimit( 05242880 )             Sosstatus(Notsos)
   Dsrtprogram( NONE )              Storeprotect(Inactive)
   Dtrprogram( DFHDYP )             Time( 0001000 )
   Dumping( Nosysdump )             Tranisolate(Inactive)
   Edsalimit( 0020971520 )
   Forceqr( Force )
   Maxopentcbs( 100 )
   Maxtasks( 080 )
   Mrobatch( 001 )
   Oslevel( )
   Prograutoctlg( Ctlgmodify )

                                                    SYSID=MS1A APPLID=EYUMAS1A
  RESPONSE: NORMAL                             TIME:  13.49.16  DATE: 23.12.98
PF 1 HELP       3 END                    7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

7. Return to the CICSPlex SM session where the CICSRGN3 view is displayed. Tab the cursor to the left of the first field in the first row of data, type the word SET, then move the cursor to the MAxtasks field, change the current value to 60, and press Enter. The MAxtasks value changes to 60:

```
26MAR1999  13:49:39 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                              SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =CICSRGN==CICSRGN3=EYUPLX01===EYUPLX01===28AUG1997==15:37:31====CPSM=========1
    CICS System..    DJ13A0 Tot Pgrm Use.       11 Cur LU Sess       0
    Current Tasks         3 Pgrm Compress        0 HWM LU Sess       0
    Peak Tasks...        13 Cur Act UTrn.        3
    Current Amax.       N/A Cur Que UTrn.        0
    Peak Amaxtask       N/A Peak Act UTrn        4
    Total Tasks..       107 Peak Que UTrn        0
    Interval task         6 Totl Act UTrn        6
    Times at MAXT         0 Totl Que UTrn        0
    Act Max Tasks       N/A Tot Que Time.  00:00:00
    Maxtasks.....        60 Cur Que Time.  00:00:00
    Pgrm AIn Attm         0 PRSS Inq Cnt.        0
    Pgrm AIn Xrej         0 PRSS NIB Cnt.        0
    Pgrm AIn Fail         0 PRSS Opn Cnt.        0
    Pgrm Load NIU        26 PRSS UbndCnt.        0
    Tot NIU Qtime  00:00:00 PRSS Err Cnt.        0
    NIU Reclaims.         9
```

8. To verify that the value has been changed in the CICS system itself, return to the CICS (EYUMAS1A) session and enter the CEMT INQUIRE SYSTEM command again. The MAxtasks value is 60:

```
 STATUS:  RESULTS - OVERTYPE TO MODIFY
   Actopentcbs(000)                 Progautoexit( DFHPGADX )
   Aging( 00001 )                   Progautoinst( Autoinst )
   Akp( 00200 )                     Reentprotect(Noreentprot)
   Cicstslevel(010300)              Release(0530)
   Cmdprotect(Cmdprot)              Runaway( 0020000 )
   Db2conn( )                       Scandelay( 0100 )
   Dfltuser(CPSM)                   Sdtran(CESD)
   Dsalimit( 05242880 )             Sosstatus(Notsos)
   Dsrtprogram( NONE )              Storeprotect(Inactive)
   Dtrprogram( DFHDYP )             Time( 0001000 )
   Dumping( Nosysdump )             Tranisolate(Inactive)
   Edsalimit( 0020971520 )
   Forceqr( Force )
   Maxopentcbs( 100 )
   Maxtasks( 060 )
   Mrobatch( 001 )
   Oslevel( )
   Prograutoctlg( Ctlgmodify )

                                                    SYSID=MS1A APPLID=EYUMAS1A
  RESPONSE: NORMAL                             TIME:  13.49.16  DATE: 23.12.98
PF 1 HELP      3 END                  7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

End the CICS session using CESF LOGOFF and return to the CICSPlex SM session.

9. Type TRAN in the COMMAND field of the CICSRGN3 view and press Enter. The TRAN view, showing general information about transactions within EYUPLX01, is displayed. Move the cursor to the Tran ID CONL and press Enter. The LOCTRAND view, showing details of local transaction CONL in EYUMAS1A, is displayed.
10. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the LOCTRAND view and pressing Enter.

Test the monitoring functions on system A

During this stage of IVP1, you check that monitoring data is being collected for EYUMAS1A. Monitoring was activated for EYUMAS1A by definitions loaded into the data repository of EYUCMS1A using the batched repository update facility.

Note: This verification procedure should be attempted at least 15 minutes after EYUMAS1A has connected to EYUCMS1A, to allow some data to be gathered before you try to look at it.

1. From the CICSPlex SM MENU menu, select MONITOR. The MONITOR menu is displayed:

```
26MAR1999  14:54:02 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=============EYUPLX01=EYUPLX01=26MAR1999==14:54:02=CPSM=========14===
CMD Name            Description
--- ------------------------------
    MONITOR     Monitoring Views
      MONACTV     Installed Monitor Definitions
      ========    ============================================================
      CONNECT     Connection Monitoring Views
      DB2         DB2 and DBCTL Monitoring Views
      FEPI        FEPI Monitoring Views
      FILE        File Monitoring Views
      GLOBAL      Global Resource Monitoring Views
      JOURNAL     Journal Monitoring Views
      PROGRAM     Program Monitoring Views
      REGION      CICS Region Monitoring Views
      TDQ         Transient Data Queue Monitoring Views
      TERMINAL    Terminal Monitoring Views
      TRANS       Transaction Monitoring Views
```

2. From the MONITOR menu, select MONACTV. The MONACTV view, showing active monitoring definitions, is displayed:

```
26MAR1999  13:50:33 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MONACTV===========EYUPLX01=EYUPLX01=26MAR1999==13:50:33=CPSM=========12===
CMD Def      CICS     Status     Active   Resource Resource Include RODM
--- Name---- System-- ---------- Period-- Name---- Type---  ------- Pop-
    *0000000 EYUMAS1A ACTIVE              *        MCICS    YES     YES
    *0000001 EYUMAS1A ACTIVE              *        MGLBL    YES     YES
    *0000002 EYUMAS1A ACTIVE              *        MDBX     YES     NO
    EYUMOD01 EYUMAS1A ACTIVE     EYUPDF01 *        MCONN    YES     NO
    EYUMOD02 EYUMAS1A ACTIVE     EYUPDF01 CO*      MTRAN    YES     NO
    EYUMOD03 EYUMAS1A ACTIVE     EYUPDF01 CO*      MTDQS    YES     NO
    EYUMOD04 EYUMAS1A ACTIVE     EYUPDF01 EQ*      MTDQS    YES     NO
    EYUMOD05 EYUMAS1A ACTIVE     EYUPDF01 DFHCSD   MFILE    YES     NO
    EYUMOD06 EYUMAS1A ACTIVE     EYUPDF01 *        MJRNL    YES     NO
    EYUMOD07 EYUMAS1A ACTIVE     EYUPDF01 SP*      MTERM    YES     NO
    EYUMOD08 EYUMAS1A ACTIVE     EYUPDF01 CEMT     MTRAN    YES     NO
    EYUMOD10 EYUMAS1A ACTIVE     EYUPDF01 ET*      MTRAN    YES     NO
```

3. Type MCICSRGN in the COMMAND field of the MONACTV view and press Enter. The MCICSRGN view is displayed. Move the cursor to the entry for EYUMAS1A and press Enter. The MCICSRGD view, showing detailed monitoring data for region EYUMAS1A, is displayed:

```
26MAR1999  13:50:49 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MCICSRGN=MCICSRGD=EYUPLX01=EYUPLX01=26MAR1999==13:50:45=CPSM=========1===
 CICS System...    EYUMAS1A CICS Release.     0330 Start Date.....  26MAR1999
 Job Name......    EYUIMS1A Current Tasks       13 Start Time.....   13:41:44
 Total CPU.....         2.7 Real Stg Used     6240 Sysdumps.......          0
 CS CPU Rate...         0.0 Curr AutoInst        0 Sysdumps Suppr.          0
 MI CPU Rate...         0.0 Max AutoInst.      100 Trandumps......          0
 Total Page In.           1 Pgrm AIn Try.      N/A Trandumps Suppr          0
 CS PageIn Rate         0.0 Pgrm AIn Xrej      N/A VTAM RPLMAX Cnt          8
 MI PageIn Rate         0.0 Pgrm AIn Fail      N/A VTAM RPL Post..          1
 Total Page Out           0 PRSS Inq Cnt.      N/A Cnt VTAM SOS...          0
 CS PagOut Rate         0.0 PRSS NIB Cnt.      N/A VTAM ACB opens.          0
 MI PagOut Rate         0.0 PRSS Opn Cnt.      N/A Library Loads..         21
 Total SIO.....         177 PRSS UbndCnt.      N/A Tot Load Time..          0
 CS SIO Rate...         0.1 PRSS Err Cnt.      N/A Cur Load Wait..          0
 MI SIO Rate...         0.4 Cur LU Sess..      N/A Tot Load Wait..          0
 Tot Pgm Use...        1832 HWM LU Sess..      N/A Max Load Wait..          1
 Pgm Compress..           7                        Cnt Max Wait...          1
 Tot Load NIU..          33                        Total Wait Time          0
 Tot NIU QTime. 64:02:27.00                        RPL Reopens....          0
 NIU Reclaims..         287
```

The presence of data in fields prefixed with MI or CS (for example, CS CPU Rate and MI CPU Rate) confirms that monitoring data is being captured for EYUMAS1A.

4. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the MCICSRGD view and pressing Enter.

Test the analysis functions on system A

During this stage of IVP1, you test the analysis functions of CICSPlex SM by viewing the System Availability Monitoring (SAM) events that are generated because systems EYUMAS1B, EYUMAS2A, EYUMAS3A, and EYUMAS4A are not active.

1. Check that the context and scope are still EYUPLX01 before selecting ANALYSIS from the CICSPlex SM MENU menu. The ANALYSIS menu is displayed:

```
26MAR1999  13:51:00 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=====MENU=====EYUPLX01=EYUPLX01=26MAR1999==13:51:00=CPSM=========4===
CMD Name            Description
--- ------------------------------
    ANALYSIS    Real Time Analysis Operations Views
      APACTV      Installed Definitions in Analysis Point
      EVENT       Outstanding Events
      RTAACTV     Installed Analysis Definitions
```

2. From the ANALYSIS menu, select RTAACTV. The RTAACTV view, showing active ANALYSIS definitions in EYUPLX01, is displayed:

```
26MAR1999  13:51:09 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =RTAACTV===========EYUPLX01=EYUPLX01=26MAR1999==13:51:09=CPSM=========1===
CMD Name     System   Status    Active   Rate  Action   Def
--- -------- -------- --------- Period-- ----- -------- Type---
    EYURTD18 EYUMAS1A ACTIVE               300 EYURTA18 RTADEF
```

3. Using TSO SDSF, access the CMAS job log. Verify that the following external messages have appeared in the log:

```
 COMMAND INPUT ===>                                           SCROLL ===> PAGE
0090  +DFHSI1519I EYUMAS1A The interregion communication session was
      successfully started.
0090  +DFHSI8430I EYUMAS1A About to link to PLT programs during the third
      stage of initialization.
0090  +EYUNX0001I EYUMAS1A LMAS PLTPI program starting
0090  +DFHSI8434I EYUMAS1A Control returned from PLT programs during the third
       stage of initialization.
0090  +DFHSI1517 EYUMAS1A Control is being given to CICS.
0090  +EYUXL0003I EYUMAS1A CPSM Version 140 LMAS startup in progress
0090  +EYUXL0022I EYUMAS1A LMAS Phase I initialization complete
0090  +EYUXL0020I EYUMAS1A ESSS connection in progress to CICSPLEX(EYUPLX01)
      for SYSID(CM1A)
0090  +EYUXL0004I EYUMAS1A ESSS connection complete
0090  +EYUXL0007I EYUMAS1A LMAS Phase II initialization complete
0090  +EYUTS0001I EYUCMS1A Topology Connect for EYUMAS1A Initiated
0090  +EYUTS0003I EYUCMS1A Topology Connect for EYUMAS1A Complete
0090  +EYUCL0012I EYUCMS1A Connection of EYUCMS1A to EYUMAS1A complete
0090  +EYUPN0011W EYUCMS1A Notify RESOLVED for SAM, Context=EYUPLX01,
0090  +EYUPN0011W EYUCMS1A  Target=EYUMAS1A,Severity=VHS, Sev=VHS,
      Event=!!SAMOPS,Text=Currently available
0090  +EYUPN0011W EYUCMS1A
******************************** BOTTOM OF DATA ********************************
```

4. Return to the CICSPlex SM display screen, type EVENT in the COMMAND field of the RTAACTV view, and press Enter. The EVENT view, showing current events for EYUPLX01, is displayed:

```
26MAR1999  14:58:20 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =EVENT============EYUPLX01=EYUPLX01=26MAR1999==14:58:20=CPSM=========8===
CMD Name     Target   Sev Pri Type Dtl View     Resource   Key
--- -------- -------- --- --- ---- --- -------- ---------- --------------------
    !!SAMOPS EYUMAS2A VHS 255 SAM  NO
    !!SAMOPS EYUMAS3A VHS 255 SAM  NO
    !!SAMOPS EYUMAS4A VHS 255 SAM  NO
    !!SAMOPS EYUMAS1B VHS 255 SAM  NO
```

The EVENT view shows SAM events for systems EYUMAS2A, EYUMAS3A, EYUMAS4A and EYUMAS1B (those prefixed by !!).

5. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the EVENT view and pressing Enter.

Test the workload-management functions on system A

During this stage of IVP1, you define a workload specification and confirm that it is installed in EYUPLX01.

1. From the CICSPlex SM MENU menu check that the context and scope are still EYUPLX01 before selecting the ADMWLM option. The ADMWLM menu is displayed:

```
26MAR1999  13:52:54 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU==============EYUPLX01=EYUPLX01=26MAR1999==13:52:54=CPSM=========10===
CMD Name              Description
--- ------------------------------
    ADMWLM      Workload Manager Administration Views
      WLMSPEC     Workload Specifications
      WLMGROUP    Workload Groups
      WLMDEF      Workload Definitions
      TRANGRP     Transaction Groups
      ========  ============================================================
      WLMSCOPE    Members Associated with Workload Specifications
      WLMINSPC    Workload Groups in Specifications
      WLMINGRP    Workload Definitions in Groups
      DTRINGRP    Transactions in Transaction Groups
```

2. From the ADMWLM menu, select WLMSPEC. The WLMSPEC view, showing all workload specifications defined in EYUPLX01, is displayed:

```
26MAR1999  13:53:02 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =WLMSPEC===========EYUPLX01=EYUPLX01=26MAR1999==13:53:02=CPSM==============
BBMXBD15I There is no data which satisfies your request
```

   Message BBMXBD15I is displayed because there are currently no workload specifications for EYUPLX01.

3. To create a workload specification, type CRE in the COMMAND field of the WLMSPEC view and press Enter. The Create WLM Specification input panel is displayed:

```
COMMAND ===>

 WLM Spec Name       ===> eyuwmsvp
 Description         ===> SSet - WLM IVP Specification

 Affinity Relation   ===>           Default Affinity Relation
                         (USERID, LUNAME, GLOBAL, BAPPL)
 Affinity Lifetime   ===>           Default Affinity Lifetime
                         (SIGNON, LOGON, SYSTEM, PERMANENT, PCONV, DELIMIT
                          ACTIVITY, PROCESS)
 Match Key           ===> USERID    Default Primary search criteria
                         (USERID, LUNAME)
 Create Affinity     ===>           Create Auto Affinity (YES, NO)
 Target Scope        ===> EYUCSG05  Default CICS System,Group or Generic

 Event Name          ===>           RTADEF, STATDEF, or Generic

 Abend Health        ===> 0         AOR ABEND Health Factor (0 - 99)
 Abend Load          ===> 0         AOR ABEND Load Factor (0 - 99)

 Algorithm Type      ===> QUEUE     Algorithm Type (GOAL, QUEUE)

Press ENTER to create WLM Specification.
Type END or CANCEL to cancel without creating.
```

Complete the input panel as shown in the example above. Press Enter to create the new workload specification.

4. The WLMSPEC view is redisplayed, but this time with an entry for workload specification EYUWMSVP. A workload specification has no effect until it is associated with a terminal-owning region (TOR). To add a TOR to the EYUWMSVP specification, move the cursor to the beginning of the EYUWMSVP entry in the WLMSPEC view, type ADD, and press Enter. The Add Scope for Specification input panel is displayed:

```
COMMAND ===>

 WLM Spec Name          EYUWMSVP
 Description            SSet - WLM IVP Specification

 Scope              ===> EYUMAS1A CICS System, Group or Generic
 Option             ===>          FORCE, NULL, or NONE for System Group

Press ENTER to add WLM Specification to Scope.
Type END or CANCEL to cancel without adding.
```

Enter the Scope value EYUMAS1A and press Enter.

5. The WLMSPEC view is redisplayed. In the COMMAND field of the WLMSPEC view, type WLMSCOPE and press Enter. The WLMSCOPE view, showing the scope of each workload specification in EYUPLX01, is displayed:

```
26MAR1999  13:54:26 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                               SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =WLMSCOPE==========EYUPLX01=EYUPLX01=26MAR1999==13:54:26=CPSM==========1===
CMD WLM      Scope    Scope    Scope    Scope    Update
--- Spec---- Name---- Type---- Mode---- Link---- Option--
    EYUWMSVP EYUMAS1A CICSSYS  EXPLICIT
```

The WLMSCOPE view confirms that the scope of workload specification EYUWMSVP is EYUMAS1A.

6. Type MAS in the COMMAND field of the WLMSCOPE view and press Enter. The MAS view, showing MASs in EYUPLX01, is displayed. Move the cursor to the EYUMAS1A entry, type UPD in the CMD column, and press Enter. The Control MAS input panel is displayed:

```
COMMAND ===>

MAS      EYUMAS1A  Description  Starter Set TOR 1 on System A

     Attributes                    Time
Type            LOCAL       Time Zone        ===> Z
CMAS            EYUCMS1A    Time Zone Offset ===> 00
Status          ACTIVE      Daylight Savings ===> NO

      Activity                   Security
MON Active ===> YES         Command Check    ===> NO
RTA Active ===> YES         Resource Check   ===> NO
WLM Active ===> NO          Exemption Check  ===> YES


Type DOWN or UP to view other MAS screens.
Press ENTER to change the MAS.
Type END or  CANCEL to cancel without changing.
```

7. Change the setting of WLM Active field to YES and press Enter. The MAS view is redisplayed.

8. Type OPERATE in the COMMAND field of the MAS view and press Enter. The OPERATE menu is displayed:

```
26MAR1999  13:48:12 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=============EYUPLX01=EYUPLX01=26MAR1999==13:48:12=CPSM=========15===
CMD Name             Description
--- ------------------------------
    OPERATE     Operations Views
      CBTS        CICS BTS Views
      CONNECT     Connection Views
      DB2         DB2 and DBCTL Views
      DOCTEMP     Document Template Views
      ENQUEUE     Global Enqueue Views
      EXIT        Exit Views
      FEPI        FEPI Views
      FILE        File Views
      JOURNAL     Journal Views
      PROGRAM     Program Views
      REGION      CICS Region Views
      TASK        Task Views
      TCPIPS      TCP/IP Service Views
      TDQ         Transient Data Queue Views
      TEMPSTOR    Temporary Storage Queue Views
      TERMINAL    Terminal Views
      TRANS       Transaction Views
      UOW         Unit of Work Views
```

9. From the OPERATE menu, enter CICSRGN. The CICSRGN view is displayed. Move the cursor to the EYUMAS1A entry and press Enter. The CICSRGND view for EYUMAS1A is displayed:

```
26MAR1999  13:55:46 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CICSRGN==CICSRGND=EYUPLX01=EYUPLX01=26MAR1999==13:55:46=CPSM=========1===
    CICS System... EYUMAS1A Start Date... 26MAR1999 CICS Status..      ACTIVE
    CICS Release..     0330 Start Time...  09:41:01 Monitor Stat.          ON
    Job Name...... EYUJMS1A Totl CPU.....        95 Recordng Stat         OFF
    VTAM Applid... EYUMAS1A Totl Page In.       341 Dump Status..     SYSDUMP
    Location......     CPSM Totl Page Out        95 Trace Status.    SYSTEMON
    CICS Sysid....     MS1A Totl SIO Cnt.      2681 AUXTrace Stat     AUXSTOP
    AKP...........      200 Totl Real Stg      1572 LRT Perf Freq         N/A
    MRO Batch.....        1 Current Tasks         5 External Sec.  NOSECURITY
    Priorty Aging.        1 Trn Isol Stat       N/A Startup Stat.   COLDSTART
    Runaway Time..    20000 RPL Reopens..         0 AIn Ena Stat.     ENABLED
    Scan Delay....      100 VTAM ACB.....      OPEN PRSS Delay...         N/A
    Xit Wait Time.     1000 Times Max RPL         0 AIn Pgrm Nme.    DFHZATDX
    Library Loads.      268 Max RPL Postd         0 AIn Curr Req.           0
    Tot Load Time.        6 VTAM SOS Cnt.         0 AutoIns Max..         100
    Cur Load Wait.        0 VTAM Dyn Open         0 Prgm AIn Exit         N/A
    Tot Load Wait.        1 XRF Status...  NOTAPPLI Cat AIn Prgm.         N/A
    Max Load Wait.        1 IRC Status...      OPEN Dyn Route Pgm    EYU9XLOP
    Cnt Max Wait..        1 CMD Protect..       N/A Storage Prot.    INACTIVE
    Tot Wait Time.      770 RentProg Prot       N/A TskRec ConvSt         N/A
    Dflt Remote Sys     N/A SOS Status...       N/A ShutDown Tran
```

10. Move the cursor to any field to the left of the first column of data, type SET, then move the cursor to the Dyn Route Pgm field, change its value to EYU9XLOP, and press Enter. (EYU9XLOP is the CICSPlex SM dynamic transaction routing program.) The updated CICSRGND view is displayed:

    Note: If you are running IVP1 against a system where the complete Starter Set is installed, the Dyn Route Pgm field may already contain the value EYU9XLOP.

```
26MAR1999  13:55:46 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CICSRGN==CICSRGND=EYUPLX01=EYUPLX01=26MAR1999==13:55:42=CPSM=========1===
    CICS System... EYUMAS1A Start Date... 26MAR1999 CICS Status..      ACTIVE
    CICS Release..     0330 Start Time...  09:41:01 Monitor Stat.          ON
    Job Name...... EYUJMS1A Totl CPU.....        95 Recordng Stat         OFF
    VTAM Applid... EYUMAS1A Totl Page In.       341 Dump Status..     SYSDUMP
    Location......     CPSM Totl Page Out        95 Trace Status.    SYSTEMON
    CICS Sysid....     MS1A Totl SIO Cnt.      2681 AUXTrace Stat     AUXSTOP
    AKP...........      200 Totl Real Stg      1572 LRT Perf Freq         N/A
    MRO Batch.....        1 Current Tasks         5 External Sec.  NOSECURITY
    Priorty Aging.        1 Trn Isol Stat       N/A Startup Stat.   COLDSTART
    Runaway Time..    20000 RPL Reopens..         0 AIn Ena Stat.     ENABLED
    Scan Delay....      100 VTAM ACB.....      OPEN PRSS Delay...         N/A
    Xit Wait Time.     1000 Times Max RPL         0 AIn Pgrm Nme.    DFHZATDX
    Library Loads.      268 Max RPL Postd         0 AIn Curr Req.           0
    Tot Load Time.        6 VTAM SOS Cnt.         0 AutoIns Max..         100
    Cur Load Wait.        0 VTAM Dyn Open         0 Prgm AIn Exit         N/A
    Tot Load Wait.        1 XRF Status...  NOTAPPLI Cat AIn Prgm.         N/A
    Max Load Wait.        1 IRC Status...      OPEN Dyn Route Pgm    EYU9XLOP
    Cnt Max Wait..        1 CMD Protect..       N/A Storage Prot.    INACTIVE
    Tot Wait Time.      770 RentProg Prot       N/A TskRec ConvSt         N/A
    Dflt Remote Sys     N/A SOS Status...       N/A ShutDown Tran
```

11. Type WLMAWORK in the COMMAND field of the CICSRGND view and press Enter. The WLMAWORK view, showing workload specifications in EYUPLX01, is displayed:

```
26MAR1999  13:56:47 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =WLMAWORK==========EYUPLX01=EYUPLX01=26MAR1999==13:56:47=CPSM==========1===
CMD Name     Ownr Rout Targ  Affinity Lifetime  Scope    Event    Status Cre Alg
                   Cnt  Cnt
--- -------- ---- ---- ---- -------- --------- -------- Name---- ------ Aff ---
    EYUWMSVP CM1A    1    0 NONE     NONE      EYUCSG05          ACTIVE N/A QUE
```

Verify that EYUWMSVP appears as an active workload specification.

12. In the COMMAND field of the WLMAWORK view, type the command WLMAWTOR EYUWMSVP. The WLMAWTOR view, showing a list of TORs associated with the workload EYUWMSVP, is displayed:

```
26MAR1999  13:57:22 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =WLMAWTOR==========EYUPLX01=EYUPLX01=26MAR1999==13:57:22=CPSM==========1===
CMD Workload Ownr TOR      Connection
--- -------- ---- -------- Lost------
    EYUWMSVP CM1A EYUMAS1A
```

13. In the COMMAND field of the WLMAWTOR view, type WLMSPEC and press Enter. Move the cursor to the EYUWMSVP entry of the WLMSPEC view, type REM, and press Enter to remove the workload specification EYUWMSVP.

    Note: Failure to remove EYUWMSVP will cause problems during the testing of the workload-management functions in IVP2.

14. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the WLMSPEC view and pressing Enter.

IVP1 is complete

If you are planning to run CICSPlex SM on multiple MVS images, you should now run IVP2. However, before you begin IVP2, you must stop EYUCAS1A, EYUCMS1A, and EYUMAS1A on system A. If you do not stop these system A components, you will have difficulty running IVP2.

Chapter 39. Installation verification procedure 2 (IVP2)

It is recommended that you run IVP2 on the second and subsequent MVS images on which you install CICSPlex SM. Throughout this chapter, the MVS image on which you are running IVP2 is referred to as “system B”.

In order to run IVP2, you must have:

- Two physically connected MVS/ESA images (system A and system B) on which CICSPlex SM has been installed
- On both systems, access to:
  - The CICSPlex SM samples data sets, CICSTS13.CPSM.SEYUDEF and CICSTS13.CPSM.SEYUJCL
  - CICS/ESA 4.1 (or higher) load libraries
  - CICS/ESA 4.1 (or higher) table-assembly JCL
  - SYS1.PARMLIB and SYS1.VTAMLST (or be able to add definitions to SYS1.PARMLIB and SYS1.VTAMLST)
- Access to the CEDA transaction on EYUMAS1B
- Access to the MVS console log via TSO SDSF.

Before you can run IVP2, you must have run IVP1 successfully and stopped EYUCAS1A, EYUCMS1A, and EYUMAS1A.

Figure 61 on page 344 shows those components of the CICSPlex SM Starter Set that are defined during IVP2.

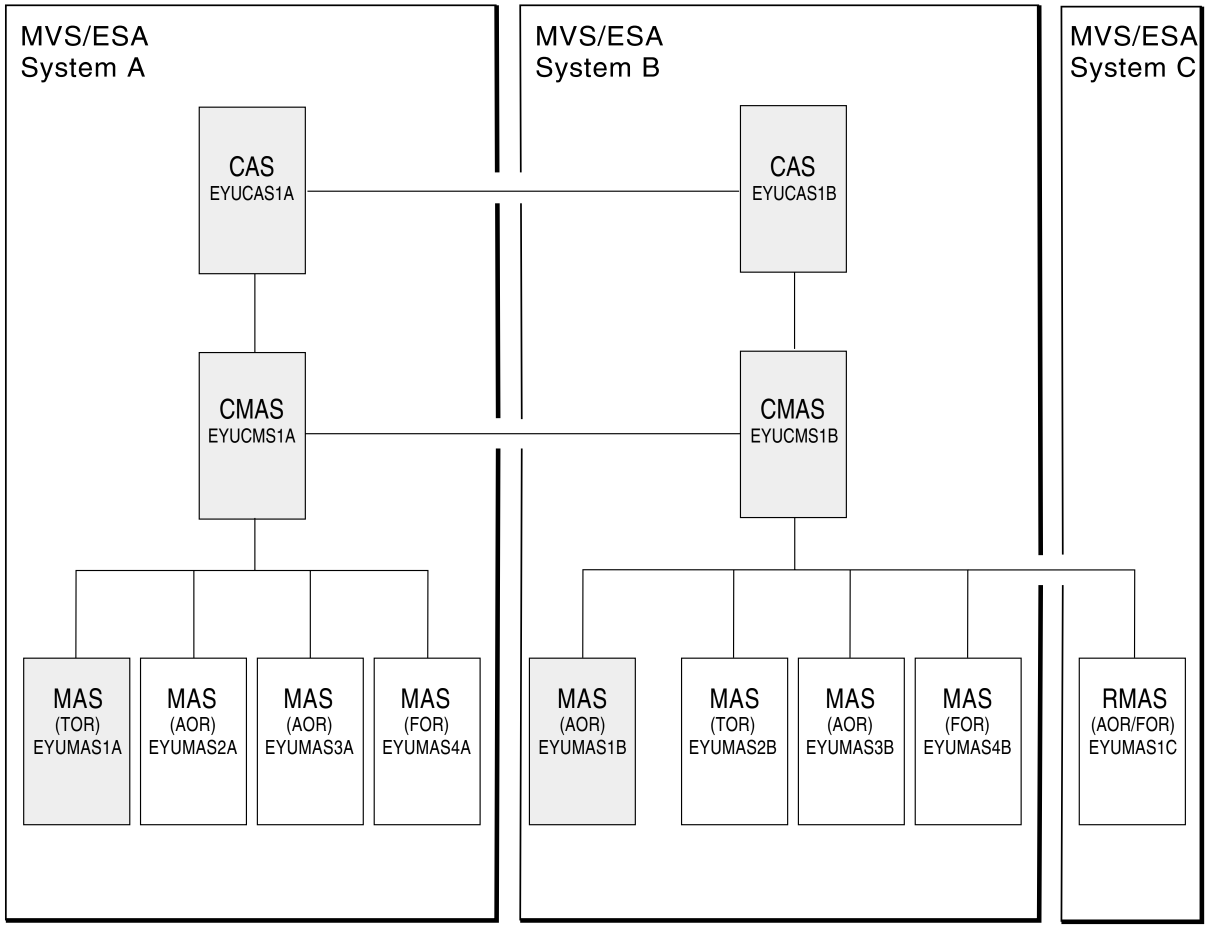

Figure 61. Starter Set components for IVP2. Shaded components—EYUCAS1A, EYUCAS1B, EYUCMS1A, EYUCMS1B, EYUMAS1A, and EYUMAS1B—are used during IVP2.

Setting up the CICSPlex SM environment on system B

Perform the following tasks to prepare the MVS environment on system B for CICSPlex SM.

1. Run EYUISTRT on system B to tailor the skeleton jobs for the Starter Set (and thereby for the IVPs). EYUISTRT runs the EYUINST EXEC to tailor the Starter Set members. For more information about EYUISTRT, see “Chapter 43. Using the EYUINST EXEC to tailor skeleton jobs” on page 393.
2. Add VTAM definitions for EYUCAS1B, EYUCMS1B, and EYUMAS1B to the VTAM table on system B. An example of the VTAM definitions for these three CICSPlex SM components is provided in sample EYUDVTIB.

   Notes:

   a. EYUDVTIB is a subset of the VTAM definitions required on system B for the complete Starter Set.
   b. If you use Network Control Programs (NCP), you may need to create a mode table, using the sample entry shown in EYUMDTAB, in order to control the VTAM RUSIZE (request unit size) parameter.
3. Run the JCL EYUIBBIB, which defines the EYUIPRM data set for CAS EYUCAS1B. If you are using shared DASD, this will already have been defined during IVP1.

4. Run the JCL EYUICMSB, which defines all data sets required by CMAS EYUCMS1B.
5. Run the JCL EYUICICB, which defines all data sets required by MAS EYUMAS1B.
6. Run the JCL EYUIDRPB, which defines the CICSPlex SM data repository on system B.

   Note: This data repository can be used with the Starter Set on system B: it does not need to be recreated after the IVPs have been run.
7. Run the JCL EYUICSDB, which defines, initializes, and loads the CSD to be used by both EYUCMS1B and EYUMAS1B.
8. Make any necessary site-specific changes to the CSD created in step 7. For example, you might need to add TYPETERMs, TERMINALs or AUTOINSTALL MODELs.
9. Assemble the supplied program EYUWLMVP into a load library on system B.
10. Assemble the following sample CICS tables into a load library:
    EYUTDCTC (DCT)
    EYUTDCTL (DCT)
    EYUTPLTC (PLT for EYUCMS1B)
    EYUTPLTL (PLT for EYUMAS1B)
    EYUTSRTS (SRT)
    EYUTJCTS (JCT)

    Note: For details on assembling CICS control tables, see the *CICS/ESA System Definition Guide*.
11. Update ISPF on system B to reflect the addition of CICSPlex SM. You can find an example of the required changes in EYU@ISPF and EYU@PRIM. Note that any changes you make to ISPF are generally applicable on system B and are not confined to IVP2 only. Therefore, you should try to make a permanent change at this stage so that you don't have to repeat this step later. For more information, see "Preparing user access to CICSPlex SM" on page 211.

Starting up and verifying CICSPlex SM components on system B

When the system B environment for CICSPlex SM is established, you are ready to:
1. Start the CAS EYUCAS1B
2. Define CAS-to-CAS connections
3. Start the CMAS EYUCMS1B
4. Run the batched repository update facility
5. Enable EYUCMS1B to manage EYUPLX01
6. Start the MAS EYUMAS1B

1: Start the CAS EYUCAS1B

1. Before you can start the CAS on system B, you must restart the CAS on system A (EYUCAS1A). For information about starting EYUCAS1A, see "1: Start the CAS EYUCAS1A" on page 322.
2. You can start CAS EYUCAS1B using JCL EYUICS1B or (to start the CAS as a started task) JCL EYUICSSB. When you start the CAS, output similar to this appears in the JES2 job log.

```
 COMMAND INPUT ===>                                            SCROLL ===> PAGE
********************************* TOP OF DATA **********************************
                   J E S 2  J O B  L O G  --  S Y S T E M  M V S C  --  N O D E

13.35.07 JOB00024  BBMYAB50I Reading CAS Definition Mamber 00
13.35.08 JOB00024  BBMXCL41I Default system values used for target definition
13.35.08 JOB00024  BBMXBI30I Security Parameter Modification member BBMTSS00 in
13.35.12 JOB00024  BBMXBI29I Security Class Modification member BBMTSP00 not fou
13.35.16 JOB00024  BBMXBI26I Default security resource properties used
13.35.16 JOB00024  BBMXCL36I Default security resource definition used for COMMO
13.35.18 JOB00024  BBMSS002I ESMTYPE(AUTO) selected RACF (RCVT DEFINED, RACF MAR
13.35.18 JOB00024  BBMSS001I Security - ESMTYPE(RACF) SUBSYS(CTST) REQSTOR
13.35.18 JOB00024  BBMZA001I CAS(MV30) SSID(CTST) INITIALIZATION COMPLETE R3.3.8
```

3. Look for message number BBMZA001I in the output to confirm that the CAS EYUCAS1B is started.

2: Define CAS-to-CAS connections

During this stage of IVP2, you define a connection from the CAS on system A to the CAS on system B, and from the CAS on system B to the CAS on system A.

1. Log on to TSO on system A and select the CICSPlex SM option from the main ISPF panel. (This is option CP if you are using the supplied samples.) The CICSPlex System Manager entry panel is displayed:

```
--------------------------- CICSPlex System Manager ----------------------------
OPTION ===>

   0  PROFILE      - User Session Parameters
   1  PLEXMGR      - List of Service Points
   2  CPSM         - CICSPlex SM


         Default Criteria for CPSM:

     Context             ===> EYUCMS1A
     Scope               ===> EYUCMS1A
     Warning Record Count ===> 0         0 for no checking
     Require Set         ===> YES       YES, NO



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```

2. Type 1 in the OPTION field of the CICSPlex System Manager entry panel and press Enter. (The values in the Context and Scope fields are ignored.) The PLEXOVER view is displayed.

The remainder of this stage varies according to whether you are using the same EYUIPRM dataset on shared DASD for both CASs. If you are using shared DASD, follow the steps in “CAS dataset EYUIPRM on shared DASD” on page 347. If you are not using shared DASD, follow the steps in “CAS dataset EYUIPRM not on shared DASD” on page 348.

CAS dataset EYUIPRM on shared DASD

1. In the COMMAND field of the PLEXOVER view, type CASDEF and press Enter. The CASDEF view is displayed:

```
26MAR1999  14:17:33 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =CASDEF============EYUA=====*========(00 BROWSE        )=PLEXMGR=======1===
CMD CAS      Cur Description                      Status           VTAM
--- Name---- Sys -----------                      ---------------- ApplName
    MV2D     Yes Use CASDEF to update             INSTALLED        *NONE*
```

2. In the COMMAND field of the CASDEF view, type EDIT and press Enter.
3. In the COMMAND field, type ADD EYUA and press Enter. Alternatively, move the cursor to the CMD field, type ADD and press Enter. The ADD CAS SYSTEM DEFINITION input panel is displayed:

```
--------------------- ADD CAS SYSTEM DEFINITION -------------------------------
COMMAND ===>

CAS System Name    ===> EYUA     (Recommended same as MVS System Name)
  Description      ===> SYSTEM A CAS

System Identification Information:
  MVS System Name  ===> EYUA          SMF ID          ===> *
  SysPlex Name     ===> *             Subsystem ID    ===> *

System Communication Information:
  VTAM Appl Name   ===> EYUCAS1A
  XCF Group Name   ===> EYUGROUP



Enter END to add the CAS System Definition.
Enter CANCEL to leave without adding.
```

4. Complete the ADD CAS SYSTEM DEFINITION input panel as shown in the example above, then press Enter. (See the *CICSPlex SM Administration* for a description of the fields on this panel). If the panel is displayed as a result of you typing ADD in the CMD field, the System Identification Information is already completed with your own system defaults. The CASDEF view is displayed again, this time showing an entry for CAS EYUA.

   Repeat Steps 3 and 4 for CAS EYUB (subsystem ID EYUB and VTAM Application name EYUCAS1B).
5. Install the definitions on System A by positioning the cursor in the CMD field next to the entry for EYUA, and typing INS. Press Enter. Position the cursor in the CMD field next to the entry for EYUB, type INS and press Enter.
6. Return to the CICSPlex System Manager entry panel by typing RETURN in the COMMAND field of the CASDEF view and pressing Enter. If you do not return to the CICSPlex System Manager entry panel, system A will have the shared file locked and the entries will not be seen on system B.
7. Install the definitions on system B using the following procedure:
   a. Log on to TSO on System B and select the CICSPlex SM option from the main ISPF panel. (The CICSPlex SM option is CP if you are using the supplied samples.) The CICSPlex System Manager entry panel is displayed.

b. Type 1 in the OPTION field of the CICSPlex SM entry field and press Enter. The PLEXOVER view is displayed.

c. In the COMMAND field of the PLEXOVER view, type CASDEF and press Enter. The CASDEF view is displayed.

d. Position the cursor in the CMD field next to the entry for EYUA, and type INS. Press Enter. Position the cursor in the CMD field next to the entry for EYUB, type INS, and press Enter.

The CASDEF view now shows entries for both EYUA and EYUB.

Note: The CAS name defaults to the MVS system name. You can define a CAS using a name other than the default. Use CASDEF to define it, save it, and delete the default entry. If, however, you do want to use the default CAS name, use the default definition, supplying a VTAM application name, and save it.

```
26MAR1999  14:17:33 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =CASDEF============EYUA=====*========(00 EDIT MOD      )=PLEXMGR=======2===
CMD CAS      Cur Description                          Status           VTAM
--- Name---- Sys -----------                          ---------------- ApplName
    EYUA     YES SYSTEM A CAS                         INSTALLED        EYUCAS1A
    EYUB     NO  SYSTEM B CAS                         INSTALLED        EYUCAS1B
```

8. Return to the CICSPlex System Manager entry panel by typing RETURN in the COMMAND field of the CASDEF view and pressing Enter. If you do not return to the CICSPlex System Manager entry panel, system B will have the shared file locked and the entries will not be seen on system A.

CAS dataset EYUIPRM not on shared DASD

1. In the COMMAND field of the PLEXOVER view, type CASDEF and press Enter. The CASDEF view is displayed:

```
26MAR1999  14:17:33 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =CASDEF============EYUA=====*========(00 BROWSE        )=PLEXMGR=======1===
CMD CAS      Cur Description                          Status           VTAM
--- Name---- Sys -----------                          ---------------- ApplName
    MV2D     YES Use CASDEF to update                 INSTALLED        *NONE*
```

2. In the COMMAND field of the CASDEF view, type EDIT and press Enter.

3. In the COMMAND field, type ADD EYUA and press Enter. Alternatively, move the cursor to the CMD field, type ADD and press Enter. The ADD CAS SYSTEM DEFINITION input panel is displayed:

```
--------------------- ADD CAS SYSTEM DEFINITION -------------------------------
COMMAND ===>

CAS System Name    ===> EYUA     (Recommended same as MVS System Name)
  Description      ===> SYSTEM A CAS

System Identification Information:
  MVS System Name  ===> EYUA          SMF ID          ===> *
  SysPlex Name     ===> *             Subsystem ID    ===> *

System Communication Information:
  VTAM Appl Name   ===> EYUCAS1A
  XCF Group Name   ===> EYUGROUP



Enter END to add the CAS System Definition.
Enter CANCEL to leave without adding.
```

4. Complete the ADD CAS SYSTEM DEFINITION input panel as shown in the example above, then press Enter. (See the *CICSPlex SM Administration* for a description of the fields on this panel). If the panel is displayed as a result of you typing ADD in the CMD field, the System Identification Information is already completed with your own system defaults. The CASDEF view is displayed again, this time showing an entry for CAS EYUA.

```
26MAR1999  14:17:33 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =CASDEF============EYUA=====*========(00 EDIT MOD      )=PLEXMGR=======2===
CMD CAS      Cur Description                         Status           VTAM
--- Name---- Sys -----------                         ---------------- ApplName
    EYUA     YES SYSTEM A CAS                        UNINSTALLED      EYUCAS1A
    EYUB     NO  SYSTEM B CAS                        UNINSTALLED      EYUCAS1B
```

5. In the COMMAND field of the CASDEF view, type SAVE and press Enter.
6. Install the definitions on System A by positioning the cursor in the CMD field next to the entry for EYUA, and type INS and press Enter.
7. Return to the CICSPlex System Manager entry panel by typing RETURN in the COMMAND field of the CASDEF view and pressing Enter.
8. Log on to TSO on System B and select the CICSPlex SM option from the main ISPF panel. (The CICSPlex SM option is CP if you are using the supplied samples.) The CICSPlex System Manager entry panel is displayed:

```
-------------------------- CICSPlex System Manager ----------------------------
OPTION ===>

   0  PROFILE      - User Session Parameters
   1  PLEXMGR      - List of Service Points
   2  CPSM         - CICSPlex SM


         Default Criteria for CPSM:

     Context              ===> EYUCMS1A
     Scope                ===> EYUCMS1A
     Warning Record Count ===> 0          0 for no checking
     Require Set          ===> YES        YES, NO



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

9. Type 1 in the OPTION field of the CICSPlex SM entry field and press Enter. The PLEXOVER view is displayed:

```
26MAR1999 14:17:07 ----------- INFORMATION DISPLAY ----------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =PLEXOVER==========CPSM=====*===========26MAR1999==14:17:07=PLEXMGR====3===
C Context  Product  Description                     Status   Server   System
- -------- -------- ------------------------------- -------- -------- --------
   CPSM     PLEXMGR  Service Point Manager           Active   PLEXMGR
   EYUCMS1A CPSM     CMAS Service Point              Inactive EYUCMS1A
   EYUPLX01 CPSM     CICSplex Service Point          Inactive EYUCMS1A
```

10. In the COMMAND field of the PLEXOVER view, type CASDEF and press Enter. The CASDEF view is displayed:

```
26MAR1999  14:17:33 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =CASDEF===========EYUB=====*========(00 BROWSE        )=PLEXMGR=======1===
CMD CAS      Cur Description                        Status           VTAM
--- Name---- Sys -----------                        ---------------- ApplName
    MV2D     YES Use CASDEF to update               INSTALLED        *NONE*
```

11. In the COMMAND field, type ADD EYUB and press Enter. Alternatively, move the cursor to the CMD field, type ADD and press Enter. The ADD CAS SYSTEM DEFINITION input panel is displayed:

```
--------------------- ADD CAS SYSTEM DEFINITION -------------------------------
COMMAND ===>

CAS System Name    ===> EYUB     (Recommended same as MVS System Name)
  Description      ===>

System Identification Information:
  MVS System Name  ===> EYUB          SMF ID          ===> *
  SysPlex Name     ===> *             Subsystem ID    ===> *

System Communication Information:
  VTAM Appl Name   ===> EYUCAS1B
  XCF Group Name   ===> EYUGROUP



Enter END to add the CAS System Definition.
Enter CANCEL to leave without adding.
```

12. Complete the ADD CAS SYSTEM DEFINITION input panel as shown in the example above, then press Enter. (See the *CICSPlex SM Administration* for a description of the fields on this panel). If the panel is displayed as a result of you typing ADD in the CMD field, the System Identification Information is already completed with your own system defaults. The CASDEF view is displayed again, this time showing an entry for CAS EYUB.

    Note: The CAS name defaults to the MVS system name. You can define a CAS using a name other than the default. Use CASDEF to define it, save it, and delete the default entry. If, however, you do want to use the default CAS name, use the default definition, supplying a VTAM application name, and save it.

```
26MAR1999  14:17:33 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =CASDEF============EYUB=====*========(00 EDIT MOD      )=PLEXMGR=======2===
CMD CAS      Cur Description                       Status           VTAM
--- Name---- Sys -----------                       ---------------- ApplName
    EYUB     YES SYSTEM B CAS                      INSTALLED        EYUCAS1B
    EYUA     NO  SYSTEM A CAS                      INSTALLED        EYUCAS1A
```

13. In the COMMAND field of the CASDEF view, type SAVE and press Enter.
14. Position the cursor in the CMD field next to the entry for EYUB, type INS and press Enter.
15. Return to the CICSPlex System Manager entry panel by typing RETURN in the COMMAND field of the CASDEF view and pressing Enter.

Note: CMAS-to-CMAS connections are also required for IVP2. However, these will be defined when the batch repository update facility is run in stage 5.

3: Start the CMAS EYUCMS1B

1. Before you can start the CMAS on system B, you must restart the CMAS on system A (EYUCMS1A). For information about starting EYUCMS1A, see "2: Start the CMAS EYUCMS1A" on page 323.
2. Check the CICS/ESA system initialization table (SIT) parameters in JCL EYUICM1B, in particular the SVC parameters and the default user, to ensure that they are suitable for your environment.

3. Submit JCL EYUICM1B. The output from JCL EYUICM1B is similar to this:

```
 COMMAND INPUT ===>                                           SCROLL ===> PAGE
14.39.14 JOB00022  IEC161I 056-084,EYUICM1B,CMAS,EYUDREP,,,
14.39.14 JOB00022  IEC161I CPSM111.SAMPLES.EYUCMS1B.EYUDREP,
14.39.14 JOB00022  IEC161I CPSM111.SAMPLES.EYUCMS1B.EYUDREP.DATA,
14.39.14 JOB00022  IEC161I ICFCAT.CPSM.CATALOGA
14.39.14 JOB00022  IEC161I 056-084,EYUICM1B,CMAS,EYUDREP,,,
14.39.14 JOB00022  IEC161I CPSM111.SAMPLES.EYUCMS1B.EYUDREP,
14.39.14 JOB00022  IEC161I CPSM111.SAMPLES.EYUCMS1B.EYUDREP.INDEX,
14.39.14 JOB00022  IEC161I ICFCAT.CPSM.CATALOGA
14.39.14 JOB00022  IEC161I 062-086,EYUICM1B,CMAS,EYUDREP,,,
14.39.14 JOB00022  IEC161I CPSM111.SAMPLES.EYUCMS1B.EYUDREP,
14.39.14 JOB00022  IEC161I CPSM111.SAMPLES.EYUCMS1B.EYUDREP.DATA,
14.39.14 JOB00022  IEC161I ICFCAT.CPSM.CATALOGA
14.39.17 JOB00022  +EYUXL0022I EYUCMS1B CMAS Phase I initialization complete
14.39.17 JOB00022  +EYUXL0020I EYUCMS1B ESSS connection in progress
14.39.17 JOB00022  +EYUXL0004I EYUCMS1B ESSS connection complete
14.39.19 JOB00022  +EYUCR0006W EYUCMS1B Security checking disabled per SEC(NO) E
14.39.20 JOB00022  +EYUXL0007I EYUCMS1B CMAS Phase II initialization complete
14.39.21 JOB00022  +EYUXL0007I EYUCMS1B CMAS Phase III initialization complete
14.39.21 JOB00022  +EYUXL0007I EYUCMS1B CMAS Phase IV initialization complete
14.39.21 JOB00022  +EYUXL0010I EYUCMS1B CMAS initialization complete
14.39.24 JOB00022  +EYUXL0008I EYUCMS1B CICSPlex registration complete
14.39.24 JOB00022  +EYUXL0009I EYUCMS1B CAS connection established
```

4. In the output from EYUICM1B, look for messages EYUXL0009I and EYUXL0008I to confirm that CMAS EYUCMS1B is started.

4: Run the batched repository update facility on system B

During this stage of IVP2, you load several definitions into the data repository of CMAS EYUCMS1B using the batched repository update facility.

1. Log on to TSO on system B. Select the CICSPlex SM option from the main ISPF panel; the CICSPlex SM option is CP if you are using the supplied samples. Ensure that “EYUB” is specified as the subsystem ID. (This can be changed using option 0.1 from the main ISPF panel.) The CICSPlex System Manager entry panel is displayed.
2. Set the context and scope fields of the CICSPlex System Manager entry panel to EYUCMS1B, then type 2 in the OPTION field and press Enter. The MENU menu is displayed.
3. From the CICSPlex SM MENU menu, select ADMCONFG. The ADMCONFG menu is displayed. From the ADMCONFG menu, select BATCHREP. The BATCHREP view is displayed:

```
26MAR1999  14:40:58 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                SCROLL ===> PAGE
CURR WIN ===> 1       ALT WIN ===>
 W1 =BATCHREP==========EYUCMS1B=EYUCMS1B=26MAR1999==14:40:45=CPSM=============
BBMXBD15I There is no data which satisfies your request
```

4. To submit a job to update the data repository of CMAS EYUCMS1B, type SUB in the COMMAND field of the BATCHREP view and press Enter. The Start Batch Run input panel is displayed:

```
COMMAND ===>

 Data Set Name   ===> 'CICSTS13.CPSM.SEYUDEF'

 Data Set Member ===> EYUDDRIB

 Print Class     ===> H

 Print Node      ===> *

 Output Userid   ===> *

 Run Type        ===> EXECUTE                       (CHECK or EXECUTE)

Press ENTER to Run the Job.
Type END or CANCEL to cancel without Running.
```

5. Complete the Start Batch Run screen as shown in the example above and press Enter. Verify that the batched repository update facility has created the definitions by examining the JOBLOG of EYUICM1B, which is in the HELD output queue.
6. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the BATCHREP view and pressing Enter.

5: Enable EYUCMS1B to manage EYUPLX01

During this stage of IVP2, you define EYUCMS1B as a secondary CMAS for CICSplex EYUPLX01. (CMAS EYUCMS1A is the primary CMAS for EYUPLX01.)

1. Log on to TSO on system A and select the CICSPlex SM option from the main ISPF panel. (The CICSPlex SM option is CP if you are using the supplied samples.) The CICSPlex System Manager entry panel is displayed:

```
--------------------------- CICSPlex System Manager ----------------------------
OPTION ===>

   0  PROFILE      - User Session Parameters
   1  PLEXMGR      - List of Service Points
   2  CPSM         - CICSPlex SM


         Default Criteria for CPSM:

     Context             ===> EYUCMS1A
     Scope               ===> EYUCMS1A
     Warning Record Count ===> 0          0 for no checking
     Require Set         ===> YES        YES, NO



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

2. Ensure that both the Context and the Scope fields on the CICSPlex System Manager entry panel are set to EYUCMS1A. Type 2 in the OPTION field and press Enter. The MENU menu is displayed:

```
26MAR1999  14:42:11 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=============EYUCMS1A=EYUCMS1A=26MAR1999==14:42:11=CPSM=========14===
CMD Name                 Description
--- -----------------------------------
    ANALYSIS   Real Time Analysis Operations Views
    CONFIG     CMAS Configuration Operations Views
    MONITOR    Monitoring Views
    OPERATE    Operations Views
    TOPOLOGY   Topology Operations Views
    WORKLOAD   Workload Operations Views
    ========   =============================================================
    ADMSAM     RTA System Availability Monitoring Administration Views
    ADMMRM     RTA MAS Resource Monitoring Administration Views
    ADMAPM     RTA Analysis Point Monitoring Administration Views
    ADMCONFG   CMAS Configuration Administration Views
    ADMMON     Monitor Administration Views
    ADMTOPOL   Topology Administration Views
    ADMWLM     Workload Manager Administration Views
    ADMBAS     Business Application Services Administration Views
    ADMRES     Business Application Services Resource Views
```

3. Select ADMCONFG from the MENU menu. The ADMCONFG menu is displayed:

```
26MAR1999  14:42:18 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=============EYUCMS1A=EYUCMS1A=26MAR1999==14:42:18=CPSM==========6===
CMD Name             Description
--- -------------------------------
    ADMCONFG   CMAS Configuration Administration Views
      BATCHREP   Batched Repository Updates
      CPLEXDEF   CICSplex Definitions
      CPLXCMAS   CMAS in CICSplex Definitions
      CMTCMDEF   CMAS-to-CMAS Link Definitions
      CMTPMDEF   CMAS-to-RMAS Link Definitions
```

4. From the ADMCONFG menu, select CPLEXDEF. The CPLEXDEF view is displayed:

```
26MAR1999  14:42:27 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CPLEXDEF=========EYUCMS1A=EYUCMS1A=26MAR1999==14:42:27=CPSM==========1===
CMD Name     Mon  Time Zone Day  Cmd Res Xmp ROD Description
--- -------- Intv Zone Adj  Save Chk Chk Chk --- -----------------------------
    EYUPLX01  480 B       0 NO   NO  NO  NO  NO  IVP 1 CICSPLEX
```

5. Move the cursor to the EYUPLX01 entry, type ADD in the CMD field, and press Enter. The Add CMAS to CICSPlex input panel is displayed:

```
COMMAND ===>

 CICSPlex Name           EYUPLX01
 Description             IVP 1 CICSPLEX

 CMAS Name          ===>          Name of CMAS or Generic

Press ENTER to add CMAS to CICSPLEX.
Type END or CANCEL to cancel without adding.
```

6. In the CMAS Name field of the Add CMAS to CICSPlex input panel, type EYUCMS1B and press Enter. The CPLEXDEF view is redisplayed.
7. To verify that the data repository on system B has been updated with the definition of EYUPLX01, you must change the current context and scope to EYUCMS1B. To change the context and scope, type SET in the COMMAND field of the CPLEXDEF view and press Enter. Complete the SET WINDOW, CONTEXT, PRODUCT, SCOPE, AND VIEW panel and press Enter.
8. Enter CMASPLEX in the COMMAND field of the CPLEXDEF view. The CMASPLEX view, showing CICSplexes managed by EYUCMS1B, is displayed: An entry for EYUPLX01 appears in the CMASPLEX view.

```
26MAR1999  14:43:38 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CMASPLEX==========EYUCMS1B=EYUCMS1B=26MAR1999==14:43:38=CPSM==========1===
CMD CICSPlex MP
--- -------- ---
    EYUPLX01 YES
```

9. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the CMASPLEX view and pressing Enter.

6: Start the MAS EYUMAS1B

1. Before you can start the MAS on system B, you must restart the MAS on system A (EYUMAS1A). For information about starting EYUMAS1A, see “5: Start the MAS EYUMAS1A” on page 327.
2. Check the SIT parameters in JCL EYUIMS1B, in particular the SVC numbers and the default user, to ensure that they are suitable for your environment.
3. Submit JCL EYUIMS1B from TSO. Output similar to this appears in the job log:

```
 COMMAND INPUT ===>                                          SCROLL ===> PAGE
14.46.38 JOB00024  IEC161I CPSM140.SAMPLES.EYUMAS1B.DFHINTRA.DATA,
14.46.38 JOB00024  IEC161I ICFCAT.CPSM.CATALOGA
14.46.38 JOB00024  +DFHTD0101I EYUMAS1B Transient Data initialization has ended.
14.46.38 JOB00024  +DFHFC0101I EYUMAS1B File Control initialization has ended.
14.46.38 JOB00024  +DFH4508 - EYUMAS1B - CICS SYSTEM LOG. PRIMARY   DATA SET NOW
14.46.38 JOB00024  +DFH4500 - 01 OF 01 JOURNALS SUCCESSFULLY OPENED
14.46.38 JOB00024  +DFHCP0102I EYUMAS1B CPI initialization has ended.
14.46.38 JOB00024  +DFHPR0105I EYUMAS1B Partner resource manager initialization
14.46.38 JOB00024  +DFHAI0102I EYUMAS1B AITM initialization has ended.
14.46.38 JOB00024  +DFHSI1511I EYUMAS1B Installing group list MAS1BGPL.
14.46.54 JOB00024  +DFHSI8430I EYUMAS1B About to link to PLT programs during the
14.46.54 JOB00024  +EYUNX0001I EYUMAS1B LMAS PLTPI program starting
14.46.54 JOB00024  +DFHSI8434I EYUMAS1B Control returned from PLT programs durin
14.46.54 JOB00024  +DFHSI1517 EYUMAS1B Control is being given to CICS.
14.46.55 JOB00024  +EYUXL0003I EYUMAS1B CPSM Version 140 LMAS startup in progres
14.46.58 JOB00024  +EYUXL0022I EYUMAS1B LMAS Phase I initialization complete
14.46.58 JOB00024  +EYUXL0020I EYUMAS1B ESSS connection in progress to CICSPLEX(
14.46.58 JOB00024  +EYUXL0004I EYUMAS1B ESSS connection complete
14.46.58 JOB00024  +EYUXL0007I EYUMAS1B LMAS Phase II initialization complete
```

4. Look for messages EYUXL0004I and EYUXL0007I in the output to confirm that the MAS is active.

Testing CICSPlex SM functions

During this part of IVP2, you test the topology, operations, monitoring, analysis, and workload-management functions of CICSPlex SM on system B.

Test the topology functions on system B

As in the case of IVP1, you test the topology functions of CICSPlex SM by installing a resource in a CICS system and then deleting that resource. After each action, you check that the change is known to CICSPlex SM. During this stage of IVP2, a test is also made of the CMAS-to-CMAS links.

1. From the MENU menu on system A, change the context and scope values from EYUCMS1B to EYUPLX01 using the SET command (as described in “Test the topology functions on system A” on page 328).
2. From the CICSPlex SM MENU menu, select TOPOLOGY. The TOPOLOGY menu is displayed:

```
26MAR1999  14:48:39 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                               SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =TOPOLOGY==========EYUPLX01=EYUPLX01=26MAR1999==14:48:39=CPSM==========1===
C View Name  Description
- ---------- ------------------------------
  MAS        Managed Address Spaces
```

3. From the TOPOLOGY menu select the MAS entry. The MAS view, showing all CICS systems belonging to CICSplex EYUPLX01, is displayed:

```
26MAR1999  14:48:44 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =MAS===============EYUPLX01=EYUPLX01=26MAR1999==14:48:44=CPSM=========5===
CMD Name     Type   CMAS     Status   MON RTA WLM Description
--- -------- ------ -------- -------- Act Act Act ----------------------------
    EYUMAS1A LOCAL  EYUCMS1A ACTIVE   YES YES NO  Starter Set TOR 1 on System A
    EYUMAS1B LOCAL  EYUCMS1B ACTIVE   YES YES NO  Starter Set AOR 3 on System B
    EYUMAS2A N/A             INACTIVE N/A N/A N/A Starter Set AOR 1 on System A
    EYUMAS3A N/A             INACTIVE N/A N/A N/A Starter Set AOR 2 on System A
    EYUMAS4A N/A             INACTIVE N/A N/A N/A Starter Set FOR 1 on System A
```

Notice that both EYUMAS1A and EYUMAS1B are ACTIVE, and that both MASs are visible from system B.

4. Display the OPERATE menu by typing OPERATE in the COMMAND field of the MAS view and pressing Enter. In the COMMAND field of the OPERATE menu, type the value PROGRAM EYUZZZZZ and press Enter. This command requests a display of programs named EYUZZZZZ. The PROGRAM view is displayed.
5. In the PROGRAM view, the message “There is no data which satisfies your request” is displayed. (However, if you have run the IVP before but did not delete the entry for program EYUZZZZZ, data for EYUZZZZZ might be displayed. In this case, delete the entry for EYUZZZZZ as described in step 12 on page 359 before continuing with IVP2.)
6. From a second display, and following your local procedures, log on to CICS system EYUMAS1B.

```
 ******\  ******\  ******\   ******\
********\ ******\ ********\ ********\
**\\\\**\   **\\\ **\\\\**\ **\\\\**\
**\    \\   **\   **\    \\ **\    \\
**\         **\   **\       *******\
**\         **\   **\        *******\
**\         **\   **\         \\\\**\
**\   **\   **\   **\   **\ **\   **\
********\ ******\ ********\ ********\
 ******\\ ******\  ******\\  ******\\
  \\\\\\   \\\\\\   \\\\\\    \\\\\\ TM
```

7. From the CICS screen, start the CEDA transaction to define program EYUZZZZZ in group EYUIVP:

```
 OVERTYPE TO MODIFY                                        CICS RELEASE = 0530
  CEDA  DEFine
   PROGram       : EYUZZZZZ
   Group         : EYUIVP
   DEscription  ==>
   Language     ==> CObol              CObol | Assembler | Le370 | C | Pli
   RELoad       ==> No                 No | Yes
   RESident     ==> No                 No | Yes
   USAge        ==> Normal             Normal | Transient
   USElpacopy   ==> No                 No | Yes
   Status       ==> Enabled            Enabled | Disabled
   RSl           : 00                  0-24 | Public
   Cedf         ==> Yes                Yes | No
   DAtalocation ==> Below              Below | Any
   EXECKey      ==> User               User | Cics
   COncurrency  ==> Quasirent          Quasirent | Threadsafe
  REMOTE ATTRIBUTES
   DYnamic      ==> No                 No | Yes
   REMOTESystem ==>
 + REMOTEName   ==>
  I New group EYUIVP created.
                                                               APPLID=EYUMAS1B
  DEFINE SUCCESSFUL                          TIME:  13.45.31  DATE: 98.357
PF 1 HELP 2 COM 3 END            6 CRSR 7 SBH 8 SFH 9 MSG 10 SB 11 SF 12 CNCL
```

Allow the remainder of the definition values to default.

8. Using CEDA, install the group EYUIVP in the running CICS system EYUMAS1B.
   Exit CEDA and clear the screen.

```
 OVERTYPE TO MODIFY
  CEDA  Install
   Connection   ==>
   DB2Conn      ==>
   DB2Entry     ==>
   DB2Tran      ==>
   DOctemplate  ==>
   Enqmodel     ==>
   File         ==>
   Journalmodel ==>
   Lsrpool      ==>
   Mapset       ==>
   PARTItionset ==>
   PARTNer      ==>
   PROCesstype  ==>
   PROFile      ==>
   PROGram      ==> EYUZZZZZ
   Requestmodel ==>
   Sessions     ==>
   TCpipservice ==>
   TDqueue      ==>
   TErminal     ==>
   TRANClass    ==>
   TRansaction  ==>
   TSmodel      ==>
   TYpeterm     ==>
   Group        ==> EYUIVP


                                                               APPLID=EYUMAS1B
  INSTALL SUCCESSFUL                         TIME:  13.45.44  DATE: 98.357
PF 1 HELP      3 END             6 CRSR 7 SBH 8 SFH 9 MSG 10 SB 11 SF 12 CNCL
```

9. Return to the CICSPlex SM terminal session where the PROGRAM view is still displayed and press Enter. The contents of the view are refreshed and an entry for program EYUZZZZZ appears:

```
26MAR1999  14:50:22 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =PROGRAM===========EYUPLX01=EYUPLX01=26MAR1999==14:50:22=CPSM=========1===
CMD Program  CICS     Enabled  Use     Current Program   Shared  CEDF
--- Name---- System-- Status-- Count-- Use---- Language- Status  Option
    EYUZZZZZ EYUMAS1B ENABLED        0       0 COBOL     PRIVATE CEDF
```

The appearance of an entry for program EYUZZZZZ in EYUMAS1B confirms that the CICSPlex SM TOPOLOGY function is working.

10. To verify CICSPlex SM's ability to act on the resource, discard the program by moving the cursor to the CMD field of the EYUZZZZZ entry, typing DSC, and pressing Enter. The program is discarded from the running CICS system and the message "There is no data which satisfies your request" appears again.

11. To verify that the program has been discarded from the running CICS system, return to the EYUMAS1B terminal screen and enter CEMT INQUIRE PROGRAM(EYUZZZZZ). The "NOT FOUND" message is displayed:

```
 STATUS:  RESULTS - OVERTYPE TO MODIFY
  Prog(EYUZZZZZ)                                              NOT FOUND





                                                               APPLID=EYUMAS1B
  RESPONSE: 1 ERROR                            TIME:  14.51.01  DATE: 23.12.93
PF 1 HELP       3 END                    7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

12. Delete the CEDA definition for program EYUZZZZZ in CICS system EYUMAS1B:

```
 OVERTYPE TO MODIFY
  CEDA  DELete
   All          ==>
   Connection   ==>
   DB2Conn      ==>
   DB2Entry     ==>
   DB2Tran      ==>
   DOctemplate  ==>
   Enqmodel     ==>
   File         ==>
   Journalmodel ==>
   Lsrpool      ==>
   Mapset       ==>
   PARTItionset ==>
   PARTNer      ==>
   PROCesstype  ==>
   PROFile      ==>
   PROGram      ==> EYUZZZZZ
   REQuestmodel ==>
   Sessions     ==>
   TCpipservice ==>
   TDqueue      ==>
   TErminal     ==>
   TRANClass    ==>
   TRansaction  ==>
   TSmodel      ==>
   TYpeterm     ==>
   Group        ==> EYUIVP

  I Group EYUIVP deleted.
                                                            APPLID=EYUMAS1B
  DELETE SUCCESSFUL                            TIME:  13.47.59  DATE: 98.357
PF 1 HELP      3 END            6 CRSR 7 SBH 8 SFH 9 MSG 10 SB 11 SF 12 CNCL
```

End the CICS terminal session using CESF LOGOFF and return to the CICSPlex SM terminal session.

13. In the COMMAND field of the PROGRAM view type MENU and press Enter to return to the CICSPlex SM MENU menu.

Test the operations functions on system B

During this stage of IVP2 you:

- Change the value of a CICS resource via CICSPlex SM
- Test the CICSPlex SM help facility
- Test the CMAS-CMAS links.

1. From the CICSPlex SM MENU menu on system A, ensure that the context and scope are still set to EYUPLX01 before selecting the OPERATE option. The OPERATE menu is displayed:

```
26MAR1999  13:48:12 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU==============EYUPLX01=EYUPLX01=26MAR1999==13:48:12=CPSM=========15===
CMD Name             Description
--- ------------------------------
    OPERATE     Operations Views
      CICSBTS     CICS BTS Views
      CONNECT     Connection Views
      DB2         DB2 and DBCTL Views
      DOCTEMP     Document Template Views
      ENQUEUE     Global Enqueue Views
      EXIT        Exit Views
      FEPI        FEPI Views
      FILE        File Views
      JOURNAL     Journal Views
      PROGRAM     Program Views
      REGION      CICS Region Views
      TASK        Task Views
      TCPIPS      TCP/IP Service Views
      TDQ         Transient Data Queue Views
      TEMPSTOR    Temporary Storage Queue Views
      TERMINAL    Terminal Views
      TRANS       Transaction Views
      UOW         Unit of Work Views
```

2. From the OPERATE menu, enter CICSRGN to display details of CICS regions in EYUPLX01. From the CICSRGN view, display a detailed view of data for region EYUMAS1B by moving the cursor to the entry for EYUMAS1B and pressing Enter. The CICSRGND view for EYUMAS1B is displayed.
3. Move the cursor to the Current Tasks field and press Enter. The CICSRGN3 view is displayed. Verify that the help function is working by typing HEL in the COMMAND field of the CICSRGN3 view, moving the cursor to the MAxtasks field, and pressing Enter. A pop-up panel, [4] in which the MAxtasks field is described, overwrites the CICSRGN3 view.

   Type END in the COMMAND field of the help panel and press Enter to return to the CICSRGN3 view.
4. From a second display screen, and following your local procedure, log on to CICS system EYUMAS1B. Type CEMT INQUIRE SYSTEM and press Enter. A summary of current values for CICS system EYUMAS1B is displayed:

4. If you are using a version of ISPF prior to Version 3 Release 1, all help information is provided in full-screen panels.

```
 STATUS:  RESULTS - OVERTYPE TO MODIFY
   Actopentcbs(000)                 Progautoexit( DFHPGADX )
   Aging( 00001 )                   Progautoinst( Autoinst )
   Akp( 00200 )                     Reentprotect(Noreentprot)
   Cicstslevel(010300)              Release(0530)
   Cmdprotect(Cmdprot)              Runaway( 0020000 )
   Db2conn( )                       Scandelay( 0100 )
   Dfltuser(CPSM)                   Sdtran(CESD)
   Dsalimit( 05242880 )             Sosstatus(Notsos)
   Dsrtprogram( NONE )              Storeprotect(Inactive)
   Dtrprogram( DFHDYP )             Time( 0001000 )
   Dumping( Nosysdump )             Tranisolate(Inactive)
   Edsalimit( 0020971520 )
   Forceqr( Force )
   Maxopentcbs( 100 )
   Maxtasks( 080 )
   Mrobatch( 001 )
   Oslevel( )
   Prograutoctlg( Ctlgmodify )

                                                   SYSID=MS1A APPLID=EYUMAS1B
  RESPONSE: NORMAL                            TIME:  13.49.16  DATE: 23.12.98
PF 1 HELP       3 END                   7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

Take a note of the current MAxtasks value.

5. Return to the CICSPlex SM terminal session, move the cursor to any field to the left of the first column of data and type the word SET, then move the cursor to the MAxtasks field, change the current value to 60, and press Enter. The MAxtasks value changes to 60:

```
26MAR1999  13:49:39 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =CICSRGN==CICSRGN3=EYUPLX01===EYUPLX01===26MAR1999==15:37:31====CPSM======1
    CICS System..    DJ13A0 Tot Pgrm Use.        11 Cur LU Sess        0
    Current Tasks         3 Pgrm Compress         0 HWM LU Sess        0
    Peak Tasks...        13 Cur Act UTrn.         3
    Current Amax.       N/A Cur Que UTrn.         0
    Peak Amaxtask       N/A Peak Act UTrn         4
    Total Tasks..       107 Peak Que UTrn         0
    Interval task         6 Totl Act UTrn         6
    Times at MAXT         0 Totl Que UTrn         0
    Act Max Tasks       N/A Tot Que Time.  00:00:00
    Maxtasks.....        60 Cur Que Time.  00:00:00
    Pgrm AIn Attm         0 PRSS Inq Cnt.         0
    Pgrm AIn Xrej         0 PRSS NIB Cnt.         0
    Pgrm AIn Fail         0 PRSS Opn Cnt.         0
    Pgrm Load NIU        26 PRSS UbndCnt.         0
    Tot NIU Qtime  00:00:00 PRSS Err Cnt.         0
    NIU Reclaims.         9
```

6. To verify that the value has been changed in the CICS system itself, return to the CICS (EYUMAS1B) session and enter the CEMT INQUIRE SYSTEM command again. The MAxtasks value is 60:

```
 STATUS:  RESULTS - OVERTYPE TO MODIFY
   Actopentcbs(000)                 Progautoexit( DFHPGADX )
   Aging( 00001 )                   Progautoinst( Autoinst )
   Akp( 00200 )                     Reentprotect(Noreentprot)
   Cicstslevel(010300)              Release(0530)
   Cmdprotect(Cmdprot)              Runaway( 0020000 )
   Db2conn( )                       Scandelay( 0100 )
   Dfltuser(CPSM)                   Sdtran(CESD)
   Dsalimit( 05242880 )             Sosstatus(Notsos)
   Dsrtprogram( NONE )              Storeprotect(Inactive)
   Dtrprogram( DFHDYP )             Time( 0001000 )
   Dumping( Nosysdump )             Tranisolate(Inactive)
   Edsalimit( 0020971520 )
   Forceqr( Force )
   Maxopentcbs( 100 )
   Maxtasks( 060 )
   Mrobatch( 001 )
   Oslevel( )
   Prograutoctlg( Ctlgmodify )

                                                 SYSID=MS1A APPLID=EYUMAS1B
  RESPONSE: NORMAL                          TIME:  13.49.16  DATE: 23.12.98
PF 1 HELP      3 END                  7 SBH 8 SFH 9 MSG 10 SB 11 SF
```

End the CICS terminal session using CESF LOGOFF and return to the CICSPlex SM terminal session.

7. Type the command TRAN in the COMMAND field of the CICSRGN3 view and press Enter. The TRAN view, which shows all transactions currently installed in the CICSplex, is displayed. Scroll down and move the cursor to the CONL entry for EYUMAS1B, then press Enter. The LOCTRAND view, which shows details of local transaction CONL in EYUMAS1B, is displayed.
8. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the LOCTRAND view and pressing Enter.

Test the monitoring functions on system B

During this stage of IVP2, you check that monitoring data is being collected for EYUMAS1B. Monitoring was activated for EYUMAS1B by definitions loaded into the data repository of EYUCMS1B using the batched repository update facility.

Note: This verification procedure should be attempted at least 15 minutes after EYUMAS1A has connected to EYUCMS1A, and EYUMAS1B has connected to EYUCMS1B, to allow some data to be gathered before you try to look at it.

1. From the CICSPlex SM MENU menu, select the MONITOR option. The MONITOR menu is displayed:

```
26MAR1999  14:54:02 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=============EYUPLX01=EYUPLX01=26MAR1999==14:54:02=CPSM=========14===
CMD Name            Description
--- ------------------------------
    MONITOR     Monitoring Views
      MONACTV     Installed Monitor Definitions
      ========    ============================================================
      CONNECT     Connection Monitoring Views
      DB2         DB2 and DBCTL Monitoring Views
      FEPI        FEPI Monitoring Views
      FILE        File Monitoring Views
      GLOBAL      Global Resource Monitoring Views
      JOURNAL     Journal Monitoring Views
      PROGRAM     Program Monitoring Views
      REGION      CICS Region Monitoring Views
      TDQ         Transient Data Queue Monitoring Views
      TERMINAL    Terminal Monitoring Views
      TRANS       Transaction Monitoring Views
```

2. From the MONITOR menu, select the MONACTV entry. The MONACTV view, which lists active monitoring definitions, is displayed:

```
26MAR1999  14:54:09 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MONACTV===========EYUPLX01=EYUPLX01=26MAR1999==14:54:09=CPSM=========21===
CMD Def      CICS     Status     Active   Resource Resource Include RODM
--- Name---- System-- ---------- Period-- Name---- Type---  ------- Pop-
    *0000000 EYUMAS1A ACTIVE              *        MCICS    YES     YES
    *0000001 EYUMAS1A ACTIVE              *        MGLBL    YES     YES
    *0000002 EYUMAS1A ACTIVE              *        MDBX     YES     NO
    *0000003 EYUMAS1B ACTIVE              *        MCICS    YES     YES
    *0000004 EYUMAS1B ACTIVE              *        MGLBL    YES     YES
    *0000005 EYUMAS1B ACTIVE              *        MDBX     YES     NO
    EYUMOD01 EYUMAS1A ACTIVE     EYUPDF01 *        MCONN    YES     NO
    EYUMOD02 EYUMAS1A ACTIVE     EYUPDF01 CO*      MTRAN    YES     NO
    EYUMOD02 EYUMAS1B ACTIVE     EYUPDF01 CO*      MTRAN    YES     NO
    EYUMOD03 EYUMAS1A ACTIVE     EYUPDF01 CO*      MTDQS    YES     NO
    EYUMOD03 EYUMAS1B ACTIVE     EYUPDF01 CO*      MTDQS    YES     NO
    EYUMOD04 EYUMAS1A ACTIVE     EYUPDF01 EQ*      MTDQS    YES     NO
    EYUMOD04 EYUMAS1B ACTIVE     EYUPDF01 EQ*      MTDQS    YES     NO
    EYUMOD05 EYUMAS1A ACTIVE     EYUPDF01 DFHCSD   MFILE    YES     NO
    EYUMOD05 EYUMAS1B ACTIVE     EYUPDF01 DFHCSD   MFILE    YES     NO
    EYUMOD06 EYUMAS1A ACTIVE     EYUPDF01 *        MJRNL    YES     NO
    EYUMOD06 EYUMAS1B ACTIVE     EYUPDF01 *        MJRNL    YES     NO
    EYUMOD07 EYUMAS1A ACTIVE     EYUPDF01 SP*      MTERM    YES     NO
```

3. To verify that monitoring data is being captured, type MCICSRGN in the COMMAND field of the MONACTV view and press Enter. The MCICSRGN view is displayed. Move the cursor to the entry for EYUMAS1B and press Enter. The MCICSRGD view, showing detailed monitoring data for region EYUMAS1B, is displayed:

```
26MAR1999  14:54:23 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MCICSRGN=MCICSRGD=EYUPLX01=EYUPLX01=26MAR1999==14:54:23=CPSM=========1===
 CICS System...    EYUMAS1B CICS Release.     0330 Start Date.....  26MAR1999
 Job Name......    EYUIMS1B Current Tasks       10 Start Time.....   14:46:30
 Total CPU.....         2.6 Real Stg Used     5928 Sysdumps.......          0
 CS CPU Rate...         0.0 Curr AutoInst        0 Sysdumps Suppr.          0
 MI CPU Rate...         0.0 Max AutoInst.      100 Trandumps......          0
 Total Page In.           0 Pgrm AIn Try.      N/A Trandumps Suppr          0
 CS PageIn Rate         0.0 Pgrm AIn Xrej      N/A VTAM RPLMAX Cnt         11
 MI PageIn Rate         0.0 Pgrm AIn Fail      N/A VTAM RPL Post..          1
 Total Page Out           0 PRSS Inq Cnt.      N/A Cnt VTAM SOS...          0
 CS PagOut Rate         0.0 PRSS NIB Cnt.      N/A VTAM ACB opens.          0
 MI PagOut Rate         0.0 PRSS Opn Cnt.      N/A Library Loads..         22
 Total SIO.....         200 PRSS UbndCnt.      N/A Tot Load Time..          0
 CS SIO Rate...         0.2 PRSS Err Cnt.      N/A Cur Load Wait..          0
 MI SIO Rate...         0.4 Cur LU Sess..      N/A Tot Load Wait..          0
 Tot Pgm Use...        1762 HWM LU Sess..      N/A Max Load Wait..          1
 Pgm Compress..           7                        Cnt Max Wait...          1
 Tot Load NIU..          35                        Total Wait Time          0
 Tot NIU QTime. 38:25:31.00                        RPL Reopens....          0
 NIU Reclaims..         261
```

The presence of data in fields prefixed with CS or MI (for example, CS CPU Rate and MI CPU Rate) confirms that monitoring data is being collected.

4. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the MCICSRGD view and pressing Enter.

Test the analysis functions on system B

During this stage of IVP2, you test the analysis functions of CICSPlex SM by viewing the System Availability Monitoring (SAM) events that are generated because systems EYUMAS2A, EYUMAS3A, and EYUMAS4A are not active.

Note: This part of IVP2 should be attempted between 0800 hours and 1700 hours local time.

1. Ensure that the context and scope are still set to EYUPLX01 before selecting the ANALYSIS option from the CICSPlex SM MENU menu on system A. The ANALYSIS menu is displayed:

```
26MAR1999  14:54:37 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=====MENU=====EYUPLX01=EYUPLX01=26MAR1999==14:54:37=CPSM=========4===
CMD Name            Description
--- ------------------------------
    ANALYSIS    Real Time Analysis Operations Views
      APACTV      Installed Definitions in Analysis Point
      EVENT       Outstanding Events
      RTAACTV     Installed Analysis Definitions
```

2. From the ANALYSIS menu, select the RTAACTV option. The RTAACTV view, which lists active ANALYSIS definitions, is displayed:

```
26MAR1999  14:54:47 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =RTAACTV===========EYUPLX01=EYUPLX01=26MAR1999==14:54:47=CPSM=========1===
CMD Name     System   Status    Active   Rate  Action   Def
--- -------- -------- --------- Period-- ----- -------- Type---
    EYURTD18 EYUMAS1A ACTIVE               300 EYURTA18 RTADEF
```

3. Via TSO SDSF, access the MVS console log on system A. Verify that the following external messages have appeared on the log:

```
 COMMAND INPUT ===>                                            SCROLL ===> PAGE
0090  +EYUPN0011W EYUCMS1A  Context=EYUPLX01,Target=EYUMAS1B,Severity=VHS,
      Event=!!SAMOPS,Text=Currently available
0090  +EYUPN0011W EYUCMS1A
0090  +EYUPN0006W EYUCMS1A Notify created for RTADEF EYURTD21 by APM,
0090  +EYUPN0006W EYUCMS1A  Context=EYUPLX01,Target=EYUPLX01,Severity=HW ,
      Resource=EVENT,Key=*,Text=Outstanding EVENTs high
0090  +EYUPN0006W EYUCMS1A Notify created for RTADEF EYURTD02 by APM,
0090  +EYUPN0006W EYUCMS1A  Context=EYUPLX01,Target=EYUPLX01,Severity=VHS,
      Resource=LOCFILE,Key=DFHCSD,Text=File is not available
0090  +EYUPN0007W EYUCMS1A Notify created for RTADEF EYURTD18 by MRM,
0090  +EYUPN0007W EYUCMS1A  Context=EYUPLX01,Target=EYUMAS1A,Severity=LW ,
      Resource=CICSRGN,Key=EYUMAS1A,Text=DTR not set to EYU9XLOP in TOR
0090  +DFH4508 - EYUCMS1A - CICS SYSTEM LOG. PRIMARY   DATA SET NOW RECEIVING
      OUTPUT ON 6D6
0090  +EYUPN0006W EYUCMS1A Notify created for RTADEF EYURTD01 by APM,
0090  +EYUPN0006W EYUCMS1A  Context=EYUPLX01,Target=EYUPLX01,Severity=VHS,
      Resource=CONNECT,Key=1A2A,Text=Conn is not available
0090  +EYUPN0006W EYUCMS1A Notify created for RTADEF EYURTD01 by APM,
0090  +EYUPN0006W EYUCMS1A  Context=EYUPLX01,Target=EYUPLX01,Severity=VHS,
      Resource=CONNECT,Key=1A3A,Text=Conn is not available
0090  +EYUPN0006W EYUCMS1A Notify created for RTADEF EYURTD01 by APM,
0090  +EYUPN0006W EYUCMS1A  Context=EYUPLX01,Target=EYUPLX01,Severity=VHS,
      Resource=CONNECT,Key=1B4A,Text=Conn is not available
******************************** BOTTOM OF DATA ********************************
```

4. Return to the CICSPlex SM session, type EVENT in the COMMAND field of the RTAACTV menu, and press Enter. The EVENT view, which lists all current EVENTs for CICSplex EYUPLX01, is displayed:

```
26MAR1999  14:58:20 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =EVENT============EYUPLX01=EYUPLX01=26MAR1999==14:58:20=CPSM=========7===
CMD Name     Target   Sev Pri Type Dtl View     Resource   Key
--- -------- -------- --- --- ---- --- -------- ---------- --------------------
    !!SAMOPS EYUMAS2A VHS 255 SAM  NO
    !!SAMOPS EYUMAS3A VHS 255 SAM  NO
    !!SAMOPS EYUMAS4A VHS 255 SAM  NO
```

The EVENT view shows RTA SAM events (those prefixed by !!) for EYUMAS2A, EYUMAS3A, and EYUMAS4A.

5. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the EVENT view and pressing Enter.

Test the workload-management functions on system B

During this stage of IVP2, you define a workload specification and confirm that it is installed in EYUPLX01.

1. From the CICSPlex SM MENU menu on system A, ensure that context and scope are still set to EYUPLX01 before selecting the ADMWLM option. The ADMWLM menu is displayed:

```
26MAR1999  14:59:12 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU==============EYUPLX01=EYUPLX01=26MAR1999==14:59:12=CPSM=========10===
CMD Name              Description
--- ------------------------------------
    ADMWLM      Workload Manager Administration Views
      WLMSPEC     Workload Specifications
      WLMGROUP    Workload Groups
      WLMDEF      Workload Definitions
      TRANGRP     Transaction Groups
      ========  ===============================================================
      WLMSCOPE    Members Associated with Workload Specifications
      WLMINSPC    Workload Groups in Specifications
      WLMINGRP    Workload Definitions in Groups
      DTRINGRP    Transactions in Transaction Groups
```

2. From the ADMWLM menu, select the WLMSPEC option. The WLMSPEC view, showing all workload specifications defined in the CICSplex, is displayed:

```
26MAR1999  14:59:29 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =WLMSPEC===========EYUPLX01=EYUPLX01=26MAR1999==14:59:12=CPSM==============
BBMXBD15I There is no data which satisfies your request
```

   Message BBMXBD15I is displayed because there are currently no workload specifications for EYUPLX01.

3. To create a workload specification, type CRE in the COMMAND field of the WLMSPEC view and press Enter. The Create WLM Specification input panel is displayed:

```
COMMAND ===>

 WLM Spec Name       ===> eyuwmsvp
 Description         ===> SSet - WLM IVP Specification

 Affinity Relation   ===>            Default Affinity Relation
                             (USERID, LUNAME, GLOBAL, BAPPL)
 Affinity Lifetime   ===>            Default Affinity Lifetime
                             (SIGNON, LOGON, SYSTEM, PERMANENT, PCONV, DELIMIT
                              ACTIVITY, PROCESS)
 Match Key           ===> USERID     Default Primary search criteria
                             (USERID, LUNAME)
 Create Affinity     ===>            Create Auto Affinity (YES, NO)
 Target Scope        ===> EYUCSG05   Default CICS System,Group or Generic

 Event Name          ===>            RTADEF, STATDEF, or Generic

 Abend Health        ===> 0          AOR ABEND Health Factor (0 - 99)
 Abend Load          ===> 0          AOR ABEND Load Factor (0 - 99)

 Algorithm Type      ===> QUEUE      Algorithm Type (GOAL, QUEUE)

Press ENTER to create WLM Specification.
Type END or CANCEL to cancel without creating.
```

Complete the input panel as shown in the example above. Press Enter to create the new workload specification.

4. The WLMSPEC view is redisplayed, but this time with an entry for workload specification EYUWMSVP. To add a TOR to specification EYUWMSVP, move the cursor to the beginning of the EYUWMSVP entry in the WLMSPEC view, type ADD, and press Enter. The Add Scope for Specification input panel is displayed:

```
COMMAND ===>

 WLM Spec Name           EYUWMSVP
 Description             SSet - WLM IVP Specification

 Scope              ===> EYUMAS1A CICS System, Group or Generic
 Option             ===>          FORCE, NULL, or NONE for System Group

Press ENTER to add WLM Specification to Scope.
Type END or CANCEL to cancel without adding.
```

Enter the scope value EYUMAS1A and press Enter.

5. The WLMSPEC view is redisplayed. In the COMMAND field of the WLMSPEC view, type WLMSCOPE and press Enter. The WLMSCOPE view, showing the scope of each workload specification in EYUPLX01, is displayed:

```
26MAR1999  15:00:42 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =WLMSCOPE==========EYUPLX01=EYUPLX01=26MAR1999==15:00:42=CPSM==========1===
CMD WLM      Scope    Scope    Scope    Scope    Update
--- Spec---- Name---- Type---- Mode---- Link---- Option--
    EYUWMSVP EYUMAS1A CICSSYS  EXPLICIT
```

The WLMSCOPE view confirms that the scope of the workload specification EYUWMSVP is EYUMAS1A.

6. Type MAS in the COMMAND field of the WLMSCOPE view and press Enter. The MAS view, showing MASs in the CICSplex EYUPLX01, is displayed. Move the cursor to the EYUMAS1A entry, type UPD in the CMD column, and press Enter. The Control MAS input panel is displayed:

```
COMMAND ===>

MAS      EYUMAS1A  Description  Starter Set TOR 1 on System A

     Attributes                    Time
Type            LOCAL       Time Zone        ===> Z
CMAS            EYUCMS1A    Time Zone Offset ===> 00
Status          ACTIVE      Daylight Savings ===> NO

      Activity                   Security
MON Active ===> YES         Command Check    ===> NO
RTA Active ===> YES         Resource Check   ===> NO
WLM Active ===> YES         Exemption Check  ===> YES


Type DOWN or UP to view other MAS screens.
Press ENTER to change the MAS.
Type END or  CANCEL to cancel without changing.
```

7. Change the WLM Active value of the Control MAS input panel to YES and press Enter. The MAS view is redisplayed.
8. In the COMMAND field of the MAS view type OPERATE and press Enter. The OPERATE menu is displayed:

```
26MAR1999  13:48:12 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MENU=============EYUPLX01=EYUPLX01=26MAR1999==13:48:12=CPSM=========15===
CMD Name             Description
--- ------------------------------
    OPERATE     Operations Views
      CICSBTS     CICS BTS Views
      CONNECT     Connection Views
      DB2         DB2 and DBCTL Views
      DOCTEMP     Document Template Views
      ENQUEUE     Global Enqueue Views
      EXIT        Exit Views
      FEPI        FEPI Views
      FILE        File Views
      JOURNAL     Journal Views
      PROGRAM     Program Views
      REGION      CICS Region Views
      TASK        Task Views
      TCPIPS      TCP/IP Service Views
      TDQ         Transient Data Queue Views
      TEMPSTOR    Temporary Storage Queue Views
      TERMINAL    Terminal Views
      TRANS       Transaction Views
      UOW         Unit of Work Views
```

9. From the OPERATE menu, enter CICSRGN. The CICSRGN view is displayed. Move the cursor to the EYUMAS1A entry and press Enter. The CICSRGND view is displayed.
10. Move the cursor to any field to the left of the first column of data, type SET, then move the cursor to the Dyn Route Pgm field, change its value to

EYU9XLOP, and press Enter. (EYU9XLOP is the CICSPlex SM dynamic transaction routing program.) The updated CICSRGND view is displayed.

Note: To aid the verification process, the correct CICSPlex SM Dynamic Transaction Routing program is set manually in this step. If, for any reason, EYUMAS1A is restarted after this point, this step will need to be repeated.

11. Type WLMAWORK in the COMMAND field of the CICSRGND view and press Enter. The WLMAWORK view, showing workload specifications in EYUPLX01, is displayed:

```
26MAR1999  15:02:27 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =WLMAWORK==========EYUPLX01=EYUPLX01=26MAR1999==15:02:27=CPSM==========1===
CMD Name     Ownr TOR  AOR  Affinity Lifetime  Scope    Event    Status Cre Alg
--- -------- ---- ---- ---- -------- --------- -------- Name---- ------ Aff ---
    EYUWMSVP CM1A    1    1 NONE     NONE      EYUCSG05          ACTIVE N/A QUE
```

Verify that EYUWMSVP appears as an active workload specification.

12. Via TSO SDSF, access the job log and verify that the following messages have appeared on the log:

```
 COMMAND INPUT ===>                                           SCROLL ===> PAGE
YUPN0005W EYUCMS1A  unavailable
YUTS0001I EYUCMS1A Topology Join for EYUMAS1B Initiated
YUTS0003I EYUCMS1A Topology Join for EYUMAS1B Complete
YUPN0011W EYUCMS1A Notify RESOLVED for SAM,Context=EYUPLX01,Target=EYUMAS1B,
YUPN0011W EYUCMS1A  Severity=VHS,Event=!!SAMOPS,Text=Currently available
YUPN0006W EYUCMS1A Notify created for RTADEF EYURTD21 by APM,Context=EYUPLX01,
YUPN0006W EYUCMS1A  Target=EYUPLX01,Sev=HW ,Resource=EVENT,Key=*,Text=Outstandin
YUPN0006W EYUCMS1A Notify created for RTADEF EYURTD02 by APM,Context=EYUPLX01,
YUPN0006W EYUCMS1A  Target=EYUPLX01,Sev=VHS,Resource=LOCFILE,Key=DFHCSD,Text=Fil
YUPN0007W EYUCMS1A Notify created for RTADEF EYURTD18 by MRM,Context=EYUPLX01,
YUPN0007W EYUCMS1A  Target=EYUMAS1A,Sev=LW ,Resource=CICSRGN,Key=EYUMAS1A,Text=D
YUPN0006W EYUCMS1A Notify created for RTADEF EYURTD01 by APM,Context=EYUPLX01,
YUPN0006W EYUCMS1A  Target=EYUPLX01,Sev=VHS,Resource=CONNECT,Key=1A2A,Text=Conn
YUPN0006W EYUCMS1A Notify created for RTADEF EYURTD01 by APM,Context=EYUPLX01,
YUPN0006W EYUCMS1A  Target=EYUPLX01,Sev=VHS,Resource=CONNECT,Key=1A3A,Text=Conn
YUPN0006W EYUCMS1A Notify created for RTADEF EYURTD01 by APM,Context=EYUPLX01,
YUPN0006W EYUCMS1A  Target=EYUPLX01,Sev=VHS,Resource=CONNECT,Key=1B4A,Text=Conn
YUXD0002I EYUCMS1A Add CONTEXT(EYUPLX01) MAJOR_ID(WLMSPEC) MAJOR_NAME(EYUWMSVP)
YUXD0002I EYUCMS1A  MINOR_NAME(NONE) By User(DAVEJEF) On System(EYUB) Date(35793
YUXD0002I EYUCMS1A Add CONTEXT(EYUPLX01) MAJOR_ID(LNKSWSCS) MAJOR_NAME(EYUWMSVP)
YUXD0002I EYUCMS1A  MINOR_NAME(EYUMAS1A) By User(DAVEJEF) On System(EYUB) Date(3
YUWM0424I EYUCMS1A AOR (EYUMAS1B) has been activated for Workload (EYUWMSVP)
YUWM0420I EYUCMS1A TOR (EYUMAS1A) has been joined to Workload (EYUWMSVP)
YUWM0400I EYUCMS1A Workload Specification  (EYUWMSVP) has been successfully inst
YUWM0400I EYUCMS1A  - initiated by CMAS (EYUCMS1A)
```

Look for messages EYUWM0424I, EYUWM0420I, and EYUWM0400I to confirm that the workload specification has been installed successfully.

13. Return to the CICSPlex SM screen and type WLMAWAOR EYUWMSVP in the COMMAND field of the WLMAWORK view. The WLMAWAOR view, showing AORs associated with the workload specification EYUWMSVP, is displayed:

```
26MAR1999  15:05:51 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =WLMAWAOR==========EYUPLX01=EYUPLX01=26MAR1999==15:05:51=CPSM=========1===
CMD Workload Ownr AOR      Status    Connection
--- -------- ---- -------- --------- Lost------
    EYUWMSVP CM1A EYUMAS1B ACTIVE
```

14. In the COMMAND field of the WLMAWAOR view, type the command WLMAWTOR EYUWMSVP and press Enter. The WLMAWTOR view, showing TORs associated with the workload specification EYUWMSVP, is displayed:

```
26MAR1999  15:06:15 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =WLMAWTOR==========EYUPLX01=EYUPLX01=26MAR1999==15:06:14=CPSM=========1===
CMD Workload Ownr TOR      Connection
--- -------- ---- -------- Lost------
    EYUWMSVP CM1A EYUMAS1A
```

15. From a second display, and following your local procedures, log on to CICS system EYUMAS1A. From the CICS session, run the transaction ETVP.

    Note: Ensure that the CICS connection between EYUMAS1A and EYUMAS1B is in the state INSERVICE ACQUIRED, otherwise running the transaction could result in a CICS abend AEI0 (Program ID Error).

    In the output from transaction ETVP, look for the following message:

```
WLM IVP TRANSAC        TION EXECUTED ON APPLID => EYUMAS1B
```

16. Log off the CICS session using CESF LOGOFF and return to the CICSPlex SM session. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field of the WLMAWTOR view and pressing Enter.

IVP2 is complete.

It is recommended that you repeat IVP2 on the third and subsequent MVS images on which you install CICSPlex SM.

Customizing the installation verification procedures

When you have finished configuring CICSPlex SM to manage your CICS systems, you can run IVP1 and IVP2 again, but using your own CASs, CMASs, and MASs, to ensure that your configuration is working.

To run IVP1 and IVP2 with your own CICSPlex SM components, you need to change the supplied IVP definitions:

1. Ensure that your CMAS uses the IVP1 data repository (CICSTS13.CPSM.SAMPLES.SYSTEMA.EYUDREP) on system A.

2. Ensure that your CMAS uses the IVP2 data repository (CICSTS13.CPSM.SAMPLES.SYSTEMB.EYUDREP) on system B.
3. Delete and redefine the data repositories using the supplied JCL EYUIDRPA and EYUIDRPB.
4. Throughout the IVP definitions, change all references to EYUA and EYUB to the two subsystem IDs of your CASs.
5. Your CMAS EYUPARM NAME(xxxxxxxx) must refer to EYUCMS1A on system A and EYUCMS1B on system B.
6. Your MAS EYUPARM NAME(xxxxxxxx) must refer to EYUMAS1A on system A and EYUMAS1B on system B.

When you run IVP1 and IVP2 with your own configuration, you can omit the steps described in “Setting up the CICSPlex SM environment on system A” on page 320 and in “Setting up the CICSPlex SM environment on system B” on page 344.

Chapter 40. Installation verification procedure 3 (IVP3)

Use IVP3 to confirm that the CICSPlex SM VSE agent code has been installed successfully and that your VSE remote MAS is properly set up and defined to the CMAS.

The following values are used for objects in the examples given. Normally, when you perform the IVP3 tasks, you will assign values appropriate in your own environment.

RMSAPLID
Remote MAS VTAM application identifier

EYURMS1D
VSE remote MAS name defined to CICSPlex SM

CMSAPLID
CMAS VTAM application identifier

MS1D
Remote MAS CICS SYSIDNT parameter value

EYUPLX01
Name of the CICSplex associated with this remote MAS

EYUCMS1A
CMAS to which this remote MAS is connected

As you perform the IVP3 tasks, you will verify information in the following sources:

- The VSE system console messages for the CICS partition
- The CMAS EYULOG messages related to the VSE remote MAS
- CICSPlex SM views.

As you perform the tasks in IVP3, you may encounter data that does not match that shown in the examples in IVP3. When this occurs, you should review the information in appropriate sections in this book, as indicated in Table 40.

Table 40. Sources of information for IVP3

When you need information about this item...	See....
VTAM definitions for the VSE remote MAS	"Reviewing VTAM definitions for a VSE remote MAS" on page 266
CICSPlex SM entries in the CICS resource definition tables for the VSE remote MAS	"Updating CICS resource definition tables for VSE remote MASs" on page 268
New SESSION and CONNECTION definitions for communication with the CMAS, in the CICS CSD file	"Updating CSD files using DFHCSDUP (VSE remote MAS)" on page 269
The CICS CSD group list referenced by the VSE remote MAS The group list must include the group EYU140G3 and the group containing the SESSION and CONNECTION definitions for communication with the CMAS	"Updating CSD files using DFHCSDUP (VSE remote MAS)" on page 269
The VSE remote MAS CICS system definition in the CICSPlex SM data repository	*CICSPlex SM Administration*
CMAS-to-remote MAS link definition in the CICSPlex SM data repository	*CICSPlex SM Administration*

Table 40. Sources of information for IVP3 (continued)

When you need information about this item...	See....
JCS used to start the VSE remote MAS The CICSPlex SM libraries must be in the search chain and the CICS CSD referenced by the JCS must contain the CICSPlex SM resource definitions	"Preparing to start a VSE remote MAS" on page 275

As you perform the tasks of IVP3, be sure to make note of any messages you encounter. The messages that both precede and follow any problems you encounter will help you determine what may be causing the verification process to fail and which information will be of help. Additional messages that may help isolate the cause of the problem are in the other message files for the CMAS.

Start the VSE remote MAS

Start the VSE remote MAS. After the VSE remote MAS is started, verify that the CICSPlex SM messages shown in Figure 62 appear at the VSE console:

```
DFH8401I - ABOUT TO LINK TO PLT PROGRAMS
EYUNX0001I RMSAPLID RMAS PLTPI program starting
DFH8402I - CONTROL RETURNED FROM PLT PROGRAMS
DFH1500 - RMSAPLID : CONTROL IS BEING GIVEN TO CICS
EYUXL0003I RMSAPLID CPSM Version 140  RMAS startup in progress
EYUXL0022I RMSAPLID RMAS Phase I initialization complete
EYUCL0014I RMSAPLID Waiting for LU6.2 connection with CMAS sysid
MS1D
EYUCL0015I RMSAPLID Receive Link Task initiated for LU6.2 connection
with CMAS EYUCMS1A
EYUCL0015I RMSAPLID Send Link Task initiated for LU6.2 connection
with CMAS
EYUCL0012I RMSAPLID Connection of EYURMS1D to EYUCMS1A complete
EYUXL0007I RMSAPLID RMAS Phase II initialization complete
```

Figure 62. VSE system console messages when VSE remote MAS is started

Using TSO SDSF, access the CMAS job and examine the EYULOG file. Verify the messages related to the VSE remote MAS, shown in Figure 63 on page 375:

```
RMAS EYURMS1D
EYUTS0001I CMSAPLID Topology Connect for EYURMS1D Initiated
EYUCL0015I CMSAPLID Receive Link Task initiated for CPI-C connection
with RMAS EYURMS1D
EYUCS0006I CMSAPLID CPI-C endpoint connection MS1DRECV assigned to link
set
EYUCL0006I CMSAPLID CPI-C link to EYURMS1D established
EYUCL0015I RMSAPLID Receive Link Task initiated for LU6.2 connection
with CMAS EYUCMS1A
EYUCL0001I RMSAPLID Protocol Services initialization complete
EYUCI0001I RMSAPLID Communications initialization complete
EYUXL0007I RMSAPLID RMAS Phase II initialization complete
EYUXL0006I RMSAPLID Topology initialization has started
EYUTI0004I RMSAPLID Topology Initialization Complete
EYUXL0006I RMSAPLID RTA initialization has started
EYUXL0006I RMSAPLID BAS initialization has started
EYUNL0099I RMSAPLID RMAS LRT initialization complete
EYUNL0159I RMSAPLID Resource topology data retrieval complete
EYUCL0012I CMSAPLID Connection of EYUCMS1A to EYURMS1D complete
EYUTS0003I CMSAPLID Topology Connect for EYURMS1D Complete
```

Figure 63. EYULOG messages showing start of VSE remote MAS

Verify that the VSE remote MAS is active in CICSPlex SM

Using another TSO session, access CICSPlex SM. Set the CONTEXT and SCOPE to the CICSplex containing the definitions related to this VSE remote MAS.

From the MAS view, BROwse the VSE remote MAS. The value in the Status field should be ACTIVE, as shown in Figure 64:

```
COMMAND ===>

MAS      EYURMS1D  Description  TEST INSTALL REMOTE VSE MAS

     Attributes                   Time
Type            REMOTE      Time Zone          U
CMAS            EYUCMS1A    Time Zone Offset   00
Status          ACTIVE      Daylight Savings   NO

      Activity                  Security
MON Active      NO          Command Check      NO
RTA Active      SAM         Resource Check     NO
WLM Active      NO          Exemption Check    NO

Type DOWN or UP to view other MAS screens.
Type END or CANCEL to terminate browse
```

Figure 64. BROwsing the MAS view to verify VSE remote MAS is ACTIVE

Stop the VSE remote MAS

From the MAS view, issue the STOP action command to stop the VSE remote MAS. When you press Enter, the value in the Status field should become INACTIVE.

At the VSE system console, you should see the messages shown in Figure 65 on page 376:

```
EYUNL0999I RMSA        PLID RMAS LRT termination complete
EYUXL0011I RMSAPLID RMAS shutdown in progress
EYUCL0016I RMSAPLID Send Link Task terminated for LU6.2 connection
with CMAS EYUCMS1A
EYUCL0016I RMSAPLID Receive Link Task terminated for LU6.2
connection with CMAS EYUCMS1A
EYUXM0004I RMSAPLID Message Services termination complete
EYUXL0023I RMSAPLID Trace Services termination requested
EYUXZ0001I RMSAPLID Trace Services termination complete
EYUXL0016I RMSAPLID RMAS shutdown complete
```

Figure 65. VSE system console messages when VSE remote MAS is stopped

Using TSO SDSF, again access the CMAS job and examine the EYULOG file for the messages shown in Figure 66:

```
EYUNL0999I RMSAPLID RMAS LRT termination complete
EYUXL0011I RMSAPLID RMAS shutdown in progress
EYUXL0015I RMSAPLID RTA termination requested
EYUXL0015I RMSAPLID Topology termination requested
EYUTT0001I RMSAPLID Topology Termination Complete
EYUCL0016I CMSAPLID Receive Link Task terminated for CPI-C connection
with RMAS EYURMS1D
EYUCL0016I CMSAPLID Send Link Task terminated for CPI-C connection with
RMAS EYURMS1D
EYUTS0001I CMSAPLID Topology Disconnect for EYURMS1D Initiated
EYUTS0003I CMSAPLID Topology Disconnect for EYURMS1D Complete
```

Figure 66. EYULOG messages when VSE remote MAS is stopped

Restart the VSE remote MAS

Use the VSE system console to restart the CICSPlex SM agent code in the VSE remote MAS.

- At the VSE system console, enter `MSG xx`, where `xx` is the VSE partition identifier for the remote MAS CICS region.
- Reply `nn CORM`, where `nn` is the VSE reply message number for the remote MAS CICS partition.

  The CICSPlex SM agent code should reinitialize. In the CICSPlex SM MAS view, the Status field should now contain the value ACTIVE.
- Enter the CICSPlex SM view command LOCTRAN CORM.

  The LOCTRAN view will show a Use Count of 1 for transaction CORM in this VSE partition.

Shut down the VSE remote MAS

Enter the CICSPlex SM view command CICSRGN, and use the NORmshut action command to perform a normal shutdown of the VSE remote MAS. Successfully completing this task shows that the PLT shutdown processing for CICSPlex SM is properly installed. At the VSE system console, you should see the messages shown in Figure 67 on page 377:

```
EYUNX0040I RMSAPLID TERMINATION TASK INITIATED
EYUNX0051I RMSAPLID RMAS TERMINATION INITIATED
EYUNX0052I RMSAPLID MAS TERMINATION ECB POSTED
:
EYUNX0052I RMSAPLID KNL TERMINATION ECB POSTED
EYUNX0070I RMSAPLID XLWA TERMINATION ECB POSTED
EYUNL0901I RMSAPLID RMAS LRT NORMAL TERMINATION INITIATED
EYUNL0999I RMSAPLID RMAS LRT TERMINATION COMPLETE
EYUXL0011I RMSAPLID RMAS SHUTDOWN IN PROGRESS
EYUCL0016I RMSAPLID SEND LINK TASK TERMINATED FOR LU6.2 CONNECTION
WITH CMAS EYUCMS1A
EYUCL0016I RMSAPLID RECEIVE LINK TASK TERMINATED FOR LU6.2
CONNECTION WITH CMAS EYUCMS1A
EYUXM0004I RMSAPLID MESSAGE SERVICES TERMINATION COMPLETE
EYUXL0023I RMSAPLID TRACE SERVICES TERMINATION REQUESTED
EYUXZ0001I RMSAPLID TRACE SERVICES TERMINATION COMPLETE
EYUXL0016I RMSAPLID RMAS SHUTDOWN COMPLETE
```

Figure 67. VSE system console messages when VSE remote MAS is shut down

IVP3 is complete

If you plan to use your VSE remote MAS to perform workload management, real-time analysis, or resource monitoring functions, refer to the Starter Set as you create the appropriate definitions in the CICSPlex SM, data repository.

Chapter 41. Installation verification procedure 4 (IVP4)

Use IVP4 to confirm that the CICSPlex SM OS/2 agent code has been installed successfully and that your OS/2 remote MAS is properly set up and defined to the CMAS.

The following values are used for objects in the examples given. Normally, when you perform the IVP4 tasks, you will assign values appropriate in your own environment.

EYUPLX01
Name of the CICSplex associated with this remote MAS

RMSAPLID
OS/2 remote MAS VTAM application identifier

EYURMS1E
OS/2 remote MAS CICS SYSIDNT parameter value

CMSAPLID
CMAS VTAM application identifier

EYUCMS1A
CMAS name to which this remote MAS is connected

CM1A
CMAS CICS SYSIDNT parameter value.

As you perform the IVP4 tasks, you will verify information in the following sources:

- The CICS for OS/2 FAA® user messages written to the CICS for OS/2 log terminal and the log file named CICSMSG.LOG.
- The CMAS EYULOG messages related to the OS/2 remote MAS
- CICSPlex SM views in the TSO EUI

As you perform the tasks in IVP4, you may encounter data that does not match that shown in the examples in IVP4. When this occurs, you should review the information in appropriate sections in this book, as indicated in Table 41.

Table 41. Sources of information for IVP4

When you need information about this item...	See....
CICSPlex SM updates to the CONFIG.SYS file	"Updating your CONFIG.SYS file" on page 288
eNetwork Communications Server for OS/2 Warpdefinitions for the OS/2 remote MAS	"Reviewing your eNetwork Communications Server for OS/2 Warp definitions" on page 288
CICSPlex SM entries in the CICS resource definition file for the OS/2 remote MAS	"Importing the CICSPlex SM resource definitions" on page 293
The Terminal Connection and Session (TCS) definition for communications with the CMAS, in the CICS resource definition file	"Defining a TCS entry for CICSPlex SM" on page 289

Table 41. Sources of information for IVP4 (continued)

When you need information about this item...	See....
The CICSENV.CMD file used to identify the CICS resource definition groups and start the OS/2 remote MAS The CicsRgrp line must include the group EYUGROUP and the group containing the TCS definition for communication with the CMAS The UserWrk line must identify the CICSPlex SM subdirectory. The resource definition file set to the CICSRD system variable must contain the CICSPlex SM resource definition groups	"Updating the CICS for OS/2 CICSENV.CMD file" on page 290
CICS for OS/2 System Initialization parameters related to the installation of CICSPlex SM	"Reviewing the CICS for OS/2 system initialization parameters" on page 291
The OS/2 remote MAS CICS system definition in the CICSPlex SM data repository	*CICSPlex SM Administration*
CMAS-to-remote MAS link definition in the CICSPlex SM data repository	*CICSPlex SM Administration*
The CICS for OS/2 program load initialization and program load shut down DLLs distributed with CICSPlex SM	"Customizing the CICS for OS/2 DLLs" on page 291

As you perform the tasks of IVP4, be sure to make note of any messages you encounter. The messages that both precede and follow any problems you encounter will help you determine what may be causing the verification process to fail and which information will be of help. Additional messages that may help isolate the cause of the problem are in the other message files for the CMAS.

Start the OS/2 remote MAS

Once you complete the installation of the OS/2 remote MAS, the CICS for OS/2 PLTPI processing starts the OS/2 remote MAS agent code during initialization. After the OS/2 remote MAS is started, verify that the CICSPlex SM messages shown in Figure 68 on page 381 appear at the CICS for OS/2 log terminal (and in the CICSMSG.LOG file).

```
EYUNX0001I RMSAPLID RMAS PLTPI program starting
EYUXL0003I RMSAPLID CPSM Version 0140  RMAS startup in progress
EYUXL0005I RMSAPLID Major Object created for Kernel Linkage
EYUXL0005I RMSAPLID Major Object created for Trace Services
EYUXL0005I RMSAPLID Major Object created for Message Services
EYUXL0005I RMSAPLID Major Object created for External Services
EYUXL0005I RMSAPLID Major Object created for Cache Services
EYUXL0005I RMSAPLID Major Object created for Data Repository
EYUXL0005I RMSAPLID Major Object created for Queue Manager
EYUXL0005I RMSAPLID Major Object created for Communications
EYUXL0005I RMSAPLID Major Object created for Topology
EYUXL0005I RMSAPLID Major Object created for Real Time Analysis
EYUXL0022I RMSAPLID RMAS Phase I initialization complete
EYUXL0021I RMSAPLID Trace Services initialization has started
EYUXL0021I RMSAPLID Message Services initialization has started
EYUXL0021I RMSAPLID Message Services initialization complete
EYUXL0214I RMSAPLID Parameter Services initialization started
EYUXL0211I RMSAPLID CPSM Start Up Parameters
EYUXL0212I RMSAPLID CICSPLEX(EYUPLX01)
EYUXL0212I RMSAPLID CMASSYSID(CM1A)
EYUXL0212I RMSAPLID NAME(EYURMS1E)

EYUXL0214I RMSAPLID Parameter Services initialization complete
EYUXL0006I RMSAPLID Common Services initialization has started
EYUXS0001I RMSAPLID Common Services initialization complete
EYUXL0006I RMSAPLID Data Cache initialization has started
EYUXC0001I RMSAPLID Data Cache initialization complete
EYUXL0006I RMSAPLID Data Repository initialization has started
EYUXQ0001I RMSAPLID Data Repository initialization complete.
EYUXL0006I RMSAPLID Queue Manager initialization has started
EYUXQ0001I RMSAPLID Queue Manager initialization complete.
```

Figure 68. CICS for OS/2 log messages when OS/2 remote MAS is started (Part 1 of 2)

```
EYUXL0006I RMSAPLID Communications initialization has started
EYUCM0003I RMSAPLID Communications initialization started
EYUCL0014I RMSAPLID Waiting for LU6.2 connection with CMAS sysid CM1A
EYUCL0015I RMSAPLID Receive Link Task initiated for LU6.2 connection
                    with CMAS EYUCMS1A
EYUCL0015I RMSAPLID Send Link Task initiated for LU6.2 connection
                    with CMAS EYUCMS1A
EYUCL0012I RMSAPLID Connection of EYURMS1E to EYUCMS1A complete
EYUCM0001I RMSAPLID Communications initialization complete
EYUXL0007I RMSAPLID RMAS Phase 2 initialization complete
EYUXL0006I RMSAPLID Topology initialization has started
EYUXL0004I RMSAPLID Topology initialization complete
EYUXL0006I RMSAPLID RTA initialization has started
EYUNL0099I RMSAPLID RMAS LRT initialization complete
EYUNL0159I RMSAPLID Resource topology data retrieval complete
```

Figure 68. CICS for OS/2 log messages when OS/2 remote MAS is started (Part 2 of 2)

Using TSO SDSF on the host, access the CMAS job and examine the EYULOG file. Verify the messages related to the OS/2 remote MAS, shown in Figure 69 on page 382:

```
                    RMAS EYURMS1E
EYUTS0001I CMSAPLID Topology Connect for EYURMS1E Initiated
EYUCL0015I CMSAPLID Receive Link Task initiated for CPI-C connection
                    with RMAS EYURMS1E
EYUCS0006I CMSAPLID CPI-C endpoint connection MS1ERECV assigned to link
                    set
EYUCL0006I CMSAPLID CPI-C link to EYURMS1E established
EYUCM0001I RMSAPLID Communications Initialization complete
EYUXL0007I RMSAPLID RMAS Phase 2 initialization complete
EYUXL0006I RMSAPLID Topology initialization has started
EYUTI0004I RMSAPLID Topology Initialization Complete
EYUXL0006I RMSAPLID RTA initialization has started
EYUNL0099I RMSAPLID RMAS LRT initialization complete
EYUNL0159I RMSAPLID Resource topology data retrieval complete
EYUCL0012I CMSAPLID Connection of EYUCMS1A to EYURMS1E complete
EYUTS0003I CMSAPLID Topology Connect for EYURMS1E Complete
```

Figure 69. EYULOG messages showing start of OS/2 remote MAS

Verify that the OS/2 remote MAS is active in CICSPlex SM

Using another TSO session, access CICSPlex SM. Set the CONTEXT and SCOPE to the CICSplex containing the definitions related to this OS/2 remote MAS.

From the MAS view, BROwse the OS/2 remote MAS. The value in the Status field should be ACTIVE, as shown in Figure 70:

```
COMMAND ===>

MAS      EYURMS1E  Description  STARTER SET RMAS OS/2

     Attributes                    Time
Type           REMOTE      Time Zone          U
CMAS           EYUCMS1A    Time Zone Offset   00
Status         ACTIVE      Daylight Savings   NO

      Activity                   Security
MON Active     NO          Command Check      NO
RTA Active     SAM         Resource Check     NO
WLM Active     NO          Exemption Check    NO

Type DOWN or UP to view other MAS screens.
Type END or CANCEL to terminate browse
```

Figure 70. BROwsing the MAS view to verify OS/2 remote MAS is ACTIVE

Stop the OS/2 remote MAS

From the MAS view within the TSO EUI, issue the STOP action command to stop the OS/2 remote MAS. When you press Enter, the value in the Status field should become INACTIVE.

At the CICS for OS/2 log terminal (or CICSMSG.LOG file), you should see the messages shown in Figure 71 on page 383:

```
EYUNL0999I RMSAPLID RMAS LRT termination complete
EYUXL0011I RMSAPLID RMAS shutdown in progress
EYUXL0015I RMSAPLID RTA termination requested
EYUXL0015I RMSAPLID Topology termination requested
EYUXL0015I RMSAPLID Topology termination complete
EYUXL0015I RMSAPLID Communications termination requested
EYUCL0016I RMSAPLID Send Link Task terminated for LU6.2 connection
                    with CMAS EYUCMS1A
EYUCL0016I RMSAPLID Receive Link Task terminated for LU6.2 connection
                    with CMAS EYUCMS1A
EYUCL0010I RMSAPLID Protocol Services termination complete
EYUCT0002I RMSAPLID Transport Services termination complete
EYUCI0002I RMSAPLID Communications termination complete
EYUXL0015I RMSAPLID Queue Manager termination requested
EYUXQ0002I RMSAPLID Queue Manager termination complete.
EYUXL0015I RMSAPLID Data Cache termination requested
EYUXC0101I RMSAPLID Data Cache termination complete
EYUXL0015I RMSAPLID Data Repository termination requested
EYUXD0003I RMSAPLID Data Repository termination complete
EYUXL0015I RMSAPLID Common Services termination requested
EYUXS0002I RMSAPLID Common Services termination complete
EYUXL0015I RMSAPLID Message Services termination requested
EYUXM0004I RMSAPLID Message Services termination complete
EYUXL0023I RMSAPLID Trace Services termination requested
EYUXZ0001I RMSAPLID Trace Services termination complete
EYUXL0016I RMSAPLID RMAS shutdown complete
```

Figure 71. CICS for OS/2 log messages when OS/2 remote MAS is stopped

Using TSO SDSF, again access the CMAS job and examine the EYULOG file for the messages shown in Figure 72:

```
EYUNL0999I RMSAPLID RMAS LRT termination complete
EYUXL0011I RMSAPLID RMAS shutdown in progress
EYUXL0015I RMSAPLID RTA termination requested
EYUXL0015I RMSAPLID Topology termination requested
EYUTS0002I RMSAPLID Topology termination complete
EYUCL0016I CMSAPLID Receive Link Task terminated for CPI-C connection
                    with RMAS EYURMS1E
EYUCL0016I CMSAPLID Send Link Task terminated for CPI-C connection
                    with RMAS EYURMS1E
EYUTS0001I CMSAPLID Topology Disconnect for EYURMS1E Initiated
EYUTS0003I CMSAPLID Topology Disconnect for EYURMS1E Complete
```

Figure 72. EYULOG messages when OS/2 remote MAS is stopped

Restart the OS/2 remote MAS

Use a CICS for OS/2 terminal session to restart the CICSPlex SM agent code in the OS/2 remote MAS.

- Enter the transaction ID **CORM** to start the CICSPlex SM agent processing.

  The CICSPlex SM agent code should reinitialize. In the CICSPlex SM MAS view, the Status field should now contain the value ACTIVE.
- Enter the CICSPlex SM view command LOCTRAN CORM.

  The LOCTRAN view will show transaction CORM enabled for this CICS for OS/2.

Shut down the OS/2 remote MAS

Enter the CICSPlex SM view command CICSRGN, and use the NORmshut action command to perform a normal shutdown of the OS/2 remote MAS. Successfully completing this task shows that the PLT shutdown processing for CICSPlex SM is properly installed. In the CICS for OS/2 log file, CICSMSG.LOG, you should see the messages shown in Figure 73:

```
EYUNX0040I RMSAPLID Termination task initiated
EYUNX0051I RMSAPLID RMAS Termination initiated
EYUNX0052I RMSAPLID RMAS Termination ECB posted
EYUNL0901I RMSAPLID RMAS LRT normal termination initiated
EYUCL0016I RMSAPLID Send link task terminated for LU6.2 connection
                    with CMAS EYUCMS1A
EYUCL0016I RMSAPLID Receive link task terminated for LU6.2 connection
                    with CMAS EYUCMS1A
EYUNL0999I RMSAPLID RMAS LRT Termination complete
EYUXL0011I RMSAPLID RMAS Shutdown in progress
EYUXL0015I RMSAPLID RTA Termination requested
EYUXL0015I RMSAPLID Topology termination requested
EYUCL0010I RMSAPLID Topology termination complete
EYUXL0015I RMSAPLID Communications termination requested
EYUCI0002I RMSAPLID Communications termination complete
EYUXL0015I RMSAPLID Queue Manager termination requested
EYUXQ0002I RMSAPLID Queue Manager termination complete
EYUXL0015I RMSAPLID Data Cache termination requested
EYUXC0101I RMSAPLID Data Cache termination complete

EYUXL0015I RMSAPLID Data Repository termination requested
EYUXD0003I RMSAPLID Data Repository termination complete
EYUXL0015I RMSAPLID Common Services termination requested
EYUXS0002I RMSAPLID Common Services termination complete
EYUXL0015I RMSAPLID Message Services termination requested
EYUXM0004I RMSAPLID Message Services termination complete
EYUXL0023I RMSAPLID Trace Services termination requested
EYUXZ0001I RMSAPLID Trace Services termination complete
EYUXL0016I RMSAPLID RMAS shutdown complete
```

Figure 73. CICS for OS/2 log messages when OS/2 remote MAS is shut down

IVP4 is complete

If you plan to use your OS/2 remote MAS to perform workload management, real-time analysis, or resource monitoring functions, refer to the Starter Set as you create the appropriate definitions in the CICSPlex SM, data repository.

Chapter 42. Installation verification procedure 5 (IVP5)

Use IVP5 to confirm that the CICSPlex SM interface to NetView Resource Object Data Manager (RODM) has been installed successfully. Before you begin, you must run IVP1 to create the required CICSPlex SM environment.

It is recommended that you run IVP5 on the first or only MVS image on which you install CICSPlex SM. On the MVS image on which you run IVP5 (which is referred to in the remainder of this section as “system A”) and any connected workstations, you must have installed:

- NetView Version 3.1 (or later) and the NetView Graphic Monitor Facility (NGMF), as described in the *NetView Installation and Administration Guide*
- NetView MultiSystem Manager (MSM) Version 2.2 (or later) as described in the appropriate MSM network book
- The CICSPlex SM interface to NetView RODM, as described in “Chapter 35. Setting up the interface to NetView RODM” on page 297

Also on system A, you must have access to:

- the NetView console
- a NetView operator ID with an authority level of 1
- a workstation attached to NetView via an LU 6.2 communication link running the NetView Graphic Monitor Facility
- the MVS console log via TSO SDSF

Setting up the CICSPlex SM environment for NetView RODM

Perform the steps in “Setting up the CICSPlex SM environment on system A” on page 320 to prepare system A for NetView RODM.

Starting up and verifying NetView, RODM, and MSM components

When the system A environment for CICSPlex SM is established, you are ready to:

1. Ensure NetView is started
2. Ensure the NetView SSI is started
3. Ensure NetView Graphic Monitor Facility Host Subsystem (GMFHS) is started
4. Ensure NetView RODM is started
5. Ensure NetView RODM is loaded with the GMFHS data model
6. Ensure NetView RODM is loaded with the MSM data model
7. Ensure the CICSPlex SM RODM reporting task is active

1: Ensure NetView is started

Log on to TSO on system A and display the NetView startup procedure (the sample procedure shipped with NetView is CNMPROC). Verify that the following NetView message appears at the NetView console or in the NetView job log:

```
DSI530I 'CNMCALRT' : 'ALERT RECEIVER TASK' IS READY AND WAITING FOR WORK'
```

2: Ensure the NetView SSI is started

Display the NetView SSI procedure (the sample procedure shipped with NetView is CNMSSI). Verify that the following NetView SSI messages appear at the NetView console or in the SSI job log:

```
CNM226I NETVIEW PROGRAM TO PROGRAM INTERFACE INITIALIZATION IS COMPLETED
CNM541I NETVIEW SUBSYSTEM INITIALIZED SUCCESSFULLY
```

3: Ensure NetView GMFHS is started

Display the NetView GMFHS procedure (the sample procedure shipped with NetView is CNMGMFHS). Verify that the following NetView GMFHS message appears at the NetView console or in the GMFHS job log:

```
DUI4027I GMFHS MAIN TASK INITIALIZATION IS COMPLETE
```

4: Ensure NetView RODM is started

Display the MVS log for RODM related messages (the sample procedure shipped with NetView is EXGXRODM). Verify that the following NetView RODM message appears at the NetView console or in the RODM job log:

```
EKG1900I EKGXRODM : RODM RODM  INITIALIZATION IS COMPLETE.
```

5: Ensure NetView RODM is loaded with GMFHS data model

If you have not done so already, run CNMSJH12 (or the equivalent) to load the RODM data cache with the GMFHS data model.

6: Ensure NetView RODM is loaded with MSM data model

If you have not done so already, run FLCSJDM (or the equivalent) to load the RODM data cache with the MSM data model.

7: Ensure CICSPlex SM RODM reporting task is active

1. Log on to NetView on system A (the sample application ID provided with NetView 3.1 is CNM01). Issue the following NetView command:

   ```
   INITTOPO
   ```

   Verify that you receive the following response:

   ```
   FLC059I MULTISYSTEM MANAGER INITIALIZATION FILE FLCAINP HAS BEEN
    READ SUCCESSFULLY.  THE MULTISYSTEM MANAGER IS NOW ENABLED.
   ```

   Then issue these NetView commands:

   ```
   LOADCL EYU#0001
   AUTOTASK OPID=EYURODM
   DEFAULTS REXXSTRF=ENABLE
   DEFAULTS REXXSLMT=200
   ```

   Verify that you receive the following response:

   ```
   CNM570I STARTING AUTOMATION TASK EYURODM
   ```

   Then issue this NetView command:

   ```
   BROWSE NETLOGS
   ```

   Verify that the following CICSPlex SM messages appear in the NetView log:

   ```
   EYUTR0001I EYURODM  CICSPlex SM/ESA version 0140 Topology agent
    initializing.
   EYUTR0001I EYURODM  CICSPlex SM/ESA version 0140 Topology agent
    initialized.
   ```

   After a few minutes, the following CICSPlex SM messages should appear in the NetView log:

```
EYUTR0003I EYURODM  Contact with EYUCMS1A initiated.
EYUTR0003I EYURODM  Contact with EYUCMS1A established.
```

Note: If you defined these NetView commands to be issued automatically, you should receive the following message at the NetView console:

```
DSI041I EYURODM ALREADY ACTIVE OR IN PROCESS OF BECOMING ACTIVE
```

2. Verify that the RODM interface is active by checking the EYUJCM1A job log for the following CICSPlex SM messages:

```
EYUTS0031I EYUCMS1A Receiver program for (RODM) is active.
EYUTS0030I EYUCMS1A Topology RODM Manager registered with NetView.
```

Creating CICSPlex SM definitions for RODM reporting

When the NetView, RODM, and MSM components are active, you are ready to:
1. Define RODM to the CMAS
2. Enable RODM reporting for the CICSplex
3. Enable RODM reporting of CICS resources

1: Define RODM to the CMAS

1. Log on to CICSPlex SM in the same manner as you did for IVP1, ensuring that the Context and Scope fields on the CICSPlex System Manager entry panel are both set to EYUCMS1A. Then type 2 in the OPTION field and press Enter. The MENU menu is displayed.
2. From the CICSPlex SM MENU menu, select CONFIG. The CONFIG menu is displayed. From the CONFIG menu, select CMAS. The CMAS view is displayed:

```
26MAR1999  14:46:30 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CMAS==============EYUCMS1A=EYUCMS1A=26MAR1999==14:46:30=CPSM==========1===
CMD Name     Status   Sysid Access   Transit  Transit
--- -------- -------- ----- Type---- CMAS---- Count--
    EYUCMS1A ACTIVE   CM1A  LOCAL                   0
```

3. From the CMAS view, display a detailed view of data for EYUCMS1A by moving the cursor to the entry for EYUCMS1A and pressing Enter. The CMASD view for EYUCMS1A is displayed:

```
26MAR1999  14:46:44 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1       ALT WIN ===>
 W1 =CMAS=====CMASD====EYUCMS1A=EYUCMS1A=26MAR1999==14:46:44=CPSM=============
    CMAS Name..... EYUCMS1A Start Date....  26MAR1999 EYUDREP State      OPEN
    JOB Name...... EYUJCM1A Start Time....   13:22:04 IRC Status...    CLOSED
    Applid........ EYUCMS1A Time Zone.....          Z VTAM ACB.....      OPEN
    Location......     CPSM Time Offset...          0 CAS Connect..    ACTIVE
    Sysid.........     CM1A Daylight Time.        YES CAS Id.......      EYUA
    Act Maxtasks..      N/A Total CPU.....       70.7 System Trace.  SYSTEMOFF
    Maxtasks......      120 Total Page In.         43 User Trace...    USERON
    Current Tasks.      N/A Total Page Out          0 GTF Trace....   GTFSTOP
    Peak Amaxtask.      N/A Total Real Stg       9400 AUX Trace....  AUXSTART
    Total Tasks...     2569 CPSM Version..       0120 AUX Switch...  NOSWITCH
    Times at MAXT.        0 Free OSSB Cnt.         16 Max STCB.....         3
    SDUMP always         NO Used Free OSSB       5844 NetView PPI..       YES
                            Getmain OSSB..          0 NMVTS Sent...         0
                                                      RODM Name....
    Pending Queues
    Connections...        0 Programs......          0 Trans. Data..         0
    Files.........        0 Terminals.....          0 System.......         0
    Journals......        0 Transactions..          0
```

4. Move the cursor to the line command field, which is located to the left of the first row of data, and type SET. Then move the cursor to the RODM Name field and type the name of your RODM subsystem (the name used in the supplied sample is EYURODM). When you press Enter, the updated CMASD view is displayed:

```
26MAR1999  14:47:31 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                   SCROLL ===> PAGE
CURR WIN ===> 1       ALT WIN ===>
 W1 =CMAS=====CMASD====EYUCMS1A=EYUCMS1A=26MAR1999==14:47:31=CPSM=============
    CMAS Name..... EYUCMS1A Start Date....  26MAR1999 EYUDREP State      OPEN
    JOB Name...... EYUJCM1A Start Time....   13:22:04 IRC Status...    CLOSED
    Applid........ EYUCMS1A Time Zone.....          Z VTAM ACB.....      OPEN
    Location......     CPSM Time Offset...          0 CAS Connect..    ACTIVE
    Sysid.........     CM1A Daylight Time.        YES CAS Id.......      EYUA
    Act Maxtasks..      N/A Total CPU.....       70.7 System Trace.  SYSTEMOFF
    Maxtasks......      120 Total Page In.         43 User Trace...    USERON
    Current Tasks.      N/A Total Page Out          0 GTF Trace....   GTFSTOP
    Peak Amaxtask.      N/A Total Real Stg       9400 AUX Trace....  AUXSTART
    Total Tasks...     2569 CPSM Version..       0120 AUX Switch...  NOSWITCH
    Times at MAXT.        0 Free OSSB Cnt.         16 Max STCB.....         3
    SDUMP always         NO Used Free OSSB       5844 NetView PPI..       YES
                            Getmain OSSB..          0 NMVTS Sent...         0
                                                      RODM Name....   EYURODM
    Pending Queues
    Connections...        0 Programs......          0 Trans. Data..         0
    Files.........        0 Terminals.....          0 System.......         0
    Journals......        0 Transactions..          0
```

5. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field and pressing Enter.

2: Enable RODM reporting for the CICSplex

1. From the CICSPlex SM MENU menu, select ADMCONFG. The ADMCONFG menu is displayed. From the ADMCONFG menu, select CPLEXDEF. The CPLEXDEF view is displayed:

```
26MAR1999  13:39:25 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CPLEXDEF=========EYUCMS1A=EYUCMS1A=26MAR1999==13:39:25=CPSM=========1===
CMD Name     Mon  Time Zone Day  Cmd Res Xmp ROD Description
--- -------- Intv Zone Adj  Save Chk Chk Chk --- -----------------------------
    EYUPLX01  480 B       0 NO   NO  NO  NO  NO  IVP 1 CICSPLEX
```

2. From the CPLEXDEF view, type UPD in the line command field next to EYUPLX01. The update panel for CICSplex EYUPLX01 is displayed:

```
------------------------- Update CICSPlex for EYUCMS1A ------------------------
COMMAND  ===>

CICSPlex name               EYUPLX01
Description            ===> CICSplex 1 - SSet - V1R2M0

Monitor Interval       ===> 480    Performance interval duration (15-1440 min)
Daylight Savings Time  ===> NO     YES or NO
Time Zone              ===> B      Time zone for interval (B-Z)
Time Zone Adjustment   ===> 0      Offset from time zone (0-59)
Populate in RODM       ===> NO     Build a RODM object
CICS Command Checking  ===> NO     Simulated CICS Command Checks
CICS Resource Checking ===> NO     Simulated CICS Resource Checks
Exemption Checking     ===> NO     Check for Exempt Users

Press ENTER to update CICSplex.
Type END or CANCEL to cancel without updating.
```

3. Move the cursor to the Populate in RODM field, type YES, and press Enter. Verify that the ROD field in the CPLEXDEF view is now set to YES for EYUPLX01:

```
26MAR1999  14:42:27 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                  SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =CPLEXDEF=========EYUCMS1A=EYUCMS1A=26MAR1999==14:42:27=CPSM=========1===
CMD Name     Mon  Time Zone Day  Cmd Res Xmp ROD Description
--- -------- Intv Zone Adj  Save Chk Chk Chk --- -----------------------------
    EYUPLX01  480 B       0 NO   NO  NO  NO  YES CICSplex 1 - SSet - V1R2M0
```

4. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field and pressing Enter.

3: Enable RODM reporting of CICS resources

1. From the CICSPlex SM MENU menu, change the context and scope values from EYUCMS1A to EYUPLX01 by typing SET in the COMMAND field and pressing Enter. The SET WINDOW CONTEXT, PRODUCT, SCOPE AND VIEW input panel is displayed:

```
----------- SET WINDOW CONTEXT, PRODUCT, SERVER, SCOPE AND VIEW ----------------
COMMAND ===>

  Window Parameters:

  Context     ===> EYUPLX01
  Product     ===> CPSM
  Server      ===> *
  Scope       ===> EYUPLX01
  View        ===> MENU


  Type End to Set Window Parameters
       Cancel to quit without setting
```

2. Complete the input panel as shown above and type END. The MENU menu is redisplayed. From the MENU menu, type MONSPEC in the COMMAND field and press Enter. The MONSPEC view is displayed:

```
26MAR1999  19:33:51 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MONSPEC===========EYUPLX01=EYUPLX01=26MAR1999==19:33:51=CPSM=========3===
CMD Monitor  Monitor Specification         RODM
--- Spec---  Description------------------ CMAS----
    EYUMOS01 SSet - For EYUMAS1A
```

3. From the MONSPEC view, type UPD in the line command field next to EYUMOS01. The update panel for monitor specification EYUMOS01 is displayed:

```
------------------ Update Monitor Specification for EYUPLX01 ------------------
COMMAND ===>

 Monitor Spec Name   ===> EYUMOS01
 Description         ===> SSet - For EYUMAS1A
 Monitor Status      ===> ACTIVE     Monitor Status (Active/Inactive)
 Retention Period    ===> 5          Minutes to retain data after termination
 RODM CMAS           ===>            CMAS to populate RODM or Generic

 Sample Intervals                    Seconds between samples (0 for none)
   Resource Name   Interval      Resource Name   Interval   Class Name
   -------------  ----------     -------------   ---------- ----------
   Region        ==> 300           Transaction    ==> 300       MTRAN
   Global        ==> 300           Terminal       ==> 0         MTERM
   DB2           ==> 300           File           ==> 300       MFILE
                                   Transient Data ==> 300       MTDQS
                                   Journal        ==> 500       MJRNL
                                   Connection     ==> 300       MCONN
                                   Program        ==> 0         MPROG

Press ENTER to update Monitor Specification.
Type END or CANCEL to cancel without updating.
```

4. Move the cursor to the RODM CMAS field, type EYUCMS1A, and press Enter. Verify that the RODM CMAS field in the MONSPEC view is now set to EYUCMS1A for EYUMOS01:

```
26MAR1999  19:35:24 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
 W1 =MONSPEC===========EYUPLX01=EYUPLX01=26MAR1999==19:35:24=CPSM=========3===
CMD Monitor  Monitor Specification         RODM
--- Spec---  Description------------------ CMAS----
    EYUMOS01 SSet - For EYUMAS1A           EYUCMS1A
```

5. From the MONSPEC view, type MAS in the COMMAND field and press Enter. The MAS view is displayed:

```
26MAR1999  13:44:00 ----------- INFORMATION DISPLAY ---------------------------
COMMAND  ===>                                                 SCROLL ===> PAGE
CURR WIN ===> 1        ALT WIN ===>
>W1 =MAS===============EYUPLX01=EYUPLX01=26MAR1999==13:44:00=CPSM=========1===
CMD Name     Type   CMAS     Status   MON RTA WLM Description
--- -------- ------ -------- -------- Act Act Act -----------------------------
    EYUMAS1A LOCAL  EYUCMS1A ACTIVE   YES YES NO  Starter Set TOR 1 on System A
```

6. From the MAS view, type UPD in the line command field next to EYUMAS1A. The update panel for managed address space EYUMAS1A is displayed:

```
-------------------------- Control MAS for EYUPLX01 --------------------------
COMMAND  ===>

MAS      EYUMAS1A  Description  Starter Set TOR 1 on System A

     Attributes                   Time
Type            LOCAL       Time Zone        ===> R
CMAS            EYUCMS1A    Time Zone Offset ===> 00
Status          ACTIVE      Daylight Savings ===> NO


      Activity                  Security
MON Active ===> YES         Command Check    ===> NO
RTA Active ===> YES         Resource Check   ===> NO
WLM Active ===> NO          Exemption Check  ===> NO


Enter DOWN or UP to view other MAS screens.
Press Enter to change the MAS.
Type END or CANCEL to cancel without changing.
```

7. Move the cursor to the MON Active field, type NO, and press Enter. The MAS view is redisplayed with NO in the MON field.
8. Type UPD in the line command field next to EYUMAS1A again and press Enter. When the update panel for EYUMAS1A appears, move the cursor to the MON Active field and type YES to restart CICSPlex SM resource monitoring. When you press Enter, the MAS view is redisplayed with YES in the MON field.
9. Return to the CICSPlex SM MENU menu by typing MENU in the COMMAND field and pressing Enter.
10. Verify that the CICSPlex SM RODM definitions are active by examining the EYUJCM1A job log for the following messages:

```
EYUCMS1A Receiver program for (RODM) is active
EYUCMS1A Topology RODM Manager registered with NetView
```

Displaying CICSPlex SM objects with NGMF

When the required CICSPlex SM definitions for RODM reporting have been created, you are ready to access CICSPlex SM objects from the NetView Graphic Monitor Facility (NGMF).

1. From the NetView console, start the GMFHS host component of the link by issuing the following command:

   ```
   NETCONV LU=luname,ACTION=START
   ```

   where `luname` is the name of your LU 6.2 workstation LU name. For a description of the NETCONV command, see the *NetView Operation* book.
2. On your OS/2 desktop, locate the NGMF container and open the folder. The NetView - Icon View window is displayed.
3. Start the monitor facility by double-clicking on the Start Graphic Monitor icon. The Graphic Data Server window is displayed.
4. When the graphic data server is ready, the NGMF Sign On window is displayed.
5. Sign on to NGMF by selecting the Sign on button. The Graphic Monitor window is displayed. The NGMF view name is the same as the VIEWNAME you specified in your startup parameters for PROFILE EYURODMP (or the equivalent). The default VIEWNAME value supplied in EYUIRDMS is CPSM_World_View.
6. Double-click on CPSM_World_View (or the equivalent). The NGMF view of CICSPlex SM is displayed.
7. Double-click on the CPSM Cluster icon. An NGMF view showing a Host aggregate icon for EYUPLX01 and a Host icon for EYUCMS1A is displayed.
8. Double-click on the EYUPLX01 Host aggregate icon. An NGMF view showing an Application aggregate icon for EYUMAS1A is displayed.
9. Double-click on the EYUMAS1A Node aggregate icon. An NGMF view showing the resources monitored in EYUMAS1A is displayed.

IVP5 is complete

If you want to verify that individual CICS resources are populated into RODM, change the relevant monitor definitions (MONDEFs) in EYUPLX01 to report RODM information and install those definitions. For information on how to do this, see the discussion of creating monitor definitions in the *CICSPlex SM Managing Resource Usage* manual.

Chapter 43. Using the EYUINST EXEC to tailor skeleton jobs

This section describes how you can use the sample JCL members to execute the EYUINST EXEC that customizes skeleton jobs provided by CICSPlex SM.

The following sample members are provided to execute the EYUINST EXEC:

- Member EYUISTRT, in the library CICSTS13.CPSM.SEYUJCL, is provided to customize the Starter Set jobs.
- Member EYUISTAR, in the library CICSTS13.CPSM.SEYUINST, is provided to customize the installation and post-installation jobs.

  For a description of the Starter Set jobs, see “Chapter 36. Configuring the Starter Set” on page 303.

  You can edit and run the sample JCL members multiple times. For example, the EYUISTAR job can be used to select and edit skeleton member EYUDEFDS to create a unique data repository for each CMAS. In addition, you can subsequently change the skeleton jobs when, for example, you have to apply service to any of those jobs. This allows you to tailor the skeleton jobs to your environment after you have loaded the CICSPlex SM software into the SMP/E-supported CICSPlex SM libraries.

The following sections provide information about:

- “Sample JCL editing considerations”
- “EYUINST EXEC parameters” on page 395
- “Sample JCL execution considerations” on page 402.

Sample JCL editing considerations

To tailor the sample EYUISTAR or EYUISTRT members, you can either directly modify the contents of the member in the SMP/E target library or copy the member (to preserve the CICSPlex SM-supplied values) and then change the copy.

When you edit the EYUISTAR member, do the following:

- Set the SCOPE parameter to indicate that post-installation jobs are to be generated.
- Set the TEMPLIB parameter to identify the installation library CICSTS13.CPSM.SEYUINST, which contains the skeleton jobs.
- In the SYSPROC DD statement, identify the library that contains the EYUINST EXEC. To ensure that you are using the most current version of these jobs, identify the library as CICSTS13.CPSM.SEYUINST.

When you edit the EYUISTRT member, do the following:

- Set the TEMPLIB parameter to identify the Starter Set library CICSTS13.CPSM.SEYUJCL, which contains the skeleton jobs.
- In the SYSPROC DD statement, identify the library which contains the EYUINST EXEC. To ensure that you are using the most current version of these jobs, identify the library as CICSTS13.CPSM.SEYUINST.

If the sample JCL members are serviced, you must perform one of the following actions:

- To preserve your current installation parameters, add the service changes to the previously edited sample JCL member.
- Respecify your current installation parameters in the serviced sample JCL members in the SMP/E target library. These members are EYUISTAR in the library CICSTS13.CPSM.SEYUINST and EYUISTRT in the library CICSTS13.CPSM.SEYUJCL.

The CICSPlex SM installation libraries are identified in Table 42.

When a parameter has a default value, as indicated in Table 43 on page 395, you can use the default value by:
- Omitting the parameter.
- Omitting the last value with a parameter supporting multiple values.
- Using a period in place of a value, where either of the following:

```
UTILITIES . LKED .
```

```
UTILITIES . LKED
```

  is the same as specifying:

```
UTILITIES ASMA90 LKED GIMSMP
```

If your disk space is managed by the storage management subsystem (SMS) component of MVS/DFP, the unit and volume parameters may be omitted from the generated JCL by specifying the value SMS for any of the UNIT or VOLUME operands of the EYUINST EXEC parameters. For example, to omit UNIT and VOLUME values from the JCL generated by EYUINST EXEC parameters which obtain their default value from the DEFVOL parameter, specify:

DEFVOL SMS SMS

For the other parameters that have unit and volume specifications and that are to obtain the default from DEFVOL, use a period (which represents the default to SMS).

Table 42. Installation libraries for CICSPlex SM

Library	Function
SEYUINST	The SMP/E-supported target installation library. After you have installed the CICSPlex SM software into this and other SMP/E-supported libraries (named SEYUxxxx and AEYUxxxx), this library stores the skeleton jobs you should use on any later runs of the EYUISTAR job.
TEYUINST	To store the EYUISTAR job that you edit and run to tailor the skeleton installation-related jobs to your CICSPlex SM environment. Until you have installed the CICSPlex SM software into the SMP/E-supported CICSPlex SM libraries, the TEYUINST library also stores the skeleton jobs to be tailored.
XEYUINST	To store the tailored, executable, copies of the skeleton jobs that are to be run.
AEYUINST	The SMP/E-supported distribution installation library.
AEYUJCL	The SMP/E-supported distribution library that contains the Starter Set JCL members.
SEYUJCL	The SMP/E-supported target library that contains EYUISTRT and the other Starter Set members.

Note: The name of the TEYUINST library is determined at the time the installation materials are unloaded from the distribution tape. The name of the XEYUINST library and the high-level index for the other CICSPlex SM libraries are determined by the EYUINST EXEC parameters used in the EYUISTAR and EYUISTRT jobs. These parameters are described in "EYUINST EXEC parameters" on page 395.

EYUINST EXEC parameters

Table 43 identifies all of the EYUINST EXEC parameters (supplied in the EYUISTAR and EYUISTRT members) and, when appropriate, their default values. The term None indicates that the parameter has no default. Lowercase characters indicate the source of the default value. Except as noted with the following parameter descriptions, you may specify your own values for any of these parameters.

The headings POST and STARTER, which also represent values you can specify with the SCOPE parameter, indicate the type of skeleton jobs you can tailor and generate, where:

- POST identifies parameters used to generate customized post-installation jobs.
- STARTER identifies parameters used to generate customized Starter Set jobs.

The subheadings of CMAS and MAS indicate the environment to which the parameter applies.

Table 43. EYUINST EXEC parameters, when they are used, and their default values

Parameter	POST		STARTER		Default value
	CMAS	MAS	CMAS	MAS	
BLKU	--	--	Yes	Yes	6144
CINDEXnnn	Yes	--	Yes	Yes	None
CMASNAME	Yes	--	Yes	--	None
CRELEASE	Yes	--	Yes	Yes	5.3.0
DEFVOL	Yes	--	--	--	sysprocdd1 sysprocdd2
DSINFO	Yes	--	Yes	Yes	index defvol
ENVIRONMENT	Yes	Yes	Yes	Yes	None
EYUIPRM	Yes	--	--	--	dsinfo.EYUIPRM NEW
EYUSDEF	Yes	--	--	--	dsinfo.EYUSDEF NEW
GZONECSI	Yes	Yes	--	--	index.GLOBAL OLD smpvol
INDEX	Yes	Yes	Yes	Yes	sysprocdsn_levels
JOB	Yes	Yes	Yes	Yes	//XXXXXXXX JOB
LIB	Yes	Yes	Yes	Yes	sysprocdsn_levels.XEYUINST
OLDDREP	Yes	--	--	--	None
PREFIX	Yes	Yes	Yes	Yes	EYU
SCOPE	Yes	Yes	Yes	Yes	ALL
SELECT	Yes	Yes	Yes	Yes	None
SMPWORK	Yes	Yes	--	--	SYSDA
SYSIDNT	Yes	--	--	--	None
TEMPLIB	Yes	Yes	Yes	Yes	sysprocdsn
TIMEZONE	Yes	--	--	--	None
TZONE	Yes	Yes	--	--	TZONE
UTILITIES	Yes	Yes	--	--	ASMA90 IEWL GIMSMP
WORKUNIT	Yes	Yes	--	--	SYSDA

The EYUINST EXEC parameters are:

BLKU blocksize

Indicates the block size to be used when allocating data sets that have an UNDEFINED record length.

The default is 6144.

CINDEXnnn library_prefix

Where nnn represents a CICS/ESA release

(Required.) The value of nnn must correspond to the release level specified for the CRELEASE parameter. That is:

- CINDEX410 library_prefix specifies the high-level indexes assigned to the CICS/ESA 4.1 libraries.
- CINDEX510 library_prefix specifies the high-level indexes assigned to the CICS TS for OS/390 Release 1 libraries.
- CINDEX520 library_prefix specifies the high-level indexes assigned to the CICS TS for OS/390 Release 2 libraries.
- CINDEX530 library_prefix specifies the high-level indexes assigned to the CICS TS for OS/390 Release 3 libraries.

The index value must not exceed 26 characters in length, and the leading character must be alphabetic. If you specify more than one level of index, the names must be separated by a period (as in `CINDEX CICS.TEST`) The index is used for the following data sets:

cindex.SDFHAUTH
cindex.SDFHLOAD

One or more CINDEXnnn parameters must be specified as required by the CRELEASE parameter values.

No default is assumed.

CMASNAME name

(Required when you specify CMAS with the ENVIRONMENT parameter.)

For POST, identifies a 1- to 8-character name that is to be assigned to a CMAS.

For STARTER, designates the Starter Set environment to be created so that the appropriate subset of members are selected from the library you identify via the TEMPLIB parameter.

The name of a CMAS must be unique within the CICSPlex SM environment. It should not be the same as the name of another CMAS, a CICSplex, a CICS system, or a CICS system group.

EYUCMS1A

Indicates that all of the Starter Set jobs associated with System A are to be created.

EYUCMS1B

Indicates that all of the Starter Set jobs associated with System B are to be created.

No default is assumed.

CRELEASE value1 value2 value3 value4 value5

Identifies the CICS release level for each CICS region referenced by this run of EYUINST. From one to five values may be defined.

When SCOPE=STARTER, this identifies the CICS release level for each CICS region installed for one of the three MVS/ESA images associated with the Starter Set. When the SCOPE parameter is not equal to STARTER, only the first value is used. Valid values are 4.1.0, 5.1.0, 5.2.0, and 5.3.0.

The default is 5.3.0 for all five regions.

Table 44 shows the Starter Set CICS region that is assigned the values entered for the CRELEASE parameter. The EYUINST EXEC must be run three times in order to edit the Starter Set members for the three MVS images. For example, when the EYUINST EXEC is run to edit the Starter Set members for System B, the second value entered on the CRELEASE parameter determines the CICS release level assigned to the MAS1B CICS region.

Table 44. Starter Set CICS regions assigned values by the CRELEASE parameter

MVS Image	CRELEASE value for each CICS region				
	5.3.0	**5.3.0**	**5.3.0**	**5.3.0**	**5.3.0**
System A	CMS1A	MAS1A	MAS2A	MAS3A	MAS4A
System B	CMS1B	MAS1B	MAS2B	MAS3B	MAS4B
System C	MAS1C				

DEFVOL volume disktype

Defines the default disk on which the CICSPlex SM libraries are to reside if the appropriate parameter is not coded in the job used to run the EYUINST EXEC. For example, if you do not code the DISTVOL parameter, the CICSPlex SM distribution libraries will reside on the disk defined using the DEFVOL parameter.

volume
Is the volume serial identifier (volser) of the volume.

Use a period to specify the volser allocated in the SYSPROC DD statement of the job used to run the EYUINST EXEC.

disktype
Is the UNIT parameter of the volume.

Use a period to specify the UNIT parameter of the volume allocated in the SYSPROC DD statement.

IF DEFVOL is defined as SMS, then other statements including VOLUME and DISK values specified with a period, default also to SMS.

The defaults are the volser and unit specified with the SYSPROC DD statement.

DSINFO dsindex volume disktype

Defines details of the data sets to be created when you run either the post installation jobs or the Starter Set jobs.

dsindex

Is a high-level index that is to be assigned to all CICSPlex SM data sets defined by either the post-installation jobs or Starter Set jobs.

You can specify a multilevel index, where the leading character is alphabetic, each level does not exceed eight characters in length, and the total length of the data set name does not exceed 17 characters. If you specify more than one level of index, the names must be separated by a period (for example, `data.set.index`).

Use a period to specify the high level index associated with the INDEX parameter.

volume

Is the volser of the data sets to be created

Use a period to specify the volser associated with the DEFVOL parameter.

disktype
Is the UNIT parameter for the volume.

Use a period to specify the UNIT parameter associated with the DEFVOL parameter.

The defaults are the high-level index specified with the INDEX parameter and the volser and unit specified with the DEFVOL parameter.

ENVIRONMENT CMAS|MAS
(Required.) Identifies the type of environment that is to be supported in the MVS image into which CICSPlex SM is installed.

CMAS Indicates that the MVS image is to have one or more CMASs and MASs.

MAS Indicates that the MVS image is to have only one or more remote MASs, and no CMASs.

No default is assumed.

EYUIPRM dsname NEW|OLD
Defines details of the CICSPlex SM cross-system definitions repository.

dsname Is the data set name of the parameter repository.

Use a period to specify dsinfo.EYUIPRM, where dsinfo is the index specified with the DSINFO parameter.

NEW|OLD Indicates whether an existing parameter repository is to be used. With NEW, any existing file with the specified name is deleted and a new parameter repository is allocated. With OLD, an existing parameter repository is used.

The default is NEW.

The defaults are index.EYUIPRM NEW.

EYUSDEF dsname NEW|OLD
Defines details of the CICSPlex SM screen repository.

dsname Is the data set name of the screen repository.

Use a period to specify dsinfo.EYUSDEF, where dsinfo is the index specified with the DSINFO parameter.

NEW|OLD Indicates whether an existing screen repository is to be used. With NEW, any existing file with the specified name is deleted and a new screen repository is allocated. With OLD, an existing screen repository is used.

The default is NEW.

The defaults are index.EYUSDEF NEW.

GZONECSI cluster NEW|OLD volume disktype
Specifies details of the global zone CSI. Ensure that the values specified correspond to the values used for GZONECSI for DFHISTAR.

cluster Is the VSAM cluster name, minus the qualifier `.CSI`.

Use a period to specify index.GLOBAL, where index is the value associated with the INDEX parameter.

NEW|OLD
Specifies whether an existing global zone CSI is to be used. With NEW, any existing global zone CSI with the specified cluster name is deleted and a new global zone CSI is allocated. With OLD, an existing global zone CSI is used.

Use a period to specify OLD.

volume
Is the volser identifier for the volume on which the global zone CSI is to be allocated.

Use a period to specify the volser associated with the SMPVOL parameter.

disktype
Is the UNIT parameter for the volume.

Use a period to specify the UNIT parameter associated with the SMPVOL parameter.

The disposition, volume, and unit values are ignored when the SCOPE is POST.

INDEX library_prefix
Assigns a high-level index to the CICSPlex SM distribution, target and SMP/E libraries.

The index value must not exceed 26 characters in length, and the leading character must be alphabetic. If you specify more than one level of index, the names must be separated by a period (as in INDEX CICSTS13.CPSM.LEVEL2).

The default is the data set name, without the lowest level qualifier, specified with the SYSPROC DD statement in the EYUISTAR job.

JOB accounting_information
Specifies the JOB statement and JES information that you want substituted into the jobs generated by the job used to run the EYUINST EXEC. To do this, edit the sample JOB statement in the job used to run the EYUINST EXEC to specify the appropriate information, as in:

```
JOB       //XXXXXXXX JOB 1,userid,MSGCLASS=A,MSGLEVEL=(1,1),
JOB       //         CLASS=A,NOTIFY=userid
JOB       /*JOBPARM SYSAFF=node1,LINES=99
JOB       /*ROUTE PRINT node2.userid
```

Normal JCL rules for coding JOB statements apply to the JOB parameter.

The default is //XXXXXXXX JOB.

The job name is ignored. The name is the input member name after it is altered by the PREFIX parameter.

LIB library_name
Specifies the 1- to 44-character name of the library to which the customized members generated by the EYUISTAR program are to be added.

The default is the data set name specified with the SYSPROC DD statement in the job used to run the EYUINST EXEC, where the lowest level qualifier is replaced with XEYUINST, as in CICSTS13.CPSM.XEYUINST. (If necessary, the job used to run the EYUINST EXEC creates the library specified on the LIB parameter.)

OLDDREP dsname
Identifies an existing data repository that is being used by a previous release of CICSPlex SM. The records in the existing data repository are migrated to a new data repository for CICS TS Release 3. The existing data repository is not modified.

dsname
Is the VSAM cluster name of the existing data repository.

The new CICS TS Release 3 data repository will have the name:

```
dsinfo.EYUDREP.cmasname
```

where:

dsinfo Is the index specified with the DSINFO parameter.

cmasname Is the name specified with the CMASNAME parameter.

Use a period to have an empty data repository created for CICS TS Release 3.

PREFIX prefix
Defines the 1- to 7-character prefix that is to be added to the jobs generated by the job used to run the EYUINST EXEC. This prefix overwrites up to seven characters of the job name. For example, `PREFIX XYZ` changes the name of the job EYUDEFDS to XYZDEFDS.

The default is EYU.

SCOPE POST|STARTER
Indicates which group of jobs you want to generate. Specify:

POST Generates only the post-installation jobs.

STARTER Generates only the Starter Set jobs.

The SELECT parameter overrides the SCOPE parameter; that is, if you use both SCOPE and SELECT in the job used to run the EYUINST EXEC, only the job identified by SELECT is generated.

The default is ALL.

SELECT jobname1 [newname1]
Identifies the member containing the post-installation or Starter Set job you want to generate. To generate multiple jobs, specify a separate SELECT parameter for each.

jobname Is the name of the member containing the job to be generated.

newname Is a new 1- to 8-character name that is to be assigned to the member containing the job.

The SELECT parameter overrides the SCOPE parameter; that is, if you use both SCOPE and SELECT in the job used to run the EYUINST EXEC, only the job identified by SELECT is generated.

No default is assumed.

SYSIDNT value
(Required when you specify CMAS with the ENVIRONMENT parameter.)

Specifies the 4-character system identifier used with the CICS/ESA system initialization table (SIT) parameter SYSIDNT for the CMAS. This value is assigned to the data repository created by the EYUDEFDS post-installation job.

If you are setting up more than one CMAS, you must create a separate data repository for each CMAS.

No default is assumed.

TEMPLIB library_name
Identifies the 1- to 44-character name of the library containing the input members to be edited, when SCOPE is set to:

- POST - this is the name of the library from which the post-installation skeleton jobs can be obtained. You should specify CICSTS13.CPSM.SEYUINST.
- STARTER - this is the name of the library from which the Starter Set skeleton jobs can be obtained. You should specify CICSTS13.CPSM.SEYUJCL.

Using the suggested SMP/E target data sets of CICSTS13.CPSM.SEYUINST or CICSTS13.CPSM.SEYUJCL ensure that subsequent runs of the job used to run the EYUINST EXEC will use the updated version of the input members after maintenance is applied.

The default is the data set name specified with the SYSPROC DD statement in the job used to run the EYUINST EXEC.

TIMEZONE code
Required when you specify CMAS with the ENVIRONMENT parameter.

Specifies the time zone assigned to the data repository initialized by post-installation job EYUDEFDS for use by the CMAS named using the CMASNAME parameter.

For additional information about how CICSPlex SM uses the time zone codes, see the *CICSPlex SM Administration*.

TZONE zonename
Specifies the name of the target zone to be used by SMP/E. This name must be unique to the target zone. It must not be longer than seven characters and the leading character must be alphabetic.

Use the same name as that specified for TZONE for DFHISTAR.

The default is TZONE.

UTILITIES asmprog lkedprog smpeprog
Specifies the names of the utility programs to be used when installing CICSPlex SM and programs that it uses.

asmprog Is the program name of the assembler.

Use a period to specify ASMA90.

lkedprog Is the program name of the linkage editor.

Use a period to specify IEWL.

smpeprog Is the program name of the SMP/E program.

Use a period to specify GIMSMP.

The defaults are ASMA90 IEWL GIMSMP.

WORKUNIT
Specifies the UNIT parameter for the disk or disks on which work data sets are stored.

The default is SYSDA.

Sample JCL execution considerations

After you have edited the EYUISTAR or EYUISTRT job, submit the job.

The job log produced by the EYUINST EXEC lists the parameter values used for the job.

Should the EYUINST EXEC end with a return code of 04, review the warning message to ensure that the job ran as you intended.

When the EYUINST EXEC ends with a return code of 08 or 12, the skeleton jobs are not tailored or copied. To resolve the cause of either of these errors, examine the output job log, correct the problem, and submit the EYUINST EXEC again.

The output from the EYUINST EXEC depends on the ENVIRONMENT and SCOPE you set, and consists of the customized jobs identified in Table 12 on page 209. These jobs are added to the library used to run the EYUINST EXEC.

Chapter 44. CICSPlex SM system parameters

This appendix describes the system parameters that you can use to identify or alter CICSPlex SM attributes.

These parameters are specified by means of an extrapartition transient data queue. The transient data queue name is COPR. The parameters may be assigned to a DD * file, sequential data set or a partitioned data set member. The DD name for the extrapartition transient data queue is EYUPARM.

The system parameters are coded as 80-byte records. Multiple system parameters may be specified on a single record as long as they are separated by commas and do not exceed a total of 71 characters in length. The format of the system parameters is:

```
keyword(v)
```

where:

keyword
: is the name of a CICSPlex SM system parameter.

v
: is an alphanumeric data value that may be specified with the system parameter.

Table 45 on page 404 identifies the CICSPlex SM parameters used in the CMAS and MAS and indicates whether these parameters are required or optional.

For CMASs and CICS/ESA and CICS Transaction Server for OS/390 MASs, members of the CICSTS13.CPSM.SEYUPARM library containing samples of these parameters are:

EYUCMS0P
: CMAS parameters

EYULMS0P
: Local MAS parameters

EYURMS0P
: Remote MAS parameters

For CICS/VSE 2.3 remote MASs, edit the EYUC23P3.A member of sublibrary 0811IX. For CICS Transaction Server for VSE/ESA Release 1 remote MASs, edit the EYUC41P3.A member of 0811IX.

Note: Before using these members to start a CMAS or MAS, remove the comments from the samples and supply the appropriate values.

Table 45. CICSPlex SM parameters used in CMAS and MAS

APARS
PQ42628 added APISIGNMSG

PQ38708 added BASLOGMSG

Parameter	CMAS	Local MAS	Remote MAS	Default
APISIGNMSG	Optional	n/a	n/a	YES
BASLOGMSG	n/a	Optional	n/a	NO
CASNAME	Required	n/a	n/a	
CICSPLEX	n/a	Required	Required	
CMASSYSID	n/a	Optional	Required	
COIRTASKPRI	n/a	Optional	Optional n/a for CICS for OS/2	200
DFLTUSER	n/a	n/a	n/a for CICS/ESA Required for CICS/VSE	
JRNLDEFCH	Optional	n/a	n/a	NO
JRNLOPACT	Optional	n/a	n/a	NO
JRNLRTAEV	Optional	n/a	n/a	NO
MASINITTIME	n/a	Optional	n/a	10
MASPLTWAIT	n/a	Optional	n/a	NO
MSGCASE	Optional	Optional	Optional	MIXED
NAME	Optional	Optional	Optional	
RESSTATUS	Optional	n/a	n/a	NOTIFY
SEC	Optional	n/a	n/a	NO
SECPRFX	n/a	n/a	n/a	NO
SPOOLCLASS	Optional	Optional	Optional	P
STALLDBCTSK	n/a	Optional	Optional	4
STALLDBCCNT	n/a	Optional	Optional	4
STALLDB2TSK	n/a	Optional	Optional	4
STALLDB2CNT	n/a	Optional	Optional	4
STALLDLITSK	n/a	Optional	Optional	4
STALLDLICNT	n/a	Optional	Optional	4
STALLDSPTSK	n/a	Optional	Optional	4
STALLDSPCNT	n/a	Optional	Optional	2
STALLENQTSK	n/a	Optional	Optional	4
STALLENQCNT	n/a	Optional	Optional	4
STALLFLETSK	n/a	Optional	Optional	3
STALLFLECNT	n/a	Optional	Optional	4
STALLLCKTSK	n/a	Optional	Optional	4
STALLLCKCNT	n/a	Optional	Optional	4
STALLITVTSK	n/a	Optional	Optional	0
STALLITVCNT	n/a	Optional	Optional	0
STALLJNLTSK	n/a	Optional	Optional	1
STALLJNLCNT	n/a	Optional	Optional	3
STALLPGMTSK	n/a	Optional	Optional	2
STALLPGMCNT	n/a	Optional	Optional	4

Table 45. CICSPlex SM parameters used in CMAS and MAS (continued)

Parameter	CMAS	Local MAS	Remote MAS	Default
STALLSESTSK	n/a	Optional	Optional	2
STALLSESCNT	n/a	Optional	Optional	3
STALLSTGTSK	n/a	Optional	Optional	1
STALLSTGCNT	n/a	Optional	Optional	2
STALLTDQTSK	n/a	Optional	Optional	3
STALLTDQCNT	n/a	Optional	Optional	4
STALLTRMTSK	n/a	Optional	Optional	0
STALLTRMCNT	n/a	Optional	Optional	0
STALLTSKTSK	n/a	Optional	Optional	0
STALLTSKCNT	n/a	Optional	Optional	0
STALLTSQTSK	n/a	Optional	Optional	3
STALLTSQCNT	n/a	Optional	Optional	4
STALLXMGTSK	n/a	Optional	Optional	4
STALLXMGCNT	n/a	Optional	Optional	2
STALLXRFTSK	n/a	Optional	Optional	1
STALLXRFCNT	n/a	Optional	Optional	2
Note: The STALLxxxxxx parameters are available only for CICS/ESA.				
SUPPRESSCMF	n/a	Optional	n/a	NO
TERMID			Required for CICS/VSE	
XCMD	n/a	n/a	n/a for CICS/ESA or CICS TS Required for CICS/VSE	
XDCT	n/a	n/a	n/a for CICS/ESA or CICS TS Required for CICS/VSE	
XFCT	n/a	n/a	n/a for CICS/ESA or CICS TS Required for CICS/VSE	
XJCT	n/a	n/a	n/a for CICS/ESA or CICS TS Required for CICS/VSE	
XPCT	n/a	n/a	n/a for CICS/ESA or CICS TS Required for CICS/VSE	
XPPT	n/a	n/a	n/a for CICS/ESA or CICS TS Required for CICS/VSE	

APISIGNMSG(YES | NO)
Indicate whether the successful signon / signoff message, EYUXD0807I, is to be issued when a CICSPlex SM API user CONNECTs to, or DISCONNECTs (TERMINATEs) from, the CICSPlex SM API.

BASLOGMSG(YES | NO)
Indicate whether CICS resources defined via BAS should have their definitions logged to the CSDL Transient Data Queue of the MAS when they are installed.

If the CICS version used by the MAS does not support the LOGMESSAGE option of the EXEC CICS CREATE command, BASLOGMSG will have no effect.

CASNAME(name)
Identify the 4-character name of the CAS subsystem with which the CMAS is to be associated.

This name must match the CAS subsystem ID identified in the CAS startup JCL and also specified with the SSID parameter of the START command.

CICSPLEX(name)
Identify the 1- to 8-character name of the CICSplex to which the local or remote MAS is to be associated.

The name of a CICSplex should not be the same as the name of a CMAS, a CICS system, or a CICS system group.

CMASSYSID(name)
Identify the 1- to 4-character name of the CMAS to which a remote MAS is to be attached.

You may also use this parameter when a local MAS is to attach to a specific CMAS in the same MVS image.

COIRTASKPRI(value | <u>200</u>)
Specify the task priority of COIR, in the range 0 to 255. COIR is a CICSPlex SM task that can be used to process evaluation definitions (EVALDEFs) independent of the MAS.

For each EVALDEF that requests a separate task, an instance of COIR is started at the specified priority. If you specify a priority of 0, no separate COIR tasks are started; all EVALDEFs are processed by the MAS long running task (LRT).

DFLTUSER(name)
For a CICS/VSE remote MAS only. Identify the 1- to 8-character user ID that is to be used for security checking when a user is not defined to the external security manager (ESM)

JRNLDEFCH(YES | <u>NO</u>)
Causes a journal record to be written for each data repository add, delete, and update operation.

JRNLOPACT(YES | <u>NO</u>)
Causes a journal record to be written for each successful action command issued against a MAS or CMAS.

JRNLRTAEV(YES | <u>NO</u>)
Causes a journal record to be written each time an real-time analysis (RTA) event is generated.

MASINITTIME(value | <u>10</u>)
For a local MAS running CICS/ESA 4.1 or later only. If you specify MASPLTWAIT(YES), specify the number of minutes, from 5 to 59, that CICSPlex SM should wait for the MAS to initialize. The MASINITTIME value is the maximum length of time PLT processing can be suspended for MAS initialization.

MASPLTWAIT(YES | <u>NO</u>)
For a local MAS running CICS/ESA 4.1 or later only. Indicate whether

CICSPlex SM should suspend all PLT processing until the MAS is fully initialized and connected to the CMAS.

If you are using Business Application Services (BAS) to automatically install resources at CICS system initialization (CICS/ESA 4.1 or later), you should specify MASPLTWAIT(YES) for that system. When you specify YES, no CICS applications can be started and no users can sign on to the system until CICSPlex SM completes the installation of resources and resumes PLT processing.

Note: If you are using Business Application Services (BAS) to automatically install a DB2 connection, and you want the connection to be activated during CICS startup, see the information on page 259

MSGCASE(MIXED | UPPER)
Indicate whether the following types of output should be displayed in mixed case or upper case:
- Messages issued by Message Services to the console, joblog, and EYULOG
- Batched repository-update facility output
- Diagnostic output from the CODB, COD0, and COLU transactions.

You can specify:

MIXED Mixed case text is displayed as is.

If you specify MIXED, output may be displayed incorrectly on Katakana display terminals, where lower case characters are displayed as Katakana symbols.

UPPER Mixed case text is displayed in upper case only.

NAME(name)
Identify the 1- to 8-character name of the CMAS, local MAS, or remote MAS that is to be started. If you do not specify this parameter, the default is the VTAM application ID.

RESSTATUS(NOTIFY | MSG | CONMSG)
Indicate how the CMAS is to respond when a CICS resource that is being reported to the NetView Resource Object Data Manager (RODM) facility has a change in operational state:

NOTIFY Issues event notifications in the form of ERESSTAT resource table records.

These event notifications can be monitored by using the LISTEN command of the CICSPlex SM API. For more information, see the *CICSPlex SM Application Programming Guide* manual.

MSG Writes external messages to EYULOG.

If you specify MSG, event notifications are produced in addition to the messages.

CONMSG Writes external messages to the job log, console, and EYULOG.

If you specify CONMSG, event notifications are produced in addition to the messages.

Note: Use this option with care. It could cause a large number of messages to be sent to the console.

SEC(YES | NO)
Indicate whether the CMAS is to perform security checking of CICSPlex SM requests directed to the CICS systems it manages.

If any of the CICS systems that a CMAS manages use the CICS/ESA system initialization table (SIT) parameter SEC=YES, then that CMAS must include the parameter SEC(YES) in EYUPARM. If you do not activate CICSPlex SM security in the CMAS, a connection cannot be established to a CICS system that specifies SEC=YES. If a connection is attempted, the following message is issued to the console, the CMAS job log, and the CMAS EYULOG:

```
EYUCR0007E  Security mismatch between CMAS cmasname and
            MAS masname. Connection terminating.
```

SECPRFX(YES | NO)
Indicate whether the user ID is used as the prefix that is added to the beginning of all resource names to distinguish this CICS system from other CICS systems.

SPOOLCLASS(class | P)
Specify a SYSOUT class value, from A to Z, that identifies where CICSPlex SM spool output is to be sent.

Spool output can be generated by these CICSPlex SM functions:

- The online utility transaction (COLU)
- The PRINT and CAPTURE commands of the interactive debugging transaction (COD0).

STALLxxxTSK
Where xxx represents a CICSPlex SM suspend class. The values for xxx are shown in Table 46.

Identify the minimum number of concurrent tasks required to enter the suspend class. The value may be between 0 and 999. The default value for each task is shown in Table 45 on page 404.

STALLxxxCNT
Where xxx represents a CICSPlex SM suspend class. The values for xxx are shown in Table 46.

Identify the number of consecutive occurrences of an entry in the suspend class required for CICSPlex SM to report a STALL. The value may be between 0 and 999. The default value for each task is shown in Table 45 on page 404.

Table 46. CICSPlex SM Suspend Classes

Suspend Class	CICS Suspend Types	Value in STALLxxx Parameters	Text in EYUPNxxxx Messages
DBCTL	DBCTL	DBC	DBCTRL
DB2			
DLI	DLI	DLI	DLI
Dispatcher	DS_HELD	DSP	DISP
Enqueue	KC_ENQ	ENQ	ENQUEUE
File	FCxxxxxx	FLE	FILE
Interval Control	ICxxxxxx	ITV	INTV
Journal	JASUBTAS JCxxxxxx	JNL	JOURNAL

Table 46. CICSPlex SM Suspend Classes (continued)

Suspend Class	CICS Suspend Types	Value in STALLxxx Parameters	Text in EYUPNxxxx Messages
Lock Manager	LMQUEUE	LCK	LOCK
Program Loader	PROGRAM	PGM	PROGRAM
Allocate Session	ALLOCATE IRLINK	SES	ALLCSESS
Storage	xDSA ExDSA	STG	STORAGE
Transient Data	MBCB_xxx MRCB_xxx TDEPLOCK TDIPLOCK TD_INIT	TDQ	TSDATA
Terminal Control	ZCxxxxxx	TRM	TERM
Task Wait	EKCWAIT KCCOMPAT	TSK	TASKWAIT
Temporary Storage	TSxxxxxx	TSQ	TEMPSTOR
Transaction Manager	XM_HELD	XMG	TRANSACT
XRF	XRxxxxxx	XRF	XRF
Note: EYUPNxxxx messages are issued when a stall condition occurs that generates a real-time analysis system availability monitoring (SAM) event.			

SUPPRESSCMF(YES | NO)
For a local MAS, indicates whether the records collected by the CICS Monitor Facility are written to SMF.

TERMID(name)
(Required for CICS/VSE 2.3.) Identifies the 1- to 4-character id of the terminal that is the target for a started CEMT task when CICSPlex SM issues a request to shutdown a CICS/VSE 2.3 system.

The starter set-supplied name id EYUC.

XCMD(YES | NO | 1- 7-character RACF class name | NONE)
Indicates whether or not EXEC CICS system commands are to be included in security checking.

For RACF, you can specify a class name, which has the same effect as specifying YES and substitutes the specified class name in place of the default class name.

If you do not want the EXEC CICS system commands included in security checking, specify NONE.

XDCT(YES | NO | 1- 7-character RACF class name | NONE)
Indicates whether or not destination control entries are to be included in security checking.

For RACF, you can specify a class name, which has the same effect as specifying YES and substitutes the specified class name in place of the default class name.

If you do not want the destination control entries included in security checking, specify NONE.

XFCT(YES | NO | 1- 7-character RACF class name | NONE)
Indicates whether or not file control entries are to be included in security checking.

For RACF, you can specify a class name, which has the same effect as specifying YES and substitutes the specified class name in place of the default class name.

If you do not want the file control entries included in security checking, specify NONE.

XJCT(YES | NO | 1- 7-character RACF class name | NONE)
Indicates whether or not journal entries are to be included in security checking.

For RACF, you can specify a class name, which has the same effect as specifying YES and substitutes the specified class name in place of the default class name.

If you do not want the journal entries included in security checking, specify NONE.

XPCT(YES | NO | 1- 7-character RACF class name | NONE)
Indicates whether or not EXEC-started transactions are to be included in security checking.

For RACF, you can specify a class name, which has the same effect as specifying YES and substitutes the specified class name in place of the default class name.

If you do not want the EXEC-started transactions included in security checking, specify NONE.

XPPT(YES | NO | 1- 7-character RACF class name | NONE)
Indicates whether or not program entries are to be included in security checking.

For RACF, you can specify a class name, which has the same effect as specifying YES and substitutes the specified class name in place of the default class name.

If you do not want the program entries included in security checking, specify NONE.

Chapter 45. CMAS journaling

A CICSPlex SM address space (CMAS) is capable of producing CICS journal records to track a variety of activities in the CICSplex. These journal records provide an audit trail that can aid in the recovery of data or the reconstruction of events that affected the CICSplex. A journal record can be written when:

- A definition in the data repository is added, removed, or updated
- An operations action is issued against a MAS
- A real-time analysis event is generated.

For example, when a CMAS serves as the temporary maintenance point, it temporarily stores in its data repository any definitions that you add, update, or remove. When the maintenance point CMAS resumes operation, the temporary information is removed. You can obtain journal records of what is added to and deleted from the data repository for the temporary maintenance point.

To request one or more of the record types, specify the appropriate CICSPlex SM system parameters in the startup JCL of a CMAS:

JRNLDEFCH(YES) For data repository definition changes

JRNLOPACT(YES) For operations actions

JRNLRTAEV(YES) For real-time analysis events

For more information on these parameters, see "Chapter 44. CICSPlex SM system parameters" on page 403.

For all managed CICS systems except CICS Transaction Server for OS/390, in addition to specifying system parameters for journaling, you must have a DFHJCT entry for journal number 25 (DFHJ25) defined in the CMAS. An entry for DFHJ25 is added to the JCT as part of the CMAS setup process. If you are using a different DFHJCT, refer to the following copy book member for the required JCT entry for DFHJ25:

```
CICSTS13.CPSM.SEYUSAMP(EYU$JCT0)
```

For systems running CICS Transaction Server for OS/390, if you do not want to use the CICSPlex SM default log stream name of EYUJRNL, you must define a JOURNALMODEL resource in the CSD that has the desired log stream name. The distributed CMAS resource definition group and group list are protected from modification. Thus, to make the JOURNALMODEL resource definition available during CMAS initialization, you must create a new CMAS group list that includes the group containing the JOURNALMODEL resource definition. To add the JOURNALMODEL resource to the CSD, either edit and run the JCL contained in sample member CICSTS13.CPSM.SEYUSAMP(EYUJRNE$) to execute batch utility DFHCSDUP or use the CICS CEDA transaction. Performing either of these steps does the following:

- Appends the protected EYU140L0 group list to a new unprotected group list.
- Defines the desired JOURNALMODEL for EYUJRNL in an unprotected group.
- Adds the unprotected group to the new, unprotected group list.

You must also update the CICS system initialization (SIT) parameters used to start the CMAS by setting the GRPLIST parameter to reference the new group list.

The journal records produced by a CMAS contain data mapped by a DSECT called EYUBCPJR. Each record consists of a standard prefix and a variable data area. The contents of the data area are specific to the type of journal record being written.

Figure 74 shows the format of EYUBCPJR.

```
*----------------------------------------------------------------------*
*                 EYUBCPJR DSECT Prefix                                *
*----------------------------------------------------------------------*
EYUBCPJR       DSECT
EYUBCPJR       DS   0D

CPJR_PREFIX     DS   0D                    Prefix of record
CPJR_CMASNAME   DS   CL8                   CMAS Name which produced record
CPJR_CONTEXT    DS   CL8                   Plex Name
CPJR_SCOPE      DS   CL8                   Scope Name
CPJR_USER       DS   CL8                   User Name
CPJR_STCK       DS   D                     Store clock
CPJR_VERSION    DS   H                     Current record version
CPJR_VER_ZERO   EQU  0000                  Version
CPJR_TYPE       DS   H                     Record type
CPJR_TYPE_DEFCH EQU  0001                  Definition Add/Change/Delete
CPJR_TYPE_RTAEV EQU  0002                  Rta Event
CPJR_TYPE_OPACT EQU  0003                  Operation action
CPJR_LENGTH     DS   F                     Length of entire record plus  x
                                           prefix area
                DS   FL8                   Available for use
CPJR_LEN        EQU  *-CPJR_PREFIX         Length of Prefix area
CPJR_DATA_AREA  DS   0H                    Data area

*----------------------------------------------------------------------*
*                 Data record for RTA Events                           *
*----------------------------------------------------------------------*

CPJR_RTA_DATA     DS   0H
CPJR_RTA_TYPE     DS   X                     Record type
CPJR_RTATYPE_CRT  EQU  0001                   Event Created
CPJR_RTATYPE_REM  EQU  0002                   Event Removed
CPJR_RTATYPE_UPD  EQU  0003                   Event Updated
CPJR_RTATYPE_RES  EQU  0004                   Event Resolved
CPJR_RTA_GTYPE    DS   X                     Generated by type
CPJR_RTAGTYPE_SAM EQU  0001                   Event produced by Sam
CPJR_RTAGTYPE_APM EQU  0002                   Event produced by Apm
CPJR_RTAGTYPE_MRM EQU  0003                   Event produced by Mrm
CPJR_RTA_EVENT    DS   CL8                   Event Name
CPJR_RTA_MSGSTRT  DS   CL30                  External Entry Message
CPJR_RTA_MSGEND   DS   CL30                  External Exit Message
CPJR_RTA_EVENTXT  DS   CL30                  Event Text
CPJR_RTA_SEVERITY DS   CL3                   Severity Level
CPJR_RTA_DATA_L   EQU *-CPJR_RTA_DATA        Length of the record
```

Figure 74. The EYUBCPJR DSECT (Part 1 of 3)

```
*-------------------------------------------------------------------*
*               Data record for Definition changes                  *
*-------------------------------------------------------------------*

CPJR_DEF_DATA    DS   0H
CPJR_DEF_TYPE    DS   X                    Record type
CPJR_DEFTYPE_ADD EQU  0001                  Definition Added
CPJR_DEFTYPE_DEL EQU  0002                  Definition Deleted
CPJR_DEFTYPE_UPD EQU  0003                  Definition Update
                 DS   X                    Reserved
CPJR_DEF_MAJORNM DS   CL8                  Major Name
CPJR_DEF_MAJORID DS   CL8                  ADMIN Restype
CPJR_DEF_MINORNM DS   CL8                  Minor Name
CPJR_DEF_MINORID DS   CL8                  ADMIN Restype
CPJR_DEF_SYSID   DS   CL4                  System Id where change       x
                                           was originated
CPJR_DEF_DATA_L  EQU *-CPJR_DEF_DATA       Length of the record

*-------------------------------------------------------------------*
*               Data record for Operation commands                  *
*-------------------------------------------------------------------*

CPJR_OPS_DATA    DS   0H
CPJR_OPS_LENGTH  DS   H                    Length of fixed and variable x
                                            portion of data area
CPJR_OPS_NUMFLDS DS   H                    Number of fields
CPJR_OPSTYPE     DS   H                    Type of command
CPJR_OPSTYPE_INQ          EQU  0001         Inquire on resource(s)
CPJR_OPSTYPE_SET          EQU  0002         Modification of resource(s)
CPJR_OPSTYPE_REM          EQU  0003         Removal of resource(s)
CPJR_OPSTYPE_DSC          EQU  0004         Discard of resource(s)
CPJR_OPSTYPE_INS          EQU  0005         Install of resource(s)
CPJR_OPSTYPE_INI          EQU  0006         Init of resource(s)
CPJR_OPSTYPE_SHU          EQU  0007         Shutdown of CICS System
CPJR_OPSTYPE_SNP          EQU  0008         Snap of CICS System
CPJR_OPSTYPE_ACQUIRE      EQU  0009         Action against resource
CPJR_OPSTYPE_ACTIVATE     EQU  0010         Action against resource
CPJR_OPSTYPE_ACTIVE       EQU  0011         Action against resource
CPJR_OPSTYPE_ADD          EQU  0012         Action against resource
CPJR_OPSTYPE_ADVANCE      EQU  0013         Action against resource
CPJR_OPSTYPE_APINSTALL    EQU  0014         Action against resource
CPJR_OPSTYPE_ASSIGN       EQU  0015         Action against resource
CPJR_OPSTYPE_CLOSE        EQU  0016         Action against resource
CPJR_OPSTYPE_DEACTIVATE   EQU  0017         Action against resource
CPJR_OPSTYPE_DELETE       EQU  0018         Action against resource
CPJR_OPSTYPE_DISABLE      EQU  0019         Action against resource
CPJR_OPSTYPE_DORMANT      EQU  0020         Action against resource
CPJR_OPSTYPE_ENABLE       EQU  0021         Action against resource
CPJR_OPSTYPE_FORCE        EQU  0022         Action against resource
CPJR_OPSTYPE_INSERVICE    EQU  0023         Action against resource
CPJR_OPSTYPE_LEAVE        EQU  0024         Action against resource
CPJR_OPSTYPE_NEWCOPY      EQU  0025         Action against resource
CPJR_OPSTYPE_NOTPENDING   EQU  0026         Action against resource
CPJR_OPSTYPE_OPEN         EQU  0027         Action against resource
```

Figure 74. The EYUBCPJR DSECT (Part 2 of 3)

```
CPJR_OPSTYPE_OUTSERVICE   EQU  0028        Action against resource
CPJR_OPSTYPE_PHASEIN      EQU  0029        Action against resource
CPJR_OPSTYPE_PURGE        EQU  0030        Action against resource
CPJR_OPSTYPE_QUIESCE      EQU  0031        Action against resource
CPJR_OPSTYPE_RELEASE      EQU  0032        Action against resource
CPJR_OPSTYPE_REMOVE       EQU  0033        Action against resource
CPJR_OPSTYPE_RESET        EQU  0034        Action against resource
CPJR_OPSTYPE_RESETTIME    EQU  0035        Action against resource
CPJR_OPSTYPE_SECREBUILD   EQU  0036        Action against resource
CPJR_OPSTYPE_STATISTICS   EQU  0037        Action against resource
CPJR_OPSTYPE_STOP         EQU  0038        Action against resource
CPJR_OPSTYPE_UNASSIGN     EQU  0039        Action against resource
CPJR_RESNAME     DS   CL8                 Resource Name
CPJR_OPS_STRTENT DS   0C                  Start of data entries
CPJR_OPS_DATA_L  EQU *-CPJR_OPS_DATA      Length of the record
*
CPJR_OPS_ENTRY   DS   0C
CPJR_OPS_FIELD   DS   CL12                Field Name
CPJR_OPS_DATALEN DS   X                   Length of the Data
CPJR_OPS_ENTLEN  DS   X                   Length of entire entry
CPJR_OPS_FLDDATA DS   0C                  Start of the Data
CPJR_OPS_ENT_L   EQU  *-CPJR_OPS_ENTRY    Fixed portion length
```

Figure 74. The EYUBCPJR DSECT (Part 3 of 3)

For information on writing a program to access and format CICS journal records, refer to the *CICS Customization Guide*.

Chapter 46. Preparing to use the IPCS tools

The interactive problem control system (IPCS) provides MVS users with an interactive facility for diagnosing software failures. You can use IPCS to format and analyze SDUMPs produced by CICSPlex SM or stand-alone dumps obtained while CICSPlex SM was active in the system being dumped. You can either view the dumps at your terminal or print them.

Note: The CICSPlex SM IPCS tools are available only for CASs, CMASs, or MASs running in an MVS image. These tools are not available for debugging problems in a CICS for OS/2 or CICS/VSE MAS.

CICSPlex SM provides two types of IPCS tools:

- A set of panels (driven by a corresponding set of CLISTs) that allow you to display:
  - The data in a coordinating address space (CAS) dump
  - The names and locations of control blocks and areas of a CAS dump
  - Subsystem information
  - Address space-related control blocks
  - Modules loaded by CICSPlex SM
  - Tasks created by CICSPlex SM
  - Storage subpools managed by CICSPlex SM
  - BBC LU 6.2 communication information
- A dump formatting routine that can be used with the VERBEXIT subcommand to format CMAS or MAS dumps

For more information about:

- IPCS, see the *MVS/ESA Interactive Problem Control System: User's Guide*.
- Using IPCS to format CICSPlex SM system dumps, see the *CICS/ESA Operations Guide*.
- Displaying and formatting dumps with IPCS, see the *CICSPlex SM Problem Determination* manual.

Before you can use the CICSPlex SM IPCS tools, you must make the preparations described in:

- "Updating BLSCECT"
- "Updating library allocations" on page 416
- "SDUMP options" on page 417.

Updating BLSCECT

IPCS provides an exit control table called BLSCECT; it normally resides in SYS1.PARMLIB. This table contains imbed statements to enable other products to supply exit control information. You must perform the following steps:

1. Update the BLSCECT table for either a MAS-only environment or for a CMAS environment.
   - When the EYUINST ENVIRONMENT parameter of MAS was used to install CICSPlex SM, then the following IMBED statement is required:

     ```
     IMBED MEMBER(EYUIPCSP) ENVIRONMENT(ALL)
     ```


- When the EYUINST ENVIRONMENT parameter of CMAS was used to install CICSPlex SM, then the following IMBED statements are required:

```
IMBED MEMBER(EYUIPCSP) ENVIRONMENT(ALL)
IMBED MEMBER(BBM3IPCS) ENVIRONMENT(ALL)
```

BBM3IPCS defines the CICSPlex SM main panel as CPSMSSDA, and adds an entry for the panel to the IPCS MVS component menu. EYUIPCSP identifies the CICSPlex SM formatting routine as EYU9D140 with a VERB name of CPSM140.

2. Make sure the required parameter member(s) can be found by your IPCS job by doing one of the following:
   - Copy the required parameter member(s) from the CICSTS13.CPSM.SEYUPARM library into the same library as BLSCECT (usually SYS1.PARMLIB).
   - Provide an IPCSPARM DD statement to specify the library that contains the IPCS control tables. For example, the DD statement for a batch TSO session might look like this:

```
//IPCSPARM DD  DSN=SYS1.PARMLIB,DISP=SHR        for BLSCECT
//         DD  DSN=CICSTS13.CPSM.SEYUPARM,DISP=SHR     for BBM3IPCS/EYUIPCSP
```

For more information about SYS1.PARMLIB library members related to IPCS, see the *MVS/ESA Interactive Problem Control System (IPCS): Customization* manual.

Updating library allocations

To update the library allocations, you must do the following:

- Update the CLIST or REXX EXEC that invokes IPCS at your enterprise to include the following data set allocations:

  ISPPLIB CICSTS13.CPSM.SEYUPLIB

  Contains panels that allow you to view data structures.

  SYSPROC CICSTS13.CPSM.SEYUCLIB

  Contains CLISTs that obtain information from a dump and display it. These CLISTs also create a set of IPCS symbol equates to help you locate data while browsing a dump outside of the panels.

  ISPMLIB CICSTS13.CPSM.SEYUMLIB

  Contains messages issued by the CLISTs.

  IPCSLIB CICSTS13.CPSM.SEYUAUTH

  Contains control block models used by the BBC LU 6.2 EXECs.

- Make sure that the EYU9D140 IPCS user exit routine is in a library in the linklist or a library that is accessed by the JOBLIB, STEPLIB, or TASKLIB option of the IPCS command, during IPCS session. To accomplish this, do one of the following:
  – Allocate CICSTS13.CPSM.SEYULOAD to the desired DD statement.
  – Copy CICSTS13.CPSM.SEYULOAD(EYU9D111) to an appropriate library.
  – Invoke IPCS, using the TASKLIB keyword to allocate CICSTS13.CPSM.SEYULOAD.

    For example, issue the TSO COMMAND:

```
IPCS NOPARM TASKLIB('CICSTS13.CPSM.SEYULOAD')
```

SDUMP options

Make sure the following SDUMP options are in effect at the time the dump is taken:

CSA Common service area

LPA Link pack area modules

LSQA Local system queue area

NUC Non-page-protected areas of the DAT-on nucleus

PSA Prefixed storage area for all processors

RGN Private area of address space being dumped

SQA System queue area

SUM Summary dump

SWA Scheduler work area

TRT GTF, system trace, and master trace data

Part 4. Appendixes

Appendix A. Disk space needed for CICS

This appendix gives information useful when planning DASD space for CICS. More comprehensive values are given in the *CICS Transaction Server for OS/390 Program Directory*. Check the values against those given in the *CICS Transaction Server for OS/390 Program Directory* and PSP bucket; if there are any differences, use the values in the *CICS Transaction Server for OS/390 Program Directory* or PSP bucket.

Table 47 gives the space (in cylinders) needed to install CICS from the distribution tape.

Table 48 lists the operations during which the DASD volumes are used.

Table 47. DASD storage requirements for CICS Transaction Server for OS/390 Release 3

Identification	**3380**	**3390**
hlq.TDFHINST	1	1
hlq.XDFHINST	1	1
Relfile data sets on SMPVOL	138	131
SMP/E non-VSAM data sets on SMPVOL	26	25
DISTVOL	117	112
TARGVOL	186	177
DZONE	11	11
TZONE	11	11
GZONE	11	11
Total during installation	500	362
Total after installation	413	347

Notes:

1. Allow up to 15% on the values given, for servicing requirements. Secondary allocations are 10% of the primary allocations.
2. The values listed against xZONE identifiers are for zones and their associated logs.

Table 48. When DASD volumes are used

DFHISTAR Volume Parameter	***Installing***	***Applying Service***	***Customiz-ing***	***Assembling Resource Tables***	***Running CICS***
SMPVOL	*	*	*	*	
DISTVOL	*	*	*		
TARGVOL	*	*	*	*	*
DZONE	*	*	*		
TZONE	*	*	*	*	
GZONE	*	*	*	*	

Using SMP/E

Always use SMP/E for the following tasks:

- Applying service
- Customizing CICS
- Assembling CICS tables

Applying service or customizing CICS: SMPVOL, DISTVOL, TARGVOL, DZONE, TZONE, and GZONE are needed whenever you apply service or customize your CICS programs.

SMPVOL and GZONE are needed whenever you apply service or customize your ***alternative*** libraries for use with XRF.

Assembling CICS tables: SMPVOL, TARGVOL, TZONE, and GZONE are needed whenever you assemble your CICS tables.

SMPVOL and GZONE are needed whenever you assemble CICS tables for an XRF alternate CICS region.

Running CICS: Only TARGVOL is needed to run CICS.

Appendix B. CICS modules eligible for the MVS link pack area

This topic provides information about the CICS modules that are required in the MVS link pack area, and other CICS modules that are eligible for the MVS link pack area. This information is intended to help you plan for and install CICS modules in the MVS link pack area, for the functions that your CICS regions use.

The following terms are used in this appendix:

Term	Meaning
MVS link pack area	The MVS link pack area generally.
LPA	The area of the MVS link pack area below the 16MB line.
ELPA	The area of the MVS link pack area above the 16MB line.

For further information about installing CICS modules into the MVS link pack area, and about controlling their use from the MVS link pack area, see “Default message-formatting initialization parameters” on page 21.

CICS modules required in the MVS link pack area

CICS modules that are required in the MVS link pack area are loaded into the *hlq*.SDFHLPA library when you install CICS. Details of these modules is given in Table 49 on page 427. These modules are not affected by any CICS parameters or options, and CICS does not use the standard MVS search order for them. For further information about these modules, see “The IEASYSxx MVS initialization member” on page 17.

CICS modules eligible for the MVS link pack area

Other CICS modules that are eligible for installation in the MVS link pack area are specified in the CICS-supplied USERMODs: DFH$UMOD (for base CICS modules). Details of these modules is given in Table 50 on page 427.

Information about modules eligible for the MVS link pack area

The following information is provided in Table 49 on page 427 and Table 50 on page 427. Some of the information applies only to the modules listed in Table 50.

Name The name of the module.

Description A brief description of the module. This gives some clues to the associated function, useful if the module does not have a controlling CICS option.

Library (Table 50 only.) The library in which the module is installed:

Library	DS name
AUTH	*hlq*.SDFHAUTH
LOAD	*hlq*.SDFHLOAD
LINK	SYS1.*hlq*.SDFHLINK

You can use the CICS-supplied usermods to move the modules from these libraries to the *hlq*.SDFHLPA library.

LPA/ELPA (Table 50 only.) In this column, the terms **LPA** and **ELPA** are used to indicate whether a module will be loaded into the part of the MVS link pack area that is below (LPA) or above (ELPA) the 16MB line.

Priority (Table 50 only.) A nominal "priority" to help you decide whether a module should be in the MVS link pack area and to choose between modules if your MVS link pack area is short on space.

Size The size of the module.

Option/Note Identifies one or more notes about the use of the module from the MVS link pack area and any associated CICS options to be specified for the function that uses the module.

Some of these information categories are described in more detail in the following sections.

Priority

The priority of the modules eligible for the LPA are as follows:

1. Must be in the MVS link pack area. Information about these modules, installed in the *hlq*.SDFHLPA library, is given in Table 49 on page 427.
2. Generally a good candidate for inclusion in the MVS link pack area. You should include these modules in the LPA to support the associated option.
3. A good candidate for inclusion in the MVS link pack area. You should include these modules in the MVS link pack area if you are a heavy user of the associated function.

Size

The module sizes were taken from the latest information available at the time of publishing, but may be different in your CICS environment depending on the options selected and if any PTFs applied affect the modules. The sizes are given here to help you plan the amount of storage that you need for the modules that you want to install in the MVS link pack area. You can get the actual sizes for these modules from a directory listing of the modules or from the module index provided at the back of a formatted SDUMP taken with the LPA=NO system initialization parameter specified.

Option/Note

This column

- identifies any CICS options associated with the use of the module from the MVS link pack area,
- or refers to a note in the following list for additional information,
- or both.

.

Notes:

1. The program is used from the MVS link pack area only if you set the USELPACOPY option of its program resource definition to YES.
2. The DFHAFMT program is used by ADD, DELETE, UPDATE, and INQUIRE commands for FILE resource definitions.

3. You must always install the latest service level of the CICS SVC module, DFHCSVC. You should install the DFHCSVC module into the MVS link pack area before you run the CICS installation verification procedures.

   You must define the DFHCSVC module in an IEASVCxx member of the SYS1.PARMLIB library, using SVCPARM statements. You select the required IEASVCxx member by coding the SVC parameter (SVC=xx) in a SYS1.PARMLIB member (IEASYSyy), which you use to IPL your MVS.

   You can run several CICS regions, at different release levels, in the same MVS image, with each region using its own version of the DFHCSVC module. However, if some of those regions use MRO, then all regions that use MRO must use the latest DFHCSVC module and the latest DFHIRP module.

   If you have some regions that are to use the DFHCSVC module, and you give the SVC a number different from the SVC number used by the regions, you must generate a new version of the DFHCRC program on the regions.

   For information about defining and using the DFHCSVC module, see the *CICS Transaction Server for OS/390 Program Directory*.
4. If your batch region is sharing the database with a CICS/OS/VS 1.7 region or a CICS/MVS Version 2 region, you can continue to use the batch region controller program, DFHDRP, from before CICS/ESA Version 3. (The CICS/ESA Version 3 DFHIRP program supports earlier levels of the DFHDRP program.) However, if your batch region is sharing the database with a CICS TS Release 2 region, you are recommended to install the CICS TS Release 2 DFHDRP module in SYS1.LINKLIB, or another suitable APF-authorized library in the MVS linklist.
5. The DFHDSPEX module is downward-compatible with earlier releases of CICS. If you are running earlier releases of CICS, you must ensure that the correct version is installed in the LPA. The DFHDSPEX module must be in the LPA for integrity reasons, but the post exit routine itself can reside either in the LPA, or in the CICS address space. This enables you to use different versions of the DFHDSAUT module in different CICS regions running in the same MVS image, because the DFHDSAUT module may not be compatible from release to release.
6. The use of this pre-CICS/ESA Version 3 programmable interface to the master terminal program, DFHEMTA, is supported for compatibility reasons only. You are strongly recommended to use the equivalent EXEC CICS INQUIRE|SET commands instead. The documentation for this interface is available only in the CICS libraries for the releases prior to CICS/ESA Version 3.
7. You can set the system tracing status by coding appropriate system initialization parameters, and you can also set it dynamically by using the CETR transaction.

   The system initialization parameters that you can use are:

Parameter	Use
AUXTR	Activate auxiliary trace.
AUXTRSW	Define the auxiliary switch status.
GTFTR	Enable CICS to use MVS GTF tracing.
INTTR	Activate CICS internal tracing.
TRTABSZ	Specify the size of the internal trace table.
USERTR	Set the master user trace flag on or off.

For information about using CICS trace, and using the CETR transaction to control the tracing status, see the *CICS Problem Determination Guide*.

8. The DFHIRP module needs to be in the MVS link pack area only if you are using MRO, CICS shared database, or the console message-handling facility. If you install the DFHIRP module in the MVS link pack area, you must also install DFHSSEN.

   You must always install the latest service level of the DFHIRP (if needed) and DFHSSEN.

   If you are running CICS with MRO at different release levels, all regions in the same MVS-image must use the latest DFHIRP module.

9. To use the console message formatting facility of the MVS subsystem interface, you must install the modules DFHSSGC and DFHSSWT either in the MVS link pack area or in an APF-authorized library in the MVS linklist. These modules are used by the subsystem interface and not directly by CICS. Therefore, the use of these modules from the MVS link pack area is not controlled by CICS parameters or options.

   For information about enabling the console message-formatting facility, and about the other modules it requires, see "Modules needed to use the console message-handling facilities" on page 22.

10. CICS needs the following load modules, supplied with CICS, to use data table services:

    DFHDTINT
    DFHDTOC
    DFHDTLD
    DFHDTRD
    DFHDTES

    The modules are all eligible for the MVS link pack area, but DFHDTRD and DFHDTES are probably the only ones which are used sufficiently frequently to be worth considering.

11. The following modules, used by the Shared Data Tables facility, are eligible for the MVS link pack area:

    DFHDTAM
    DFHDTAOR
    DFHDTCV
    DFHDTFOR
    DFHDTSVC
    DFHDTXS
    DFHMVRMS

    All these modules, except for DFHMVRMS, are listed in the usermod, DFH$UMOD, supplied with CICS. Only DFHDTAM, DFHDTAOR, DFHDTFOR, and possibly DFHDTCV are used sufficiently frequently to be worth considering for the MVS link pack area.

    The following modules, installed in the *hlq*.SDFHLINK library, must be installed in the MVS linklist, or in the MVS link pack area:

    DFHDTSVC
    DFHDTCV
    DFHMVRMS

12. BMS=STANDARD
13. BMS=FULL
14. BMS=MINIMUM

15. DTRPGM=DFHDYP
16. SPOOL=YES
17. FCT=YES/xx
18. ISC=YES/xx
19. VTAM=YES
20. XRF=YES/xx
21. AUXTR=ON
22. TST=YES/xx
23. TCP=YES/xx

This column also gives any associated options that you must specify to use the function associated with the LPA-eligible module. Unless otherwise stated, the options are specified by system initialization parameters as defined in the *CICS System Definition Guide*. Any special information about a particular module is given in a note in the list starting on page 424.

Table 49. LPA-required modules, supplied in hlq.SDFHLPA

Name	Description	LPA/ ELPA	Size	Option/ Note
DFHCSVC	CICS SVC startup	ELPA	2280	CICSSVC (3)
DFHDSPEX	DS domain - MVS POST exit stub	ELPA	168	(5)
DFHDUMPX	SDUMPX IEASDUMP QUERY exit	ELPA	152	-
DFHIRP	Interregion communication program	ELPA	49416	(8)
DFHSSEN	Subsystem interface end-of-memory / end-of-task clean up routine	ELPA	472	-
DFHSSGC	Subsystem interface generic connect	ELPA	936	(9)
DFHSSWT	Subsystem interface WTO router	ELPA	4512	(9)
DFH99SVC	Dyn alloc - SVC services	ELPA	8	-

Table 50. LPA-eligible modules

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
AXMSC	Server connection routines	LINK	ELPA	2	21856	-
DFHAFMT	AFCT manager	LOAD	ELPA	3	7864	(2)
DFHAIIN	AITM Manager initialization	LOAD	ELPA	3	2048	AIEXIT
DFHAIIQ	AITMM - locate/unlock/inquire/browse	LOAD	ELPA	2	1384	AIEXIT
DFHAIP	Application Interface program	LOAD	LPA	2	11560	-
DFHAIRP	AITMM - initialization/recovery	LOAD	ELPA	3	1592	-
DFHAITM	AITMM - add replace/delete	LOAD	ELPA	3	3216	AIEXIT
DFHALP	Terminal allocation	LOAD	ELPA	2	21784	AIEXIT
DFHAPAC	AP domain - abnormal condition reporting interface module	LOAD	ELPA	3	1928	-
DFHAPATT	AP domain - entrypoint attach	LOAD	ELPA	2	728	-
DFHAPDM	AP domain - initialization/termination	LOAD	ELPA	3	5416	-
DFHAPDN	AP domain - transaction definition notify	LOAD	ELPA	3	2904	-
DFHAPEP	AP domain - user exit service	LOAD	ELPA	2	11128	-
DFHAPIN	AP domain - special initialization for programs and user-replaceable modules	LOAD	ELPA	2	184	-

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHAPIQ	AP domain - user exit data access service	LOAD	ELPA	3	1232	-
DFHAPJC	AP domain - journaling gate service	LOAD	ELPA	3	2528	-
	APAR PQ39498 added DFHALPH					
DFHAPLH	AP domain - manage execution under H8 TCB	LOAD	ELPA	2	27840	-
DFHAPLI	AP domain - language interface program	LOAD	ELPA	2	27528	-
DFHAPNT	AP domain - MXT notify gate	LOAD	ELPA	3	1096	-
DFHAPPG	AP domain - optimize initial_link for	LOAD	ELPA	2	1808	-
DFHAPRDR	AP domain gate APRD	LOAD	ELPA	2	22176	-
DFHAPRT	AP Domain - route transaction gate	LOAD	ELPA	3	9104	-
DFHAPSTL	AP domain - statistics collection program	LOAD	ELPA	2	35248	-
DFHAPTI	AP domain - timer notify gate	LOAD	ELPA	2	1096	-
DFHAPTIX	AP domain - expiry analysis task	LOAD	ELPA	2	1096	-
DFHAPXM	AP domain - transaction initialization and termination services	LOAD	LPA	2	3744	-
DFHAPXME	AP domain - XM exception handler	LOAD	ELPA	3	2720	-
DFHASV	Authorized services interface	AUTH	LPA	2	2504	-
DFHCCNV	Data conversion for CICS OS/2™ ISC users	LOAD	ELPA	2	806096	(1)
DFHCEGN	Goodnight transaction stub	LOAD	ELPA	3	2400	(1)
DFHCESD	Shutdown transaction	LOAD	ELPA	3	4088	(1)
DFHCHS	CICS/ESA mirror for CICS OS/2 and CICS/VM™	LOAD	ELPA	2	8368	(1)
DFHCMAC	ME domain - CICS messages and codes transaction (CMAC)	LOAD	ELPA	2	7576	(1)
DFHCMP	CICS monitoring compatibility interface	LOAD	ELPA	2	496	-
DFHCPIC	SAA communications interface program	LOAD	ELPA	2	175952	-
DFHCPIN	CPI initialization program	LOAD	ELPA	3	2744	-
DFHCPIRR	SAA resource recovery interface program	LOAD	ELPA	2	1176	-
DFHCPSM	Translator for CICSPlex SM commands	LOAD	LPA	3	3184	-
DFHCRLB	Subroutine entry to process logging requests for MRO and LU6.1 links from assembler callers	LOAD	ELPA	2	1360	-
DFHCRNP	Interregion connection manager	LOAD	ELPA	2	10696	(1)
DFHCRQ	ATI purge program	LOAD	ELPA	2	872	(1)

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHCRR	Interregion session recovery program	LOAD	ELPA	3	4840	(1)
DFHCRS	Remote scheduler program	LOAD	ELPA	2	6800	(1)
DFHCRSP	CICS IRC startup module	LOAD	ELPA	3	3528	(1)
DFHCRT	Transaction routing relay program for APPC devices	LOAD	ELPA	2	648	(1)
DFHCRU	Performs initialization of AP gates for various resource managers and facilities	LOAD	ELPA	2	34448	-
DFHDBAT	CICS-DBCTL adapter/transformer	LOAD	ELPA	2	7960	(1)
DFHDBCT	CICS-DBCTL control program	LOAD	ELPA	3	16968	(1)
DFHDBMOX	CICS-DBCTL monitoring exit	LOAD	ELPA	2	488	-
DFHDBREX	CICS-DBCTL resume exit	LOAD	ELPA	2	472	-
DFHDBSPX	CICS-DBCTL suspend exit	LOAD	ELPA	2	1000	-
DFHDBSSX	CICS-DBCTL status exit	LOAD	ELPA	3	672	-
DFHDBSTX	CICS-DBCTL statistics exit	LOAD	ELPA	3	656	-
DFHDBTI	EXEC DLI LD table	LOAD	LPA	3	9024	(1)
DFHDBTOX	CICS-DBCTL token exit	LOAD	ELPA	3	488	-
DFHDCP	Dump control program	LOAD	ELPA	3	848	-
DFHDEDM	DCE services domain - services	LOAD	ELPA	3	31048	-
DFHDIP	Data interchange program	LOAD	ELPA	2	3936	DIP=YES
DFHDIPDY	Data interchange program (dummy)	LOAD	ELPA	2	168	DIP=NO
DFHDKMR	DCE services domain - table manager	LOAD	ELPA	3	30040	-
DFHDLI	DL/I call router	LOAD	LPA	2	4504	-
DFHDLIDP	DBCTL call processor	LOAD	ELPA	2	7032	-
DFHDMRM	CSD open/close program	LOAD	ELPA	3	888	-
DFHDSAUT	DS domain - authorized services	AUTH	ELPA	2	2280	-
DFHDSBA$	BMS data stream build (standard)	LOAD	ELPA	2	1592	(12)
DFHDSB1$	BMS data stream build (full)	LOAD	ELPA	2	1592	(13)
DFHDTAM	Shared data tables: access manager	AUTH	ELPA	2	11680	(11)
DFHDTAOR	Shared data tables: AOR module	AUTH	ELPA	2	3264	(11)
DFHDTCV	Shared data tables connection validation	LINK	ELPA	2	288	(11)
DFHDTFOR	Shared data tables: FOR module	AUTH	ELPA	2	13400	(11)
DFHDTSVC	Shared data tables: SVC services	LINK	ELPA	3	10944	(11)
DFHDTXS	Shared data tables connection security	AUTH	ELPA	3	1616	(11)
DFHDUIO	DU domain - open/close/switch/write	LOAD	LPA	2	5016	-
DFHDUSVC	DU domain - SVC processing routine	AUTH	ELPA	2	4160	-
DFHDYP	Dynamic routing program	LOAD	ELPA	2	320	(15) (1)
DFHEBU	EXEC FMH construction	LOAD	ELPA	2	432	(18)
DFHECID	CECI service program	LOAD	ELPA	3	77424	(1)
DFHECIP	Command interpreter (CECI) program	LOAD	ELPA	3	3008	(1)
DFHECSP	Command syntax check (CECS) program	LOAD	ELPA	3	3008	(1)
DFHEDAD	RDO (CEDA) service program	LOAD	ELPA	3	127688	(1)
DFHEDAP	RDO (CEDA) program	LOAD	ELPA	3	3144	(1)

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHEDC	EXEC interface for dump control	LOAD	ELPA	2	152	-
DFHEDCP	EXEC interface for dump system/transaction	LOAD	ELPA	3	3776	-
DFHEDFBR	Temporary-storage browse transaction, CEBR	LOAD	ELPA	3	12024	(1)
DFHEDFD	EDF display program	LOAD	ELPA	3	63552	(1)
DFHEDFE	EDF attach error handler	LOAD	ELPA	3	1360	(1)
DFHEDFP	EDF control program	LOAD	ELPA	3	7512	(1)
DFHEDFR	EDF response table	LOAD	ELPA	3	576	(1)
DFHEDFX	EDF task switch program	LOAD	ELPA	3	4296	(1)
DFHEDI	EXEC interface for data interchange	LOAD	ELPA	2	1352	DIP=YES
DFHEDP	EXEC DLI command stub	LOAD	LPA	2	7128	(1)
DFHEEI	EXEC interface for HANDLE, ADDRESS, ASSIGN	LOAD	ELPA	2	6536	-
DFHEEX	EXEC FMH extraction	LOAD	ELPA	2	752	-
DFHEFRM	EXEC file control syncpoint processor	LOAD	ELPA	2	1016	-
DFHEGL	EXEC interface for unmapped LU6.2 commands	LOAD	ELPA	2	3664	(19)
DFHEIACQ	EXEC ACQUIRE TERMINAL	LOAD	ELPA	3	1464	-
DFHEICRE	EXEC CICS CREATE commands	LOAD	ELPA	3	86880	-
DFHEIDLI	DL/I load table	LOAD	LPA	3	9248	DLI
DFHEIDTI	EXEC ask-time, format-time program	LOAD	ELPA	2	3048	-
DFHEIFC	File control: EXEC interface module	LOAD	ELPA	2	11800	-
DFHEIGDS	Translator table (GDS commands)	LOAD	LPA	3	2752	(1)
DFHEIGDX	EXEC interface load table	LOAD	LPA	3	3024	-
DFHEIIC	EXEC interface IC module	LOAD	ELPA	2	7824	-
DFHEIPRT	EXEC interface for perform resettime	LOAD	ELPA	3	680	-
DFHEIPSE	EXEC interface for perform security	LOAD	ELPA	3	896	SEC=YES
DFHEIPSH	EXEC interface for perform shutdown	LOAD	ELPA	3	2800	-
DFHEIQDE	EXEC inquire/set for DCE services domain	LOAD	ELPA	3	1520	-
DFHEIQDN	EXEC inquire/set for external data sets	LOAD	ELPA	3	7576	-
DFHEIQDS	EXEC inquire/set/discard for files	LOAD	ELPA	3	14344	-
DFHEIQDU	EXEC inquire/set for dump data sets and dump codes	LOAD	ELPA	3	8584	-
DFHEIQIR	EXEC inquire/set for IRC	LOAD	ELPA	3	1976	-
DFHEIQMS	EXEC inquire/set for monitor and stats	LOAD	ELPA	3	13944	-
DFHEIQMT	EXEC inquire/set for CEMT-only commands	LOAD	ELPA	3	3408	-
DFHEIQRQ	EXEC inquire for queued requests (REQIDs)	LOAD	ELPA	3	3152	-
DFHEIQSA	EXEC inquire/set for system attributes	LOAD	ELPA	3	8928	-
DFHEIQSC	EXEC inquire/set for connections	LOAD	ELPA	3	16616	-
DFHEIQSJ	EXEC inquire/set for journals	LOAD	ELPA	3	3480	-

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHEIQSK	EXEC inquire/set for tasks	LOAD	ELPA	3	15248	-
DFHEIQSL	EXEC inquire/discard for journalmodel	LOAD	ELPA	3	3144	-
DFHEIQSM	EXEC inquire/set for modenames	LOAD	ELPA	3	4048	-
DFHEIQSP	EXEC inquire/set/discard for programs	LOAD	ELPA	3	6272	-
DFHEIQSQ	EXEC inquire/set for TD queues	LOAD	ELPA	3	9096	-
DFHEIQST	EXEC inquire/set for terminals	LOAD	ELPA	3	22480	-
DFHEIQSV	EXEC inquire/set for volumes	LOAD	ELPA	3	400	-
DFHEIQSX	EXEC inquire/set/discard for transactions	LOAD	ELPA	3	7144	-
DFHEIQSZ	EXEC CICS SPI commands for FEPI	LOAD	ELPA	3	3784	-
DFHEIQTR	EXEC inquire/set for trace	LOAD	ELPA	3	10392	-
DFHEIQUE	EXEC inquire for exit programs	LOAD	ELPA	3	6288	-
DFHEIQVT	EXEC inquire/set for VTAM and autoinstall	LOAD	ELPA	3	5968	-
DFHEISP	EXEC interface sycpoint processor	LOAD	ELPA	2	1576	-
DFHEITAB	Translator table (basic commands)	LOAD	LPA	3	46272	(1)
DFHEITBS	Translator table (special commands)	LOAD	LPA	3	47984	(1)
DFHEITHG	EXEC interface hired gun lookup table	LOAD	LPA	2	13800	-
DFHEITMT	Command language table for CEMT	LOAD	ELPA	3	34432	(1)
DFHEITOT	Command language table for CEOT	LOAD	ELPA	3	1192	(1)
DFHEITS	EXEC TS request handler	LOAD	ELPA	2	7096	-
DFHEITST	CEST language definition table	LOAD	ELPA	3	4984	(1)
DFHEITSZ	EXEC CICS language definition table	LOAD	LPA	3	8592	(1)
DFHEJC	EXEC interface for journaling	LOAD	ELPA	2	984	-
DFHEKC	EXEC interface for task control	LOAD	ELPA	2	1448	-
DFHEMEX	EXEC interface for ME domain	LOAD	ELPA	3	2792	-
DFHEMS	EXEC interface for BMS	LOAD	ELPA	2	4264	BMS
DFHEMTA	Programmable interface to Master terminal program	LOAD	ELPA	3	3232	(1,6)
DFHEMTD	Master terminal (CEMT) service program	LOAD	ELPA	3	98120	(1)
DFHEMTP	Master terminal (CEMT) program	LOAD	ELPA	3	3232	(1)
DFHEOP	EXEC interface for write operator	LOAD	ELPA	3	2752	-
DFHEOTP	CEOT service program	LOAD	ELPA	3	3232	(1)
DFHEPC	EXEC interface for program control	LOAD	ELPA	2	8280	-
DFHEPS	System spooling interface stub	LOAD	ELPA	2	2856	(16)
DFHERM	Resource manager interface (RMI) module	LOAD	LPA	2	14056	-
DFHERMRS	External resource manager resync processor	LOAD	ELPA	3	4312	-
DFHERMSP	External resource manager syncpoint processor	LOAD	ELPA	3	4400	-
DFHESC	EXEC interface for storage control	LOAD	ELPA	2	1320	-
DFHESE	EXEC interface for query security	LOAD	ELPA	2	4664	-

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHESN	EXEC interface for signon and sign-off	LOAD	ELPA	2	4992	-
DFHESTP	CEST service program	LOAD	ELPA	3	3232	(1)
DFHESZ	EXEC CICS API commands for FEPI	LOAD	ELPA	3	1136	-
DFHETC	EXEC interface for terminal control	LOAD	ELPA	2	7376	-
DFHETD	EXEC interface for transient data	LOAD	ELPA	2	2728	-
DFHETL	LU6.2 EXEC interface stub	LOAD	ELPA	2	7944	-
DFHETR	EXEC interface for trace control	LOAD	ELPA	2	792	(7)
DFHETRX	EXEC interface for enter tracenum, monitor	LOAD	ELPA	2	1232	USERTR
DFHFCAT	File control catalog manager	LOAD	ELPA	2	7328	-
DFHFCBD	File control BDAM request processor	LOAD	LPA	2	5192	(17)
DFHFCCA	File Control RLS Control ACB Manager	LOAD	ELPA	2	14984	-
DFHFCDN	File control DSN block manager	LOAD	ELPA	3	9856	(17)
DFHFCD2	File control shared data tables record request handler	LOAD	ELPA	2	16120	(17) (11)
DFHFCFL	File Control FRAB/FLAB processor	LOAD	ELPA	2	6896	-
DFHFCFR	File Control request handler	LOAD	ELPA	2	10760	(17)
DFHFCFS	File Control state program	LOAD	ELPA	2	54632	(17)
DFHFCIN	File control initialization program	LOAD	ELPA	3	1448	(17)
DFHFCLJ	File control logging and journaling	LOAD	ELPA	2	16968	-
DFHFCMT	File control table manager	LOAD	ELPA	3	11864	(17)
DFHFCNQ	File control lock name interpreter	LOAD	ELPA	2	3088	-
DFHFCQI	File control VSAM RLS Quiesce - Initiation	LOAD	ELPA	2	5408	-
DFHFCQT	File control VSAM RLS Quiesce - Common System Transaction	LOAD	ELPA	2	14376	-
DFHFCQU	File control VSAM RLS Quiesce - Process	LOAD	ELPA	2	8304	-
DFHFCQX	File control VSAM RLS Quiesce - CICS RLS Quiesce Exit	LOAD	ELPA	2	2440	-
DFHFCRC	File control recovery control	LOAD	ELPA	2	20792	-
DFHFCRL	File control VSAM SHRCTL block manager	LOAD	ELPA	3	3320	(17)
DFHFCRO		LOAD	ELPA	2	31384	-
DFHFCRP	File control restart program	LOAD	ELPA	3	24040	(17)
DFHFCRS	File control VSAM RLS record management module	LOAD	ELPA	2	24192	-
DFHFCRV	File control VSAM RLS interface module	LOAD	ELPA	2	3576	-
DFHFCSD	File control shutdown program	LOAD	ELPA	2	1792	(17)
DFHFCST	File control statistics program	LOAD	ELPA	3	7352	(17)
DFHFCU	File open utility program	LOAD	LPA	3	552	(17) (1)
DFHFCVS	File access VSAM request processor	LOAD	ELPA	2	30504	(17)
DFHGMM	VTAM LU startup message	LOAD	ELPA	2	2096	(1)
DFHGTCNV	Subroutine used by the LOGR subsystem interface	LINK	ELPA	3	11736	-

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHICP	Interval control program	LOAD	ELPA	2	11440	-
DFHICXM	AP domain - bind, inquire, and release facility IC functions	LOAD	ELPA	2	4952	-
DFHIIPA$	BMS non-3270 input mapping (standard)	LOAD	ELPA	3	2048	(12)
DFHIIP1$	BMS non-3270 input mapping (full)	LOAD	ELPA	3	2048	(13)
DFHINDAP	Indoubt tool	LOAD	ELPA	3	1912	(1)
DFHINDSP	Indoubt tool syncpoint processor	LOAD	ELPA	3	1688	-
DFHINDT	Indoubt tool	LOAD	ELPA	3	6464	(1)
DFHINTRU	Indoubt tool task-related user exit	LOAD	ELPA	3	2224	(1)
DFHIRW10	IRC work delivery exit program	AUTH	ELPA	2	1328	-
DFHISP	Intersystem communication program	LOAD	ELPA	2	3512	ISC=YES
DFHJCP	Journaling component	LOAD	LPA	2	2288	-
DFHKCP	Transaction manager startup routine	LOAD	ELPA	2	8936	-
DFHKCSC	DFHKCQ chain scanning for discard	LOAD	ELPA	3	1072	-
DFHKESVC	KE domain - authorized service routine	AUTH	ELPA	2	1768	-
DFHLDDMI	LD domain - secondary initialization	LOAD	ELPA	3	18480	-
DFHLDNT	LD domain - storage notify handler	LOAD	ELPA	2	2464	-
DFHLDST	LD domain - statistics collection	LOAD	ELPA	3	3592	-
DFHLDSVC	LD domain - authorized service routine	AUTH	LPA	2	2256	-
DFHLGDM	Log manager domain initialization	LOAD	ELPA	3	346736	-
DFHLGCNV	Exit routine used by the LOGR subsystem interface	LINK	ELPA	3	20088	-
DFHLIRET	Language interface return program	LOAD	LPA	2	136	-
DFHMCPA$	BMS mapping control program (standard)	LOAD	ELPA	2	8248	(12)
DFHMCPE$	BMS mapping control program (minimum)	LOAD	ELPA	2	7064	(14)
DFHMCP1$	BMS mapping control program (full)	LOAD	ELPA	2	12920	(13)
DFHMCX	BMS fast path module	LOAD	ELPA	2	7136	BMS
DFHMET1E	DFHMEU base messages link-edit module	AUTH	ELPA	2	340872	NATLANG
DFHMET5E	DFHMEU ONC RPS messages link-edit module	AUTH	ELPA	2	67512	-
DFHMET9E	DFHMEU user messages link-edit module	AUTH	ELPA	2	360	-
DFHMGP	Message writer program	LOAD	ELPA	3	14560	-
DFHMGT	Message generation table	LOAD	ELPA	3	23272	-
DFHMIRS	DFHMIRS	LOAD	ELPA	2	4816	ISC=YES (1)
DFHML1	BMS LU1 printer mapping program	LOAD	ELPA	2	5144	BMS
DFHMNDML	MN domain - initialization/termination	LOAD	ELPA	2	74936	-

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHMNSVC	MN domain - authorized service routine	AUTH	ELPA	2	4600	-
DFHMSP	Message switching program	LOAD	ELPA	2	11440	(1)
DFHMXP	Local queuing shipper	LOAD	ELPA	2	1176	(1)
DFHM32A$	BMS 3270 mapping (standard)	LOAD	ELPA	2	6520	(12)
DFHM321$	BMS 3270 mapping (full)	LOAD	ELPA	2	6520	(13)
DFHNQDM	NQ domain initialize, quiesce and terminate domain functions	LOAD	ELPA	2	34760	-
DFHPBPA$	BMS page and text build (standard)	LOAD	ELPA	2	8552	(12)
DFHPBP1$	BMS page and text build (full)	LOAD	ELPA	2	9352	(13)
DFHPCP	Program control program	LOAD	ELPA	2	2488	-
DFHPCPC2	PCP interface to COBOL stub for OS/VS COBOL V1 R2.3 or R2.4 application programs	LOAD	LPA	2	2064	-
DFHPGADX	Program autoinstall exit - Assembler	LOAD	ELPA	2	200	(1)
DFHPGDM	PG domain - initialize, quiesce, and terminate domain functions	LOAD	ELPA	2	153328	-
DFHPGRP	PG domain - recovery program	LOAD	ELPA	2	12888	-
DFHPHP	Partition handling program	LOAD	ELPA	2	2248	BMS
DFHPRCM	Partner resource manager command interface	LOAD	ELPA	3	1360	-
DFHPRFS	Partner resource manager interface to SAA communications interface	LOAD	ELPA	2	632	-
DFHPRIN	Partner initialization load program	LOAD	ELPA	3	3336	-
DFHPRPT	Partner resource table (PRT) manager	LOAD	ELPA	3	3040	-
DFHPSP	System spooling interface program	LOAD	LPA	2	14424	(16)
DFHPSSVC	System spooling interface, retrieve a data set name	AUTH	ELPA	2	1472	(16)
DFHQRY	Query transaction	LOAD	ELPA	2	3824	(1)
DFHRLRA$	BMS route list resolution (standard)	LOAD	ELPA	2	2040	(12)
DFHRLR1$	BMS route list resolution (full)	LOAD	ELPA	2	3832	(13)
DFHRMSY	Resource manager resync program	LOAD	ELPA	3	4160	(1)
DFHRPAL	ONC RPC feature alias list	LOAD	ELPA	3	2384	(1)
DFHRTC	CRTE cancel command processor	LOAD	ELPA	2	864	(1)
DFHRTE	Transaction routing program	LOAD	ELPA	2	2600	(1)
DFHRTSU	Surrogate terminal interface program	LOAD	ELPA	3	2736	-
DFHSAIQ	AP domain - system data inquire & set	LOAD	ELPA	2	2224	-
DFHSFP	Sign-off program	LOAD	ELPA	2	4144	(1)
DFHSIP	System initialization program	AUTH	ELPA	2	1118760	-
DFHSKP	Subtask management program	LOAD	ELPA	2	6448	-
DFHSKTSK	General purpose subtask entry point	AUTH	ELPA	3	40	-
DFHSMSVC	SM domain - authorized service routine	AUTH	ELPA	3	11336	-

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHSMTAB	CICSPLex SM commands language table	LOAD	LPA	3	632	-
DFHSNP	Signon program	LOAD	ELPA	2	13184	(1)
DFHSNUS	US domain - local and remote signon	LOAD	ELPA	2	52984	-
DFHSPP	Syncpoint program	LOAD	ELPA	2	1744	-
DFHSTDML	ST domain - initialization/termination	LOAD	ELPA	3	30520	-
DFHSUSX	XRF signon	LOAD	ELPA	2	9240	(20)
DFHSUWT	WTO/WTOR interface subroutine	LOAD	ELPA	3	7152	-
DFHSUZX	ZC trace controller	LOAD	ELPA	3	6808	-
DFHSZATR	FEPI adaptor program	LOAD	ELPA	3	17328	-
DFHTBSS	Builder syncpoint processor	LOAD	ELPA	2	19168	-
DFHTCRP	Terminal control recovery program	LOAD	ELPA	3	25392	-
DFHTDP	Transient data program	LOAD	LPA	2	25448	-
DFHTDQ	Transient data program	LOAD	ELPA	2	30280	-
DFHTDRM	Transient data recovery manager processor	LOAD	ELPA	2	31080	-
DFHTDRP	Transient data recovery program	LOAD	ELPA	3	6432	-
DFHTDTM	TD table management gate	LOAD	ELPA	2	17656	-
DFHTDXM	XM domain - TD facility management services	LOAD	ELPA	2	3696	-
DFHTFBF	Terminal facility manager bind facility functions	LOAD	ELPA	2	14528	-
DFHTFIQ	Terminal facility manager inquire/set functions	LOAD	ELPA	2	5632	-
DFHTFRF	Terminal facility manager release function	LOAD	ELPA	2	4176	-
DFHTIDM	TI domain - initialization/termination	LOAD	ELPA	3	9264	-
DFHTMP	Table manager program	LOAD	ELPA	2	21088	-
DFHTON	Terminal object resolution module	LOAD	ELPA	2	816	-
DFHTONR	Terminal object resolution recovery	LOAD	ELPA	2	2248	-
DFHTORP	Terminal object recovery program	LOAD	ELPA	3	544	-
DFHTPPA$	BMS terminal page processor (standard)	LOAD	ELPA	2	3344	(12)
DFHTPP1$	BMS terminal page processor (full)	LOAD	ELPA	2	4336	(13)
DFHTPQ	BMS terminal page cleanup program	LOAD	ELPA	2	4040	BMS (1)
DFHTPR	BMS terminal page retrieval program	LOAD	ELPA	2	21688	BMS (1)
DFHTPS	BMS terminal page scheduling program	LOAD	ELPA	2	4632	BMS (1)
DFHTRAO	TR domain - auxiliary trace output	LOAD	LPA	3	1480	(21)
DFHTSDML	Temporary storage domain	LOAD	ELPA	2	123248	-
DFHTSP	Temporary-storage control program	LOAD	ELPA	2	3928	(22)
DFHUEH	User exit handler (AP domain)	LOAD	ELPA	2	7960	-
DFHUEM	User exit manager	LOAD	ELPA	3	7864	-

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHUSDM	US domain - initialize, quiesce, and terminate domain functions	LOAD	ELPA	3	58640	-
DFHWSMS	DFHWSMS	AUTH	ELPA	2	38456	(20)
DFHWSSON	CAVM state management signon request handler	AUTH	ELPA	2	14280	(20)
DFHWTI	XRF takeover initiation program	AUTH	ELPA	3	11648	(20)
DFHXCI	External CICS interface (EXCI) program	LOAD	LPA	3	3152	-
DFHXCSVC	EXCI SVC services	LINK	ELPA	3	512	-
DFHXCTAB	EXCI language table	LOAD	LPA	3	504	-
DFHXFP	Online data transformation program	LOAD	LPA	2	31744	ISC=YES
DFHXFRM	Function shipping storage recovery	LOAD	ELPA	2	1744	-
DFHXFX	Optimized data transformation program	LOAD	ELPA	2	8024	ISC=YES
DFHXRP	XRF request program	LOAD	ELPA	2	9272	(20)
DFHXRSP	XRF surveillance program	LOAD	ELPA	2	4800	(20)
DFHXSS	XS domain - supervisor request services	AUTH	ELPA	3	30576	SEC¬=NO
DFHXSWM	XRF message manager for security manager	LOAD	ELPA	2	1744	(20)
DFHXTP	Terminal sharing transformation program	LOAD	ELPA	2	11656	ISC=YES
DFHZATA	Autoinstall program	LOAD	ELPA	2	18648	(1)
DFHZATD	Autoinstall delete program	LOAD	ELPA	2	6584	(1)
DFHZATDX	User-replaceable autoinstall exit	LOAD	ELPA	2	392	AIEXIT (1)
DFHZATDY	User-replaceable autoinstall exit with APPC	LOAD	ELPA	2	560	AIEXIT (1)
DFHZBAN	Terminal control bind analysis	LOAD	LPA	2	10288	-
DFHZCA	VTAM working set module	LOAD	ELPA	2	9888	(19)
DFHZCB	VTAM working set module	LOAD	ELPA	2	39496	(19)
DFHZCC	VTAM working set module	LOAD	ELPA	2	63160	(19)
DFHZCN1	CICS Client CCIN transaction	LOAD	ELPA	3	4472	(1)
DFHZCN2	CICS Client CCIN transaction	LOAD	ELPA	3	4464	-
DFHZCP	Terminal management program	LOAD	ELPA	2	33528	(19)
DFHZCT1	CICS Client CTIN transaction	LOAD	ELPA	3	103046	(1)
DFHZCUT	Persistent verification signed-on-from list management program	LOAD	ELPA	2	5376	(19)
DFHZCW	VTAM nonworking set module	LOAD	ELPA	3	7072	(19)
DFHZCX	LOCATE, ISC/IRC request	LOAD	ELPA	2	34728	ISC=YES
DFHZCXR	Transaction routing module address list	LOAD	ELPA	2	28984	ISC=YES
DFHZCY	VTAM nonworking set module	LOAD	ELPA	3	82976	(19)
DFHZCZ	VTAM nonworking set module	LOAD	ELPA	3	25712	(19)
DFHZGAI	APPC autoinstall - create APPC clones	LOAD	ELPA	2	9288	AIEXIT
DFHZGBM	APPC manipulate bitmap	LOAD	ELPA	2	4776	(19)
DFHZGCA	LU6.2 CNOS actioning	LOAD	ELPA	3	6168	(19)
DFHZGCC	Catalog CNOS services	LOAD	ELPA	3	2440	(19)
DFHZGCH	ZC VTAM change macro domain function	LOAD	ELPA	3	4056	-

Table 50. LPA-eligible modules (continued)

Name	Description	Library	LPA/ ELPA	Priority	Size	Option/ Note
DFHZGCN	LU6.2 CNOS negotiation	LOAD	ELPA	3	12272	(19)
DFHZGIN	ZC VTAM issue inquire	LOAD	ELPA	3	3544	-
DFHZGPR	VTAM persistent sessions resource handler	LOAD	ELPA	3	2848	(19)
DFHZGTA	ZC table alter	LOAD	ELPA	2	23312	-
DFHZGTI	ZC table inquire gate	LOAD	ELPA	2	14744	-
DFHZGXA	LU6.2 extended attach security	LOAD	ELPA	3	7512	(19)
DFHZHPRX	Authorized path SRB mode VTAM EXECRPL	AUTH	ELPA	2	712	HPO=YES
DFHZLS1	LU6.2 CNOS request transaction program	LOAD	ELPA	3	2160	(19) (1)
DFHZRSP	Resync send program	LOAD	ELPA	2	248	(23) (1)

Glossary of SMP/E terms used in this book

ACCEPT (function of SMP/E) . SMP/E control statement that controls the placement (installing) of SYSMODs into the distribution libraries. Processing is similar to that during APPLY except that the distribution zone is updated, not the target zone, and JCLIN data is not processed by ACCEPT.

If the installing is successful, any entries in the SCDS created by APPLY are deleted, as are temporary libraries created by RECEIVE. Therefore, after a SYSMOD is accepted, it can no longer be removed by SMP/E.

APAR (authorized program analysis report) . IBM-supplied fixes of a temporary corrective nature to elements of IBM-supplied function SYSMODs. APAR fixes are intended to cure problems currently being experienced by an installation. The APAR fix is usually in the form of either a modification to a load module or an update to card-image data. It is intended as a temporary arrangement until a PTF is issued to fix the problem permanently. This PTF will supersede the APAR fix, and indeed specifies this relationship on its ++VER statement.

To get an APAR SYSMOD accepted into the distribution libraries, the APARS keyword must be specified in the ACCEPT control statement, which protects against inadvertent updating of distribution libraries that are to be kept free of temporary fixes.

The ++VER statement in the APAR SYSMOD must specify the FMID of the function that “owns” the elements being updated.

```
++APAR(AP12345)
++VER(C150) FMID(HCI5300)
```

You should not accept APARs into the distribution library, however, because the relevant PTF will become available in due course as a more permanent form of service.

APPLY (function of SMP/E) . SMP/E control statement that applies SYSMODs to the CICS target libraries, where they can be tested. If the tests are not satisfactory, you can remove all or selected SYSMODs using the RESTORE function. If the test is successful, you can use the ACCEPT function to store the elements from the SYSMOD into the distribution libraries.

During JCLIN processing, every affected entry in the target zone is saved in the SCDS, in case the target system libraries and the target zone have to be restored to their original status.

CSI (consolidated software inventory) . A keyed VSAM data set, logically divided by SMP/E into **zones**. For further information on the CSI and the logical structure of zones, see the *System Modification Program Extended: User’s Guide.*

Distribution zone . Describes the structure and contents of a set of distribution libraries.

Function SYSMOD . An IBM-supplied product that can be installed with SMP/E. CICS Transaction Server for OS/390 Release 3 is packaged as a function SYSMOD on a distribution tape. This contains distribution libraries and JCLIN data which SMP/E uses to create the target libraries.

FMID (keyword of CICS SYSMODs) . Keyword identifying the release and option to which a SYSMOD is applicable. For CICS Transaction Server for OS/390 Release 3, it is always HCI5300.

Global zone . Logical division of the SMP/E consolidated software inventory (CSI), containing such information as:

- Definitions of all other related zones
- Descriptions of the SYSMODs present in the PTS
- Descriptions of the system utilities to be invoked during SMP/E processing
- DD definition entries for use by dynamic allocation

load module . In the context of SMP/E, an executable load module in a target library (such as *hlq*.SDFHLOAD). The standard SMP/E abbreviation for a load module is LMOD.

PTF (program temporary fix) . IBM-supplied fixes to elements of IBM-supplied function SYSMODs. PTFs are intended for installation by all users to avoid possible problems.

A PTF may contain fixes for several different problems. This means that several APAR fixes reported in RETAIN may all be superseded by the more permanent PTF, which:

- Provides card-image changes that are identical to those in the APAR fix
- Contains object-module replacements for preassembled CICS programs

Every PTF is introduced by a ++PTF header statement, and contains the FMID keyword on its ++VER modification control statement, identifying CICS (HCI5300) as the owner of the modules being serviced.

For example:

```
++PTF(UP12345)
++VER(C150) FMID(HCI5300)
```

PTS (PTF temporary store) . SMP/E primary data set used to store temporarily SYSMODs that are in RECEIVE or APPLY status; that is, they have not been rejected or accepted.

RECEIVE (function of SMP/E) . SMP/E control statement that initiates processing of a SYSMOD. RECEIVE reads the SYSMODs from the SMPPTFIN data set. Each SYSMOD must have been received before any other function can be executed.

RECEIVE updates the SMPPTS data set and performs syntax checking on input. Before any SYSMOD for CICS can be received, the global zone must have been initialized with a global zone entry.

Service SYSMODs can be received into the (PTS) before the function to which it applies has been received, and can be maintained there until the function is received. This allows all service for a product such as CICS to be installed with the base product.

REJECT (function of SMP/E) . SMP/E control statement that removes SYSMODs from the PTS data set and deletes any temporary libraries that SMP/E may have allocated when the SYSMOD was received (RELfiles). If the SELECT or EXCLUDE option is not coded on the REJECT control statement, all SYSMODs not applied or accepted will be removed from the PTS. This is called a **mass rejection**. All other SYSMOD processing functions (RECEIVE, APPLY, RESTORE, and ACCEPT) can have SELECT or EXCLUDE specified, or may default to mass-processing mode.

RESTORE (function of SMP/E) . SMP/E control statement that removes SYSMODs from the target system libraries after they have been applied, and restores the target libraries to their status prior to application of the SYSMODs. If necessary, RESTORE reconstructs the target zone entries from the SCDS. If you select “mass restore”, ***all*** SYSMODs that have been applied but not accepted will be removed from the target libraries.

SYSMOD (system modification) . An IBM-supplied product (function SYSMOD). An IBM-supplied preventive service (PTF). An IBM-supplied corrective service (APAR). A user-supplied modification (USERMOD).

Target zone . Describes the structure and contents of a set of target system libraries.

UCLIN (function of SMP/E) . SMP/E control statement that can be used to manipulate the various data sets that make up the SMP/E data base. The most common use of this function is to initialize the SMP/E database before the first attempt to use it. For CICS, this initialization is performed during installation, when DFHINST4 is run.

USERMOD (user modification) . User-supplied modifications to elements of IBM-supplied function SYSMODs. USERMODs are similar to APAR fixes, but are supplied by the user and not by IBM. They may be:
- A local fix to bypass a problem until an official IBM fix is available
- A user modification to add or alter function within CICS

The decision to modify CICS, either to add or to alter function, should be taken with caution, because it greatly increases the amount of research you must do before installing PTFs, and may also increase the installation time for PTFs. Furthermore, USERMODS will cause difficulty when you want to install future release of CICS.

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