**IBM**

# Program Directory for

# Customer Information Control System/

# Enterprise Systems Architecture

Version 4 Release 1
Release 1

Program Number 5655-018

FMID HCI4100

for Use with
Multiple Virtual Storage/ Enterprise Systems Architecture (MVS/ESA)

Document Date: January 13, 2000

GC33-1200-01

> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page viii.

This program directory, dated January 13, 2000, applies to Customer Information Control System/ Enterprise Systems Architecture Version 4 Release 1 (CICS/ESA 4.1), Program Number 5655-018 for the following:

| FMIDs | Feature Numbers | System Name |
|---|---|---|
| HCI4100 | 9001 with 5012 | Multiple Virtual Storage/ |
| JCI4101 | 9001 with 5013 | Enterprise System Architecture |
| JCI4102 | 9001 with 5014 | (MVS/ESA) |
| JCI4103 | 9001 with 5015 | |
| JCI4104 | | |
| JCI4106 | | |
| JCI4107 | | |

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| BookManager | ES/9000 |
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| CallPath CICS/MVS | ESA/390 |
| CallPath SwitchServer/2 | ESCON |
| CallPath CICS/VSE | GDDM |
| CBIPO | IBM |
| CBPDO | IBMLink |
| CICS | IMS/ESA |
| CICS/ESA | IMS Client Server/2 |
| CICS/MVS | Language Environment |
| CICS OS/2 | Library Reader |
| CICSPlex SM/ESA | MVS/ESA |
| CICS/VSE | MVS/DFP |
| CICS/400 | MVS/SP |
| CICS/6000 | MVS/XA |
| Data Propagator | OfficeVision/VM |
| DATABASE 2 | Operating System/2 |
| DB2 | Operating System/400 |

PR/SM
PS/2
RACF
RETAIN
S/370

S/390
System/390
SAA
VTAM

# Summary of Changes

There have been no significant changes to the CICS/ESA 4.1 installation process since CICS/ESA 3.3.

I have made two main changes to the structure of this program directory:

- The chapter 6.0, "Installation Instructions" on page 31 has been restructured from CICS/ESA 3.3, to try and make the description of the CICS/ESA 4.1 installation process easier to follow. You should now be able to coordinate your use of this program directory from that chapter.

- A checklist is provided in "Checklist for the CICS/ESA 4.1 Installation" on page 107, which you can use to monitor your progress through the installation of CICS/ESA 4.1 (and through this program directory).

The changes were made as a general improvement to the information provided, and for comments received from users of the CICS program directories.

Please let us have any comments about the usability of the information given in 6.0, "Installation Instructions," and in general in this program directory. We can then make any necessary improvements to make the information about installing CICS as good as possible.

For information about sending your comments, see the section "Sending your comments to IBM" at the back of this program directory.

Thank you.

CICS Information Development        *
IBM UK Ltd.,
Hursley Park,
Winchester,
Hampshire,
SO21 2JN,
England.

# 1.0  Introduction

This program directory is intended for the system programmer responsible for program installation and maintenance.  It contains information concerning the material and procedures associated with the installation of CICS/ESA 4.1.  You should read all of this program directory before installing the program and then keep it for future reference.

The program directory contains the following sections:

- 2.0, "Program Materials" on page 3 identifies the basic and optional program materials and documentation for CICS/ESA 4.1.

- 3.0, "Program Support" on page 10 describes the IBM support available for CICS/ESA 4.1.

- 4.0, "Program and Service Level Information" on page 12 outlines the service incorporated into CICS/ESA 4.1.

- 5.0, "Installation Requirements and Considerations" on page 14 identifies the resources and considerations for installing and using CICS/ESA 4.1.

- 6.0, "Installation Instructions" on page 31 provides detailed installation instructions for CICS/ESA 4.1.

- "Checklist for the CICS/ESA 4.1 Installation" on page 107 provides a fast path installation for the experienced user.

- 3.1, "Service Instructions" on page 10 provides detailed servicing instructions for CICS/ESA 4.1.  It also refers to the publication containing the procedures for activating the functions of CICS/ESA 4.1.

- Appendix A, "CICS/ESA 4.1 Install Logic" on page 72 provides the install logic for CICS/ESA 4.1.

- Appendix D, "A summary of CICS/ESA 4.1 contents" on page 101 summarizes the modules in CICS/ESA 4.1.

- Appendix B, "APAR fixes incorporated in CICS/ESA 4.1" on page 87 lists the APAR fixes against previous releases of CICS that have been incorporated into CICS/ESA 4.1.

Before installing CICS/ESA 4.1, read 3.2, "Preventive Service Planning" on page 10. This section tells you how to find any updates to the information and procedures in this program directory.

Do not use this program directory if you are installing CICS/ESA 4.1 with an MVS Custom-Built Installation Process Offering (CBIPO) (5751-CS1).  Instead, use the CBIPO Related Installation Materials (RIMs) provided with the CBIPO.  The CBIPO RIMs will point you to specific sections of the program directory as required.

If you are installing CICS/ESA 4.1 using the MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), use the RCVPDO RIM provided with the CBPDO to receive the product and service for CICS/ESA 4.1.  Any additional installation instructions should be obtained from this program directory and the *CICS/ESA 4.1 Installation Guide.*  However, before installing CICS/ESA 4.1:

1. Read this program directory

2. Check with your IBM Support Center or use either Information/Access or SoftwareXcel Extended to see if there is additional service information you need.

Your CBPDO contains a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for CICS/ESA 4.1 are included on the CBPDO tape.

# 2.0 Program Materials

An IBM program is identified by a program number and a feature code. The program number for CICS/ESA 4.1 is 5655-018.

The program announcement material describes the features supported by CICS/ESA 4.1. Ask your IBM marketing representative for this information if you have not already received a copy.

The following sections identify:

- The basic and optional program materials available with this program

## 2.1 Basic Machine-Readable Material

The distribution medium for this program is 9-track magnetic tape written at 6250 BPI, 3480 cartridge or 4MM DAT (see P/390 manual for further information). The tape or cartridge contains all the programs and data needed for installation. It is installed using SMP/E. See 6.0, "Installation Instructions" on page 31 for more information about how to install the program. Figure 1 describes the tape or cartridge. Figure 2 describes the file content of the program tape or cartridge.

Figure 1. Basic Material: Program Tape

| Medium | Feature Number | Physical Volume | External Label Identification | VOLSER |
|--------|----------------|-----------------|-------------------------------|--------|
| 6250 tape | 9001 with 5012 | 1 | CICS/ESA V4R1 BASE | CI4100 |
| 3480 cart. | 9001 with 5013 | 1 | CICS/ESA V4R1 BASE | CI4100 |
| 4MM DAT | 9001 with 5700 | 1 | CICS/ESA V4R1 BASE | CI4100 |
| 6250 tape | 9001 with 5014 | 1 | CICS/ESA V4R1 JAPAN | CI4100 |
| 3480 cart. | 9001 with 5015 | 1 | CICS/ESA V4R1 JAPAN | CI4100 |
| 4MM DAT | 9001 with 5683 | 1 | CICS/ESA V4R1 JAPAN | CI4100 |

**Note:** The distribution medium for 9001 with 5014 and 9001 with 5015 contains the base material for CICS/ESA 4.1 with the material for the Japanese language feature.

Figure 2 (Page 1 of 2). Program Tape: File Content

| VOLSER | File | Data Set Name | Description |
|--------|------|---------------|-------------|
| CI4100 | 1 | SMPMCS | SMPMCS[1] to install CICS/ESA 4.1 |
| | 2 | IBM.HCI4100.F1 | JCLIN to install CICS/ESA 4.1 |

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[1] **SMPMCS** SMP/E modification control statements

*Figure 2 (Page 2 of 2). Program Tape: File Content*

| VOLSER | File | Data Set Name | Description |
|---|---|---|---|
| | 3 | IBM.HCI4100.F2 | CICS410.ADFHINST library (All modules.) |
| | 4 | IBM.HCI4100.F3 | CICS410.ADFHPROC library (All modules.) |
| | 5 | IBM.HCI4100.F4 | CICS410.ADFHMAC library (All modules.) |
| | 6 | IBM.HCI4100.F5 | CICS410.ADFHSAMP library (Base modules.) |
| | 7 | IBM.HCI4100.F6 | CICS410.ADFHMOD library (All modules.) |
| | 8 | IBM.HCI4100.F7 | CICS410.ADFHSRC library (All modules.) |
| | 9 | IBM.HCI4100.F8 | CICS410.ADFHAPD1 library (All modules.) |
| | 10 | IBM.HCI4100.F9 | CICS410.ADFHAPD2 library (All modules.) |
| | 11 | IBM.HCI4100.F10 | CICS410.ADFHMSGS library (All modules.) |
| | 12 | IBM.HCI4100.F11 | CICS410.ADFHPARM library (All modules.) |
| | 13 | IBM.HCI4100.F12 | CICS410.ADFHSRCE library (All modules.) |
| | 14 | IBM.HCI4100.F13 | CICS410.ADFHCLIB library (All modules.) |
| | 15 | IBM.HCI4100.F14 | CICS410.ADFHMLIB library (All modules.) |
| | 16 | IBM.HCI4100.F15 | CICS410.ADFHPLIB library (All modules.) |
| | 17 | IBM.HCI4100.F16 | CICS410.ADFHLANG library (All modules.) |
| | 18 | IBM.JCI4101.F1 | CICS410.ADFHCOB library (All modules.) |
| | 19 | IBM.JCI4101.F2 | CICS410.ADFHSAMP library (COBOL modules.) |
| | 20 | IBM.JCI4102.F1 | CICS410.ADFHPLI library (All modules.) |
| | 21 | IBM.JCI4102.F2 | CICS410.ADFHSAMP library (PL/I modules.) |
| | 22 | IBM.JCI4103.F1 | CICS410.ADFHC370 library (All modules.) |
| | 23 | IBM.JCI4103.F2 | CICS410.ADFHSAMP library (C/370 modules.) |
| | 24 | IBM.JCI4106.F1 | JCLIN (CICS-DB2 attachment facility) |
| | 25 | IBM.JCI4106.F2 | CICS410.ADFHMOD library (CICS-DB2 modules.) |
| | 26 | IBM.JCI4106.F3 | CICS410.ADFHSAMP library (CICS-DB2 modules.) |
| | 27 | IBM.JCI4106.F4 | CICS410.ADFHMAC library (CICS-DB2 modules.) |
| | 28 | IBM.JCI4107.F1 | JCLIN (External CICS interface) |
| | 29 | IBM.JCI4107.F2 | CICS410.ADFHSAMP library (EXCI modules.) |
| | 30 | IBM.JCI4107.F3 | CICS410.ADFHSRC library (EXCI modules.) |
| | 31 | IBM.JCI4107.F4 | CICS410.ADFHMOD library (EXCI modules.) |
| [2] | 32 | IBM.JCI4104.F1 | JCLIN (Japanese language facility) |
| | 33 | IBM.JCI4104.F2 | CICS410.ADFHMOD library (Japanese feature modules.) |

## 2.2  Optional Machine-Readable Material

The distribution medium for optional machine-readable material is 9-track magnetic tape written at 6250 BPI, 3480 cartridge or 4MM DAT.  Figure 3 on page 5 describes the tape or cartridge.  Figure 4 on page 5 describes the file content of the CICS/ESA 4.1 optional source tape or cartridge.

**Note:**  The optional machine-readable material (tape or cartridge) contains "Restricted Materials of IBM."

*Figure 3. Optional Material: CICS/ESA 4.1*

| Medium | Feature Number | Physical Volume | External Label Identification | VOLSER |
| --- | --- | --- | --- | --- |
| 6250 tape | 5016 | 1 | CICS/ESA V4R1 OPTION 1 | CI410S |
| 6250 tape | 5016 | 2 | CICS/ESA V4R1 OPTION 2 | CI410T |
| 3480 cart. | 5017 | 1 | CICS/ESA V4R1 OPTION 1 | CI410S |
| 3480 cart. | 5017 | 2 | CICS/ESA V4R1 OPTION 2 | CI410T |
| 4MM DAT | 5603 | 1 | CICS/ESA V4R1 OPTION 1 | CI410S |
| 4MM DAT | 5603 | 2 | CICS/ESA V4R1 OPTION 2 | CI410T |

*Figure 4. CICS/ESA 4.1 Optional Source Material Tapes: File Content*

| VOLSER | File | Name | Description |
| --- | --- | --- | --- |
| CI410S | 1 | CICS410.OPTSRC01 | Only file on first tape |
| CI410T | 1 | CICS410.OPTSRC02 | Only file on second tape |

Use the CICS-supplied sample job DFHOPSRC to load the optional CICS/ESA 4.1 source material from the tape.  For further information about loading the CICS/ESA 4.1 source material, see 6.10.3, "Load the CICS/ESA 4.1 source material (optional)" on page 69.

## 2.3  Program Publications

The following sections identify the basic and optional publications for CICS/ESA 4.1.

### 2.3.1  Basic Program Publications

Figure 5 on page 6 identifies the basic program publications for CICS/ESA 4.1.  One copy of each of these publications is included when you order the basic materials for CICS/ESA 4.1.  Additional copies of individual unlicensed publications are available for a fee.  You can order such copies from your IBM representative, through the System Library Subscription Service (SLSS), or by direct order.

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[2]  The Japanese language feature elements are provided only if CICS/ESA 4.1 is ordered with the Japanese language feature.

Copies of the licensed publications are available at no charge to licensees of the CICS/ESA 4.1 basic material by specifying the 7xxx feature number. To order additional copies, for a fee, use the 8xxxx feature number.

For information about the CICS/ESA 4.1 softcopy publications, see 2.3.3, "Softcopy books" on page 8.

*Figure 5. Basic Material: Unlicensed Publications*

| Publication Title | Form Number |
| --- | --- |
| Release Guide | GC33-1161-01 |
| Migration Guide | GC33-1162-01 |
| Installation Guide | SC33-1163-00 |
| System Definition Guide | SC33-1164-00 |
| Customization Guide | SC33-1165-00 |
| Resource Definition Guide | SC33-1166-00 |
| Operations and Utilities Guide | SC33-1167-00 |
| CICS-Supplied Transactions | SC33-1168-00 |
| Application Programming Reference | SC33-1170-00 |
| System Programming Reference | SC33-1171-00 |
| Problem Determination Guide | SC33-1176-00 |
| Messages and Codes | SC33-1177-00 |
| CICS-RACF Security Guide | SC33-1185-00 |
| Licensed Program Specification | GC33-1201-00 |
| Program Directory | - |

*Figure 6. Basic Material: Licensed Publications*

| Publication Title | Form Number | Feature Number First Copy | Feature Number Additional Copy |
| --- | --- | --- | --- |
| Diagnosis Reference | LY33-6082-00 | 7005 | 8006 |
| Data Areas | LY33-6083-00 | 7006 | 8007 |

## 2.3.2 Optional Program Publications

Figure 7 on page 7 identifies the optional unlicensed program publications for CICS/ESA 4.1. Copies of these publications are available as a set, for the associated fee, using the 8043 Feature Number. Additional copies of individual unlicensed publications are available, for a fee. You can order such copies from your IBM representative, through the System Library Subscription Service (SLSS), or by direct order.

Figure 8 on page 7 identifies the optional licensed program publications for CICS/ESA 4.1. Copies are available, for the associated fee, using the 8xxx Feature Number.

*Figure 7. Optional Material: Unlicensed Publications*

| Publication Title | Form Number |
|---|---|
| Master Index | SC33-1187-00 |
| User's Handbook | SX33-1188-00 |
| Application Programming Guide | SC33-1169-00 |
| Distributed Transaction Programming Guide | SC33-1174-00 |
| External CICS Interface Guide | SC33-1390-00 |
| Front End Programming Interface User's Guide | SC33-1175-00 |
| Intercommunication Guide | SC33-1181-00 |
| Recovery and Restart Guide | SC33-1182-00 |
| Performance Guide | SC33-1183-00 |
| CICS-IMS Database Control Guide | SC33-1184-00 |
| Shared Data Tables Guide | SC33-1186-00 |
| CICS Family: Library Guide | GC33-1226-00 |
| Sample Applications Guide | SC33-1173-00 |
| CICS Family: Inter-product Communication | SC33-0824-01 |
| CICS Family: Communicating from CICS/ESA and CICS/VSE | SC33-0825-01 |

*Figure 8. Optional Material: Licensed Publications*

| Publication Title | Form Number | Feature Number First Copy | Feature Number Additional Copy |
|---|---|---|---|
| Diagnosis Handbook | LX33-6093-00 | - | 8005 |
| Supplementary Data Areas | LY33-6081-00 | - | 8008 |
| Supplementary Data Areas (printed copy) with softcopy of the Data Areas on:<br>9/6250 tape<br>3480 cart.<br>4MM DAT | LY33-6081-00 | - | <br>5040<br>5041<br>5623 |

## 2.3.3  Softcopy books

Softcopy (online book) versions of the CICS/ESA 4.1 program publications are available on the following CD-ROM kits:

- *Transaction Processing and Data products*, SK2T-0730

- *CICS/ESA 4.1 Product Kit*, LK2T-1749.

The collection kits include book files, a copy of the IBM Library Reader, and some other utility programs. This means that you do not have to order BookManager READ separately in order to use the CD-ROM. The softcopy books can be used with the BookManager READ licensed programs in any of the supported environments.  Terms and conditions for use of the softcopy files are shipped with those files.

The best way to receive the softcopy books is through the *Transaction Processing and Data products* Collection Kit.  The disadvantages of ordering the softcopy books through the CICS/ESA 4.1 Product collection kit only are the kit may not be updated and the kit does not contain other softcopy books.

Information about these CD-ROM kits is given in the following sections.

### 2.3.3.1  The Transaction Processing and Data products CD-ROM kit

Softcopy (online book) versions of the unlicensed program publications are available on the CD-ROM Collection Kit for *Transaction Processing and Data products*, SK2T-0730.  This kit contains softcopy versions of all unlicensed CICS/ESA 4.1 publications, except for the Master Index (SC33-1187).  The kit also includes a Glossary (GC33-1189), available in softcopy form only, and linked to all other books in the CICS/ESA 4.1 bookshelf.

The licensed publications will be included on this kit when appropriate encryption technology is in place. (Licensees of CICS/ESA 4.1 can get softcopy versions of the licensed publications on the CICS/ESA 4.1 product kit.)

The kit also contains books for CICS/ESA, CICS/MVS, CICS OS/2, CICS/VSE, and many related products.

To order copies of the *Transaction Processing and Data products* collection kit, please contact you IBM representative.

*Figure  9.  Transaction Processing and Data products Collection Kit*

| Title | Form Number | Feature Number First Copy | Feature Number Additional Copy |
|---|---|---|---|
| *Transaction Processing and Data products* Collection Kit | SK2T-0730 | 7008 | 8009 |

### 2.3.3.2 CICS/ESA 4.1 product kit

Softcopy (online book) versions of the program publications are available as a CICS/ESA 4.1 product kit. This kit contains softcopy versions of both licensed and unlicensed publications.

*Figure 10. CICS/ESA 4.1 Product Kit*

| Medium | Form Number | Feature Number |
|--------|-------------|----------------|
| CD-ROM | LK2T-1749 | - 8041 |

For information about how you may use the IBM softcopy publications, read the *Softcopy Agreement* that is distributed on the CD-ROM and the softcopy tape before proceeding further.

## 2.4 Optional Source Listings

Microfiche program listings are not provided with CICS/ESA 4.1. Customers with access to View Program Listings (VPL), such as through SoftwareXcel Extended, can access program listings formerly provided through microfiche.

Those customers without access to VPL can contact their IBM representative.

The VPL facility provides online viewing of program listings that are available to customers. For more information about how to use the VPL system, see the *VPL User's Guide*, dated January 1993.

## 2.5 Publications Useful During Installation

This Program Directory contains the information that you need to install the CICS/ESA 4.1 software from the distribution medium.

The *CICS/ESA Installation Guide*, SC33-1163, contains information useful when tailoring CICS/ESA 4.1 to your environment and running the CICS-supplied installation verification procedures.

# 3.0 Program Support

This section describes the IBM support available for CICS/ESA 4.1.

## 3.1 Service Instructions

CICS/ESA 4.1 has been updated to a new service level by Software Manufacturing.

The program FMIDs have been updated to the following new service level and have been assigned new SOURCEIDs.

| FMID | SOURCEID |
|------|----------|
| HCI4100 | SMC9436 |
| JCI4101 | SMC9436 |
| JCI4102 | SMC9436 |
| JCI4103 | SMC9436 |
| JCI4104 | SMC9436 |
| JCI4106 | SMC9436 |
| JCI4107 | SMC9436 |

Figure 11. FMIDs and SOURCEIDs

Contact your IBM marketing representative or systems engineer (SE) for specific information about available service instructions.

## 3.2 Preventive Service Planning

If you obtained CICS/ESA 4.1 as part of a CBPDO, there is HOLDDATA and Preventive Service Planning (PSP) information for CICS/ESA 4.1 on the CBPDO tape. Before installing CICS/ESA 4.1, check with your IBM Support Center or use either Information/Access or SoftwareXcel Extended to see whether there is additional Preventive Service Planning (PSP) information that you should know. To obtain this information, specify the following UPGRADE and SUBSET values:

Figure 12. PSP Upgrade and Subset ID

| UPGRADE | SUBSET | RETAIN Release |
|---------|--------|----------------|
| CICS410 | HCI4100 | 100 |
|         | JCI4101 | 101 |
|         | JCI4102 | 102 |
|         | JCI4103 | 103 |
|         | JCI4104 | 104 |
|         | JCI4106 | 106 |
|         | JCI4107 | 107 |

If you have received CICS/ESA 4.1 only from IBM Software Distribution, then before installing CICS/ESA 4.1, you should also check with your IBM Support Center or use either Information/Access or SoftwareXcel Extended to see if there is additional PSP information that you should know.

## 3.3  Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center.  If an APAR is required, the Support Center will provide the address to which any needed documentation can be sent.

Figure  13 identifies the component IDs (COMPID) for CICS/ESA 4.1.

*Figure  13.  Component IDs*

| FMID | COMPID | Component Name | REL |
|------|--------|----------------|-----|
| HCI4100 | 565501800 | CICS/ESA 4.1.0 Base | 100 |
| JCI4101 | | COBOL Language Parts | 101 |
| JCI4102 | | PL/I Language Parts | 102 |
| JCI4103 | | C Language Parts | 103 |
| JCI4104 | | CICS/ESA 4.1.0 Jap | 104 |
| JCI4106 | | CICS-DB2 Adapter | 106 |
| JCI4107 | | External CICS Interface | 107 |

# 4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of CICS/ESA 4.1.  The program level refers to the APAR fixes incorporated into the program.  The service level refers to the PTFs integrated. Information about the cumulative service tape is also provided.

## 4.1 Program Level Information

Appendix B, "APAR fixes incorporated in CICS/ESA 4.1" on page 87 lists the APARs against previous releases of CICS/ESA 4.1 have been incorporated into this release.

## 4.2 Service Level Information

The following PTFs contain the APAR fixes against this release of CICS/ESA 4.1. They are listed by FMID and have been incorporated into this release.

**Note:**  COR-CLOSED PTFs are available for corrective service and will be placed on the next available Program Update Tape (PUT).  The following sub-categories for COR-CLOSED PTFs have been provided by the Software Manufacturing Center (SMC), Kingston:

**SMCREC** COR-CLOSED PTFs that have been researched and recommended for installation by the Software Manufacturing Center (SMC) in Kingston.

**SMCCOR** COR-CLOSED PTFs that have no special recommendations for installation.

- FMID HCI4100

```
UN59771-PUT9404    UN60370-PUT9405    UN60620-PUT9405
UN61639-PUT9405    UN61943-PUT9406    UN62414-PUT9406
UN62425-PUT9406    UN63317-PUT9406    UN63682-PUT9406
UN63932-PUT9406    UN64225-PUT9407    UN64333-PUT9407
UN64737-PUT9407    UN65066-PUT9407    UN65277-PUT9407
UN65719-SMCCOR     UN66068-SMCCOR     UN66186-SMCCOR
```

- FMID JCI4101

```
UN60371-PUT9405    UN61645-PUT9405    UN62417-PUT9406
UN63683-PUT9406    UN64206-PUT9406    UN64334-PUT9407
UN65280-PUT9407
```

- FMID JCI4102

```
UN60372-PUT9405    UN60622-PUT9405    UN62418-PUT9406
UN63684-PUT9406    UN64207-PUT9406    UN64335-PUT9407
UN65294-PUT9407
```

- FMID JCI4103

```
UN61946-PUT9406    UN64208-PUT9406    UN66232-SMCCOR
```

- FMID JCI4104

  ```
  UN60621-PUT9405    UN61644-PUT9405    UN61944-PUT9406
  UN62415-PUT9406    UN64738-PUT9407    UN65101-PUT9407
  UN65295-PUT9407
  ```

- FMID JCI4106

  ```
  UN60857-PUT9405    UN62336-PUT9406    UN63781-PUT9407
  UN64978-PUT9407
  ```

- FMID JCI4107

  ```
  UN61945-PUT9406    UN64741-PUT9407    UN65102-PUT9407
  ```

## 4.3  Cumulative Service Tape

There is no cumulative service tape for CICS/ESA 4.1.

# 5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating CICS/ESA 4.1. In most cases, you can install CICS/ESA 4.1 on a running system (target system). However, sometimes two systems may be required. If two systems are required, then the following terminology is used:

1. The system used to install the program (driving system)

2. The system on which the program is installed (target system).

## 5.1 Driving System Requirements

This section describes the environment of the driving system required to install CICS/ESA 4.1.

### 5.1.1 Operating System Requirements

The MVS/ESA operating system is used to install CICS/ESA 4.1.

### 5.1.2 Hardware Requirements

To load the program materials for CICS/ESA 4.1, you need tape drives that can handle 6250 BPI 9-track tapes, 3480s for cartridges or 4MM DAT. The program materials for CICS/ESA 4.1 can be loaded to 3380 or 3390 DASD; it cannot be loaded to earlier DASD types (for example, 3350s).

### 5.1.3 Programming Requirements

To install CICS/ESA 4.1 you need System Modification Program Extended (SMP/E) Version 1 Release 7 (5668-949) with PTFs or later.

**Note:** To accommodate the use of new high level qualifiers (HLQs), SMP/E Release 7 requires the following PTFs to be applied:

> UR40251 for FMID HMP1701 and
> UR40252 for FMID JMP1701 for the English language feature, or
> UR40255 for FMID JMP1711 for the Japanese language feature.

These PTFs are required to enable SMP/E Release 7 to use the RFDSNPFX parameter for RELFILE names that are prefixed with a high-level qualifier of "IBM". SMP/E Release 8 and later do not need any PTFs applied for this reason.

TSO/E Version 1.4 or later is needed to run the DFHISTAR job used to generate the CICS installation and post-installation jobs. However, you can run the DFHISTAR job in a different MVS image from the MVS image in which you intend running the jobs generated by the DFHISTAR job.

## 5.1.4 DASD Storage Requirements

There are no special DASD storage requirements for installing CICS/ESA 4.1 other than those requirements described for the target system on page 5.2.5, "DASD Storage Requirements" on page 20.

## 5.2 Target System Requirements

This section describes the environment of the target system required to install and use CICS/ESA 4.1.

## 5.2.1 Hardware Requirements

CICS/ESA 4.1 runs on any IBM System/370 or System/390 processor that supports MVS/ESA and has enough processor storage to meet the combined requirements of the host operating system, CICS, the access methods and your application programs.

### 5.2.1.1 Hardware requirements for storage protection

If you want to use the storage protection facility offered by CICS/ESA 4.1, you need an ESA/390 processor that includes the subsystem storage protection facility, and which meets the requirements of the host operating system, CICS, the access methods, and your application programs. For the subsystem storage protection facility, you need one of the following IBM ES/9000 machines, in addition to the prerequisite software:

- ES/9000 9021 Model 520, 640, 660, 711, 740, 820, 821, 822, 831, 832, 860, 900, 941, or higher
- ES/9000 9121 Model 180, 190, 210, 260, 311, 320, 411, 440, 480, 490, 511, 521, 522, 570, 610, 621, 622, 732, or 742
- ES/9000 9221 Model 170 or 200.

For the operating system requirements, see 5.2.3, "Operating System Requirements" on page 20.

### 5.2.1.2 Hardware requirements for transaction isolation

If you want to use the transaction isolation support of CICS/ESA 4.1, you need an ESA/390 processor that includes the subspace-group facility, and which meets the requirements of the host operating system, CICS, the access methods, and your application programs. For the subspace-group facility, this can be any of the following processors:

- ES/9000 9021 711-based models with SEC 228270
- ES/9000 9121 511-based models with SEC C35954
- ES/9000 9121 621-based models with SEC C35954
- ES/9000 9221 211-based models
- System/390 microprocessor complex.

For the operating system requirements, see 5.2.3, "Operating System Requirements" on page 20.

### 5.2.1.3  Hardware requirements for a sysplex

To use CICS/ESA 4.1 in a sysplex, or any form of n-way cross-MVS image data sharing, you must first create a sysplex.  The multiple MVS images that comprise a sysplex can run in either:

- One CPC[3] (the CPC being an ESA/390-capable processing system) partitioned into one or more logical partitions (LPARs) using the PR/SM facility, or
- One or more CPCs (possibly of different processor models), with each CPC running a single MVS image, or
- A mixture of LPARs and separate CPCs.

**Note:**  In a multi-CPC sysplex, the processing systems are usually in the same machine room, but they can also reside in different locations provided the distances involved are within the limits specified for communication with the external time reference facility.  Generally this restricts the separate CPCs that are members of an XCF sysplex to being no more than about 3000 meters apart.

You also need the following hardware:

- **A coupling facility**—an IBM 9674 running the coupling facility control code in a PR/SM LPAR.  The coupling facility control code can also run in a 9021 711-based model or a S/390 Parallel Transaction Server 9672 in a PR/SM LPAR.  For more information about sysplex coupling hardware requirements, see the hardware announcement 194-082, dated April 6, 1994.
- **XCF coupled data sets**—XCF requires DASD data sets shared by all systems in the sysplex.
- **Channel-to-channel links, ESCON channels or high-speed coupling facility links**—for XCF signalling.
- **External time reference (ETR) facility**—when the sysplex consists of multiple MVS systems running on two or more CPCs, XCF requires that the CPCs be connected to the same ETR facility.  XCF uses the synchronized time stamp that the ETR provides for a common sysplex-wide time reference, and for monitoring and sequencing events within the sysplex.
- DASD controllers with enough paths to dedicate one path to each MVS image in the sysplex.

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[3]  CPC.  One physical processing system, such as the whole of an ES/9000 9021 Model 820, or one physical partition of such a machine.  A physical processing system consists of main storage, and one or more central processing units (CPUs), time-of-day (TOD) clocks, and channels, which are in a single configuration.  A CPC also includes channel subsystems, service processors, and expanded storage, where installed.

### 5.2.1.4  DASD requirements

Support for any new disk device will be completely transparent to CICS/ESA 4.1, because it uses standard access methods.

To use CICS/ESA 4.1 in a sysplex, or any form of n-way cross-MVS image data sharing, you need DASD controllers with enough paths to dedicate one path to each MVS image in the sysplex.

To use T0 (or concurrent) copy of active files or databases, you need to install 3990 model 3 DASD controllers.

### 5.2.1.5  Tape requirements

CICS/ESA 4.1 still supports current tape devices, including 3480 devices (although not recommended), for tape logging.  However, it does not support the use of 3480 follow-on devices for tape logging.

**Note:**   Future CICS releases will discontinue support for tape logging.

There are no restrictions on the use of tape devices for extrapartition transient data.

### 5.2.1.6  Device support

CICS/ESA 4.1 supports current and new terminals if they are accessed through VTAM or TCAM(DCB).

CICS/ESA 4.1 does not support devices and controllers accessed using BTAM, GAM, or TCAM  (ACB). BTAM and TCAM(ACB) accessed terminals are supported *only through* a CICS/MVS 2.1.2 terminal-owning region using MRO or inter-region communication (ISC) or transaction routing using ISC.

To take advantage of the Japanese language feature you need terminals capable of supporting the double-byte character set (DBCS).

Support for any VTAM-attached printer will be completely transparent to CICS/ESA 4.1, assuming those printers are compatible with currently-supported models.

Current device types, and their modes of connection, are listed in the *CICS/ESA Resource Definition Guide.*

## 5.2.2  Summary of software levels for CICS/ESA 4.1

This section summarizes the software levels that you need for CICS/ESA 4.1.

### 5.2.2.1  Minimum software levels required

The minimum levels for software products that you can use with CICS/ESA 4.1 are listed in Figure  14. The levels are the same as for CICS/ESA 3.3, except where the new minimum level is marked by an asterisk (*).

| Software product | CICS/ESA 3.3 | CICS/ESA 4.1 |
|---|---|---|
| ACF/TCAM(DCB) 5735-RC3 | Version 2 | Version 2 |
| ACF/VTAM 5685-085 or 5665-289 | Version 3.3 | Version 3.4.1* |
| CICSPD 5695-035 | Version 1.2 | N/A* |
| CICSVR 5695-010 | Version 2.1 | Version 2.1 |
| DB2 5665-DB2 | Version 2.2(SPE) | Version 2.3* |
| EPDM 5695-101 | Version 1.1.0 | Version 1.1.1* |
| GDDM/MVS 5665-356 | Version 2.3 | Version 2.3 |
| IMS/ESA DB 5665-408 | Version 3.1 | Version 3.1 |
| MVS/DFP 5665-XA3 | Version 3.1 | Version 3.1 |
| MVS/ESA(BCP) | Version 3.1.3 | Version 3.1.3 |
|   MVS/SP-JES2 5685-001 | | |
|   MVS/SP-JES3 5685-002 | | |
| OS PL/I-R/T 5668-910 | Version 2.3 | Version 2.3 |
| RACF 5740-XXH | Version 1.8.1 | Version 1.9* |
| SLR 5665-397 | Version 3.3 | Version 3.3 + PTF UN52997 |
| SMP/E | Release 5 | Release 7* |

*Figure 14. Minimum levels of software products for CICS/ESA 4.1*

**Notes:**

1. These **minimum** prerequisite software levels do not support some new functions in either CICS/ESA 3.3 or CICS/ESA 4.1. For the software levels required for extra functions, see 5.2.2.2, "Software levels required for extra function" on page 19.

2. To accommodate the use of new high level qualifiers, SMP/E Release 7 requires the following PTFs to be applied:

   > UR40251 for FMID HMP1701 and
   > UR40252 for FMID JMP1701 for the English language feature, or
   > UR40255 for FMID JMP1711 for the Japanese language feature.

   These PTFs are required to enable SMP/E Release 7 to use the RFDSNPFX parameter for RELFILE names that are prefixed with a high-level qualifier of "IBM.". SMP/E Release 8 and later do not need any PTFs applied for this reason.

3. The minimum required level of VTAM for CICS/ESA V4.1 is:

   - ACF/VTAM V3.4.1 for MVS/ESA (5685-085),

   - ACF/VTAM V3.3 for MVS/XA (5665-289), which can only be used at the CICS/ESA 3.3 functional level.

   - For the VTAM functions VTAM MTS or VTAM persistent sessions, the minimum required level is ACF/VTAM V3.4.1 for MVS/ESA (5685-085).

4. For CICS/PD support, contact Compuware for an equivalent product.

## 5.2.2.2  Software levels required for extra function

The levels for software products that you can use with CICS/ESA 4.1 to exploit extra functions are listed in Figure 15 on page 19.

| New function description | Introduced in CICS | Software level required |
|---|---|---|
| VSAM BWO - SMS only | Version 3.2.1 | DFSMS (5695-085) Version 1.2 or MVS/DFP Version 3.2, DFHSM Version 2.5, DFDSS Version 2.5, and CICSVR Version 2 (See Information APAR II04910.) |
| XCF with XRF | Version 3.2.1 | MVS/ESA SP Version 4 (JES2 (5695-047) or JES3 (5695-048)) and MVS/DFP Version 3.2 or later |
| CICS Operator/TSO Console | Version 3.2.1 | MVS/ESA SP Version 4 |
| FFDC to SYS1.LOGREC | Version 3.2.1 | MVS/ESA SP Version 4 |
| Subsystem Storage Protect | Version 3.3 | MVS/ESA SP Version 4.2.2 |
| Distributed Program Link | Version 3.3 | PTFs-some servers |
| IMS-DBCTL with SSP | Version 3.3 | IMS/ESA DB (5685-012) Version 4.1 |
| Transaction Isolation | Version 4.1 | MVS/ESA 5.1 |
| XCF MRO using MVS Cross System Coupling software | Version 4.1 | MVS/ESA 5.1 |
| Workload manager | Version 4.1 | MVS/ESA 5.1 |
| Automatic restart | Version 4.1 | MVS/ESA 5.2 |
| DBCTL n-way Data Sharing | V4.1 | IMS/ESA DB Version 5.1 and MVS/ESA 5.1 |
| Persistent Sessions | V4.1 | ACF/VTAM Version 3.4.1 (+ fix for APARs in note below) |
| Generic Resource | Version 4.1 | ACF/VTAM Version 4.2 and MVS/ESA 5.1 |
| Security: performance or secured signon | Version 4.1 | RACF 2.1 |

*Figure 15. Software levels required for extra function*

**Note:**

To use VTAM persistent sessions, you must ensure that your base VTAM includes a fix for the following APARs, or you must apply a PTF for these APARs:  OY48290, OY49120, OY51854, OY56978, OY59334, OY61531, OY61633, OY62409, OY62412, OY63547, OY65251, OY67631, OW00672, OW00763

MVS/ESA 5.2 enhances the parallel sysplex to allow transaction managers, resource managers, and restartable subsystems to be restarted automatically.  For more information about CICS/ESA 4.1's use of MVS automatic restart, see Appendix C, "CICS/ESA support for the MVS automatic restart manager" on page 93.  (This information will be added to the CICS/ESA 4.1 publications after CICS/ESA 4.1 general availability, because it was too late for the GA-level publications.)

## 5.2.3  Operating System Requirements

CICS/ESA 4.1 operates under the Multiple Virtual Storage/ Enterprise Systems Architecture (MVS/ESA) operating system.

The level of the MVS operating system that you require depends on the level of CICS function you want to use.  The levels of MVS needed to run CICS/ESA 4.1 without exploiting special functions are listed in Figure  14 on page  17.  The levels of MVS needed to exploit special functions are listed in 5.2.2, "Summary of software levels for CICS/ESA 4.1" on page  17.

## 5.2.4  Programming Requirements

The minimum programming requirements for CICS/ESA 4.1 are listed in Figure  14 on page  17.  The programming requirements to use special functions of CICS/ESA 4.1 are listed in Figure  15 on page  19.

See 5.3, "Program Considerations" on page  24 for additional software requirements.

## 5.2.5  DASD Storage Requirements

Figure  16 and Figure  17 on page  22 list the target and distribution libraries (data sets) and their attributes required to install CICS/ESA 4.1.

These libraries are allocated and catologed when you run the DFHINST1 job during the CICS/ESA 4.1 installation process, as described in 6.9.1.2, "The DFHINST1 job" on page  60.

The storage values given in Figure  16 and Figure  17 on page  22 are those *allocated* by the DFHINST1 job.  The actual *used* values required for the libraries are less than these values, and depend on your installation and your use of the libraries.  For example, the allocated size of the SYS1.CICS410.SDFHLPA library is 410 blocks and 100 directory blocks, but when you first install CICS/ESA 4.1 this contains only those modules that must be in that library.  (The used size of the library is 34 blocks and 2 directory blocks.)  If you choose to later install other modules in the SYS1.CICS410.SDFHLPA library (for use in the MVS link pack area), more space is needed.

SMP/E DDDEF entries for each data set are created when you run the DFHINST4 job during the CICS/ESA 4.1 installation process, as described in 6.9.1.5, "The DFHINST4 job" on page  62.

You specify the block size to be used for allocating the CICS library data sets by the following parameters of the DFHISTAR job during the CICS/ESA 4.1 installation process:

- BLKFB80, the block size for data sets that have an 80-byte *fixed block* record format (FB 80)

- BLKU, the block size for data sets that have an *undefined* record format (U).

For advice on choosing block sizes, see 6.5.8, "Specify block sizes" on page  41.

*Figure 16 (Page 1 of 2). Storage Requirements for Target Libraries*

| Data Set Name or Library Name | T Y P E | D S O R G | R E C F M | L R E C L | BLK SIZE | No. of BLKS | No. of DIR BLKS |
|---|---|---|---|---|---|---|---|
| CICS410.TDFHINST | NU | PO | FB | 80 | 6160 | 21 | 2 |
| CICS410.XDFHINST | NU | PO | FB | 80 | 6160 | 21 | 2 |
| CICS410.SDFHINST | NU | PO | FB | 80 | 6160 | 96 | 5 |
| CICS410.SDFHAPD1 | NU | PO | FB | 38 | 23446 | 2 | 1 |
| CICS410.SDFHAPD2 | NU | PO | FB | 227 | 23381 | 2 | 1 |
| CICS410.SDFHAUTH | NU | PO | U | 0 | 6144 | 336 | 12 |
| CICS410.SDFHCLIB | NU | PO | FB | 80 | 6160 | 10 | 1 |
| CICS410.SDFHCOB | NU | PO | FB | 80 | 400 | 1080 | 10 |
| CICS410.SDFHC370 | NU | PO | FB | 80 | 400 | 648 | 10 |
| CICS410.SDFHEXCI | NU | PO | U | 0 | 6144 | 24 | 2 |
| CICS410.SDFHLANG | NU | PO | FB | 80 | 6160 | 8 | 2 |
| CICS410.SDFHLLIB | NU | PO | U | 0 | 6144 | 56 | 2 |
| CICS410.SDFHLOAD | NU | PO | U | 0 | 6144 | 2664 | 120 |
| CICS410.SDFHMAC | NU | PO | FB | 80 | 6160 | 1856 | 30 |
| CICS410.SDFHMLIB | NU | PO | FB | 80 | 6160 | 8 | 2 |
| CICS410.SDFHMSGS | NU | PO | V | 30646 | 30650 | 150 | 200 |
| CICS410.SDFHPARM | NU | PO | FB | 80 | 6160 | 8 | 1 |
| CICS410.SDFHPLIB | NU | PO | FB | 80 | 400 | 24 | 2 |
| CICS410.SDFHPL1 | NU | PO | FB | 80 | 400 | 1026 | 10 |
| CICS410.SDFHPROC | NU | PO | FB | 80 | 6160 | 24 | 5 |
| CICS410.SDFHSAMP | NU | PO | FB | 80 | 6160 | 1344 | 25 |
| CICS410.SDFHSRC | NU | PO | FB | 80 | 6160 | 2128 | 40 |
| CICS410.SDFHSRCE | NU | PO | FB | 80 | 6160 | 688 | 10 |
| SYS1.CICS410.SDFHLINK | NU | PO | U | 0 | 6144 | 456 | 12 |

*Figure 16 (Page 2 of 2). Storage Requirements for Target Libraries*

| Data Set Name or Library Name | T Y P E | D S O R G | R E C F M | L R E C L | BLK SIZE | No. of BLKS | No. of DIR BLKS |
|---|---|---|---|---|---|---|---|
| SYS1.CICS410.SDFHLPA | NU | PO | U | 0 | 6144 | 4120 | 100 |

**Notes:**

1. The number of blocks and directory blocks specified is the actual minimum storage required by CICS/ESA 4.1 after the program is installed and the data sets are compressed. When allocating these data sets, you may want to specify additional storage and directory blocks to allow for maintenance.

2. If required, data sets may be reblocked to a larger size.

3. SMP/E DDDEF entries for each data set are created when you run the DFHINST4 job during the CICS/ESA 4.1 installation process, as described in 6.9.1.5, "The DFHINST4 job" on page 62.

4. Abbreviations used for the data set type are:

   **NU** New data set used by only the FMIDs listed. In order to determine the correct storage needed for this data set, only the storage size given in the one table needs to be used. No other tables (or program directories) need to be referenced for the data set size.

   **NM** New data set used by more than the FMIDs listed. In order to determine the correct storage needed for this dataset, the storage size given in the one table needs to be added to other tables (perhaps in other program directories).

   **EU** Existing data set used by only the FMIDs listed. In order to determine the correct storage needed for this data set, only the storage size given in the one table needs to be used. No other tables (or program directories) need to be referenced for the data set size.

   **EM** Existing data set used by more than the FMIDs listed. In order to determine the correct storage needed for this data set, the storage size given in the one table needs to be added to other tables (perhaps in other program directories).

The allocations for table Figure 16 on page 20 contain extra space. (DFHINST1 allocates space rounded up to the next cylinder.) You may wish to revise these numbers based on your plans for adding additional function or service.

*Figure 17 (Page 1 of 2). Storage Requirements for Distribution Libraries*

| Data Set Name or Library Name | T Y P E | D S O R G | R E C F M | L R E C L | BLK SIZE | No. of BLKS | No. of DIR BLKS |
|---|---|---|---|---|---|---|---|
| CICS410.ADFHINST | NU | PO | FB | 80 | 6160 | 96 | 5 |
| CICS410.ADFHAPD1 | NU | PO | FB | 38 | 23446 | 2 | 1 |
| CICS410.ADFHAPD2 | NU | PO | FB | 227 | 23381 | 2 | 1 |
| CICS410.ADFHCLIB | NU | PO | FB | 80 | 6160 | 16 | 2 |
| CICS410.ADFHCOB | NU | PO | FB | 80 | 400 | 1080 | 10 |

*Figure 17 (Page 2 of 2). Storage Requirements for Distribution Libraries*

| Data Set Name or Library Name | TYPE | DSORG | RECFM | LRECL | BLK SIZE | No. of BLKS | No. of DIR BLKS |
|---|---|---|---|---|---|---|---|
| CICS410.ADFHC370 | NU | PO | FB | 80 | 400 | 648 | 10 |
| CICS410.ADFHLANG | NU | PO | FB | 80 | 6160 | 8 | 2 |
| CICS410.ADFHMAC | NU | PO | FB | 80 | 6160 | 1856 | 30 |
| CICS410.ADFHMLIB | NU | PO | FB | 80 | 6160 | 8 | 2 |
| CICS410.ADFHMOD | NU | PO | U | 0 | 6144 | 3440 | 360 |
| CICS410.ADFHMSGS | NU | PO | V | 30646 | 30650 | 150 | 200 |
| CICS410.ADFHPARM | NU | PO | FB | 80 | 6160 | 8 | 1 |
| CICS410.ADFHPLIB | NU | PO | FB | 80 | 400 | 24 | 2 |
| CICS410.ADFHPL1 | NU | PO | FB | 80 | 400 | 1026 | 10 |
| CICS410.ADFHPROC | NU | PO | FB | 80 | 6160 | 24 | 5 |
| CICS410.ADFHSAMP | NU | PO | FB | 80 | 6160 | 1344 | 25 |
| CICS410.ADFHSRC | NU | PO | FB | 80 | 6160 | 2128 | 40 |
| CICS410.ADFHSRCE | NU | PO | FB | 80 | 6160 | 688 | 10 |

**Note:**

1. Abbreviations used for the data set type are:

   **NU**   New data set used by only the FMIDs listed.  In order to determine the correct storage needed for this data set, only the storage size given in the one table needs to be used.  No other tables (or program directories) need to be referenced for the data set size.

   **NM**   New data set used by more than the FMIDs listed.  In order to determine the correct storage needed for this dataset, the storage size given in the one table needs to be added to other tables (perhaps in other program directories).

   **EU**   Existing data set used by only the FMIDs listed.  In order to determine the correct storage needed for this data set, only the storage size given in the one table needs to be used.  No other tables (or program directories) need to be referenced for the data set size.

   **EM**   Existing data set used by more than the FMIDs listed.  In order to determine the correct storage needed for this data set, the storage size given in the one table needs to be added to other tables (perhaps in other program directories).

The allocations for table Figure 17 on page 22 contain extra space.  (DFHINST1 allocates space rounded up to the next cylinder.)  You may wish to revise these numbers based on your plans for adding additional function or service.

## 5.3  Program Considerations

The following sections list the programming considerations for installing CICS/ESA 4.1 and activating its functions.

## 5.3.1  Automated operations

You can use CICSPlex SM/ESA to improve system and operational management of inter-connected CICS regions in a sysplex (CICSplex).

To use CICS Automation Option MVS (CICSAO), product number 5695-064, to provide automated operations support for CICS/ESA 4.1, you must apply PTF UN62475 to CICSAO.  The functions of CICSAO have been incorporated into the CICS feature of SystemView Automated Operations Control/MVS (AOC/MVS), product number 5685-151 (30C), which supports CICS/ESA 4.1 (and other products, such as IMS).  CICSAO continues to be supported by IBM, but will not be developed for CICS/ESA 4.1 or any other new CICS releases.  The AOC/MVS CICS feature supports:

    CICS/ESA 4.1
    CICS/ESA 3.3
    CICS/ESA 3.2.1
    CICS/MVS 2.1.2

## 5.3.2  ISC and MRO communication

CICS/ESA 4.1 supports Intersystem communication (ISC) links with:

- Other CICS/ESA 4.1 regions
- CICS/ESA Version 3 regions
- CICS/MVS Version 2 regions
- CICS/OS/VS Version 1 Release 7 regions
- CICS/VSE Version 2 regions
- CICS/DOS/VS Version 1 Release 7 regions
- CICS/6000
- CICS/400
- CICS OS/2
- IMS/ESA Transaction Manager Version 3 Release 1
- IMS/ESA Transaction Manager Version 4 Release 1
- Any system that supports advanced program-to program communication (APPC) protocols (LUTYPE6.2), including:
    - APPC/PC
    - AS/400
    - Displaywriter
    - RT/PC
    - Personal System/2
    - Series 1
    - System/36

- System/38
- System/88.

CICS/ESA 4.1 supports multi region operation (MRO) for communication with:

- Other CICS/ESA 4.1 regions
- CICS/ESA Version 3 regions
- CICS/MVS Version 2 regions
- CICS/OS/VS Version 1 Release 7 regions. (The systems must be in the same MVS image.)

If the CICS regions are using the CICS/ESA 4.1 level of the DFHIRP module, and are running on MVS/ESA SP 5.1 or later, you can use XCF/MRO to communicate betweem MVS images.

**Note:** The function provided on any MRO or ISC connection is that of the lower release in the connection.

### 5.3.3  Sharing the CSD between CICS/ESA 4.1 and earlier CICS releases

If you plan to share the CSD between CICS/ESA 4.1 regions and regions running at earlier releases, you should appy a PTF for APAR PN50317 to the earlier CICS releases.

### 5.3.4  External CICS interface

Client programs running in an MVS address space can communicate only with CICS server regions running under CICS/ESA 4.1 or a later, upward-compatible release. This is because of the changes to the MRO connection definition to support the external CICS interface.

Also, the client program can connect to the server CICS region only through the CICS/ESA 4.1, or later, interregion communication program, DFHIRP.

### 5.3.5  Modules eligible for the MVS linklist

Modules that must be included in an APF-authorized library in the MVS linklist are installed in the SYS1.CICS410.SDFHLINK library. You **must** add these modules to an APF-authorized library in the MVS linklist, either by adding the SYS1.CICS410.SDFHLINK library to the MVS linklist or by adding the modules to another library in the MVS linklist. For further information about adding CICS modules to the MVS linklist, see the *CICS/ESA 4.1 Installation Guide*.

## 5.3.6  Modules eligible for the MVS link pack area (LPA)

Modules that must be included in the LPA are installed in the SYS1.CICS410.SDFHLPA library.  Other CICS modules that can be included in the LPA are listed in the sample SMP/E usermods, installed in CICS410.SDFHSAMP.  The member names for the sample usermods are:

DFH$UMOD
DFH$UJPN  (for modules of the Japanese language feature)

For further information about adding CICS modules to the LPA, see the *CICS/ESA 4.1 Installation Guide*.

## 5.3.7  Compilers and assembler

CICS/ESA 4.1 supports the following assembler, COBOL, PL/I and C/370 compilers:

- High-level Assembler/MVS, VM, and VSE (5696-234)
- MVS Assembler H Version 2 (5668-962)
- VS COBOL II (5668-958 and 5688-023)

  (Requires PTF for APAR PN43097—See 5.3.7.1, "VS COBOL II run-time support.")
- OS PL/I Optimizing Compiler Version 1 Release 5.1 (5734-PL1)
- OS PL/I Optimizing Compiler Version 2 Release 1 (5668-910) or later
- C/370 Version 2 Release 1 (5688-187).

CICS/ESA 4.1 also supports IBM SAA AD/Cycle Language Environment/370 Version 1 Releases 1 and 2 run-time environment (5688-198), with the following COBOL, C/370, and PL/I SAA AD/Cycle compilers:

- SAA AD/Cycle COBOL/370 (5688-197)

- SAA AD/Cycle C/370 (5688-216)

- SAA AD/Cycle PL/I  (5688-235)

### 5.3.7.1  VS COBOL II run-time support

To prevent 0C4 abends caused by IGZECIC returning to CICS with an incorrect mode, you must apply the requisite PTFs for APAR PN43097.  These are as follows:

PTF UN48282 for FMID JCL1331
PTF UN48283 for FMID JCL1341
PTF UN48284 for FMID JCL1403

### 5.3.7.2  Run-time support for unsupported COBOL compilers

CICS/ESA 4.1 retains run-time support for application programs compiled by the following unsupported COBOL compilers:

- Full American National Standard Version 4 (5734-CB2)

- OS/VS COBOL (5740-CB1)

Run-time support is withdrawn for application programs compiled by the old OS/VS COBOL compilers 360S-CB-545 and 5734-CB1.

### 5.3.7.3  PL/I run-time support

For PL/I run-time support in a CICS environment, of an application compiled with any PL/I compiler, CICS/ESA 4.1 requires an OS PL/I Version 2 Release 3 (5668-910 or 5668-911) run-time library.

### 5.3.7.4  Other programming language functions

For the following programming language functions in CICS/ESA 4.1 you need the specified language compilers:

- To use the CICS support for C/370, you need the following compiler and library combinations for C language translations:  C/370 Compiler (5688-187) and C/370 Library (5688-188) Version 2 Release 1 or later.

- To use CICS support for COBOL ANSI 85 standards, use VS COBOL II Release 3 (5688-023).

- To use the double byte character set (DBCS) support, the correct compiler for COBOL or PL/I must be used:

  – VS COBOL II Release 2 (5688-023)
  – OS PL/I Version 2 Release 1 (5668-910).

CICS/ESA Version 4 supports IBM SAA AD/Cycle Language Environment/370 (5688-198) Version 1.1 and Version 1.2, and all compilers that require this library for run-time support.  In addition, Language Environment/370 supports, in compatibility mode, programs compiled with VS COBOL II and C/370.

Language Environment/370 Version 1.2 supports run-time execution of programs written in PL/I.  However, to run PL/I programs under Language Environment/370 Version 1.2, programs must be link-edited with the linkage editor control statement `REPLACE PLISTART` included.

This applies both to new programs, and to old programs which must be re-linkedited in order to remove PLISTART, but is not necessary if the fix of APAR PN43983 (PTF UN51883) has been applied, or if Language Environment/370 Version 1.3 is used.

## 5.3.8  Application Program Compatibility

CICS/ESA 4.1 provides upward compatibility from CICS/ESA 3.3, CICS/ESA 3.2.1, and CICS/MVS 2.1.2 at both source and object level for CICS application programs and maps, subject to the exceptions and comments summarized below and further described in the *CICS/ESA Release Guide*, GC33-1161.  Any other exceptions that are identified are documented in the CICS/ESA 4.1 publications.

- Command-level programs are upward compatible at both source and object level, provided they conform to the interface as defined in the *CICS/MVS 2.1.2 Application Programmer's Reference* manual, SC33-0512, and provided the function is still supported.  However, support for the EXEC CICS ADDRESS CSA command has been discontinued.

- Customers who need to reassemble any command-level program written in Assembler language for CICS/ESA 4.1, that was originally assembled on CICS/MVS Version 2 or CICS/OS/VS Version 1, need to be aware that an additional base register may be required. This occurs only if the size of DFHEISTG was close to a 4096 addressing boundary on the earlier version of CICS, such that the extra storage that CICS/ESA Version 3 (or later) uses for parameter lists (136 bytes) causes a user variable to be moved past the boundary.

- Support is retained for CALL DL/I statements as well as EXEC DLI

- Macro-level program support has been discontinued. Applications that are not converted to command level should be run on CICS/MVS 2.1.2.

  The DFHMSCAN utility program, which is available with CICS/MVS Version 2 and CICS/ESA Version 3, or DFHMS170, which is available with CICS/OS/VS 1.7, is recommended for reviewing CICS application program libraries. This program can be run against each application load library to find out which application programs use CICS macros. The DFHMSCAN utility program provided with CICS/ESA Version 3 can also be used to check on use of the EXEC CICS ADDRESS CSA command.

  The CICS Application Migration Aid (5695-061), should be used to assist customers migrating macro-level programs to command-level programs.

- Basic mapping support (BMS) maps that are defined using CICS-supplied macro instructions, or defined online using Screen Definition Facility II (5664-366), are upward compatible.

## 5.3.9  Systems Programming Considerations

The *CICS/ESA Version 3 Migration Guide*, GC33-0656, includes guidance and details about operational and systems programming procedures introduced in CICS/ESA Version 3. (If you are migrating from before CICS/ESA Version 3, you should obtain a copy of this publication.)

**The following functions previously available in CICS/ESA Version 3 are discontinued**:

- Direct addressing of CICS control blocks, even for exits. (The application programming interface and system programming interface are enhanced to provide access to appropriate, required, CICS control information, and to enable manipulation of such information.)
- Control of maximum tasks by the system initialization parameters CMXT and CMXTLIM is replaced by resource definitions for transaction class objects.
- The signon table, DFHSNT
- Support for the PROTECT option for VTAM terminals. After CICS/ESA 4.1, full protection of application and business logic will be supported by APPC functions.

**The following functions will be not be available after CICS/ESA 4.1:**

- Support for local DL/I. Database access will continue to be supported by the DBCTL interface.
- Support for logging or journal output to tape.

Also, the formats of several of the system log record types will change. (Details will be provided in the early documentation of the follow-on release/product.)

**The following functions previously available in CICS/MVS Version 2 and CICS/OS/VS 1.7 are discontinued**:

- Support for macro-level execution
- Support for devices and controllers accessed using BTAM, GAM, or TCAM (ACB)
- Direct addressing of CICS control blocks (other than the EIB and user areas such as CWA) from within CICS applications
- EXEC CICS ADDRESS CSA command
- CICS internal security
- DFHXSP and DFHXSE as user-replaceable modules
- CSMT, CSSF, CSSN, CSST, and CSOT transactions
- System initialization modifications (SIMODs)
- PCTs, PPTs, and TCTs generated by resource definition macros.  You must migrate macro-generated tables to the CSD, at the earlier release of CICS.

    TCT definition for TCAM (DCB), remote BTAM devices, and sequential terminals must be done with TCT macros.

## 5.3.10  Performance Considerations

This section outlines performance considerations for CICS/ESA 4.1.

**Note:**  The performance benefits to be obtained in user installations depend on the CICS workload characteristics and on the use of CICS within the total system environment.

### 5.3.10.1  Throughput

1. ITR is equivalent to CICS/ESA 3.3 when no tracing is active.  With standard tracing active there is a 2% ITR improvement over CICS/ESA 3.3.

2. MRO/XCF can now be used for function shipping and transaction routing between CICS regions in a Sysplex.  This gives a performance improvement over the alternative LU6.2 method.  ITR improvements of up to 30% were measured for the VSAM/DSW transaction routing workload.  ITR improvements of up to 114% were measured for the VSAM/DSW function shipping workload.

3. Transaction isolation, if turned, on results in a performance degradation in ITR of up to 6%.

4. When using CICS/ESA 4.1 with DB2 3.1 the new adaptor gives up to a 4% improvement in ITR.

## 5.3.11  CICS signon processing and SAF calls

As part of its signon processing, CICS issues a *RACROUTE REQUEST=VERIFY, ENVIR=VERIFY* call to the System Authorization Facility (SAF) in problem state (rather than the more usual supervisor state).  As part of the SAF processing, the user exit ICHRTX00 can be called, and may be coded in such a way that the *ENVIR=VERIFY* parameter is ignored.  This could cause the SAF to invoke a service that is not valid in problem state.

You should review your use of the SAF user exit ICHRTX00, to make sure that it handles any *RACROUTE REQUEST=VERIFY, ENVIR=VERIFY* calls in problem state.

For more information about the interface to this call, see the *CICS/ESA Customization Guide.*

## 5.3.12  Storage use

CICS/ESA 4.1 has four dynamic storage areas (DSAs) below the line and four dynamic storage areas in extended storage.  Management of the DSAs has been simplified in CICS/ESA 4.1.  There is only one parameter (DSALIM) to control the DSAs below the line compared to four parameters in CICS/ESA 3.3.  There is only one parameter (EDSALIM) to control the DSAs above the line compared to six parameters in CICS/ESA 3.3.

CICS usage of virtual storage below the 16Mb line has changed with the introduction of more self-managed DSAs within an overall user specified limit.  Initial storage comparisons indicate that the total virtual storage requirement below the 16Mb line for CICS/ESA 4.1 is equivalent to CICS/ESA 3.3.

However, when using the transaction isolation facility, the user DSA is aligned on a megabyte boundary and is an integral number of megabytes in length, which may be less flexible for some workloads than when not using that facility.

When using transaction isolation there is a requirement of one megabyte EUDSA (Extended User Dynamic Storage Area) per concurrent active user task compared to 64K per task when not using transaction isolation.

Central storage use is not significantly changed from CICS/ESA 3.3.

## 5.3.13  System Considerations

There are no system considerations for CICS/ESA 4.1.

## 5.3.14  Special Considerations

There are no special considerations for CICS/ESA 4.1.

# 6.0 Installation Instructions

This chapter describes what you must do to load CICS/ESA 4.1 onto DASD from the distribution medium. It also describes the options available to you to tailor CICS/ESA 4.1 while loading it to DASD. The *CICS/ESA Installation Guide*, ZES1-1702, contains information about activating CICS/ESA 4.1 as part of the process of verifying its installation.

If you obtained CICS/ESA 4.1 as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the *MVS CBPDO Memo to User Extension* included with the CBPDO.

This release of CICS/ESA 4.1 is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands.

## 6.1 Overview

The process described in this chapter is used to install CICS/ESA 4.1 from the distribution tape to DASD. The steps that you must complete to install CICS/ESA 4.1 are outlined in Figure 19 on page 33.

The actual process of moving the CICS software from the distribution tape onto DASD is automatic, but controlled by parameters that you can change. Before you actually cause the CICS software to be loaded to DASD, you should complete a number of steps; for example, to check that you have got what you ordered and to specify your own values to use for CICS installation parameters.

To help you monitor your progress when installing CICS/ESA 4.1, a checklist is provided in Figure 33 on page 107. The checklist indicates:

- The steps that you should complete

- Any useful parameters that you should record when completing the associated step

- References to information about the step or parameter.

As you progress through the steps to install CICS/ESA 4.1, which are described in the following sections, you may like to "tick-off" the steps that you have completed, and record any values that you want to use for parameters to tailor CICS/ESA 4.1.

To install CICS/ESA 4.1 to DASD, follow the instructions given in subsequent sections (as referenced from the checklist), ideally in the order in which the sections are documented. Some sections refer you to other sections for more information; but if you use the checklist as your guide, you should complete the installation steps without losing track of your progress.

Once you have installed CICS/ESA 4.1 to DASD, you can tailor it further to suit your system environment (some tailoring is done when loading CICS/ESA 4.1 to DASD). How to tailor CICS/ESA 4.1 further, to

complete the installation, is described in the *CICS/ESA Installation Guide*, SC33-1163. That publication also provides information about how to verify the installation and operation of CICS/ESA 4.1.

**Note:** The process to install CICS/ESA 4.1, described in this chapter, is different from the process used to install releases of CICS before CICS/ESA 3.3. The process has not changed significantly from CICS/ESA 3.3.

## 6.1.1  The CICS installation libraries

When you install CICS/ESA 4.1, you use the installation libraries listed in Figure 18 and shown in Figure 19 on page 33.

| *Figure 18. Installation libraries for CICS/ESA 4.1* | |
|---|---|
| **Library** | **Function** |
| TDFHINST | 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, the TDFHINST library also stores the skeleton jobs to be tailored. |
| XDFHINST | To store the tailored, executable, copies of the skeleton jobs that are to be run. |
| SDFHINST | The SMP/E-supported target installation library. After you have installed the CICS software into this and other SMP/E-supported libraries (named SDFHLxxx and ADFHLxxx), the SDFHINST library stores the skeleton jobs that you should use on any later runs of the DFHISTAR job. |
| ADFHINST | The SMP/E-supported distribution installation library. |
| **Note:** The actual names of the TDFHINST and XDFHINST libraries, and the suffix for those and other CICS libraries, are defined in the DFHISTAR job, which you edit as described in this chapter. | |
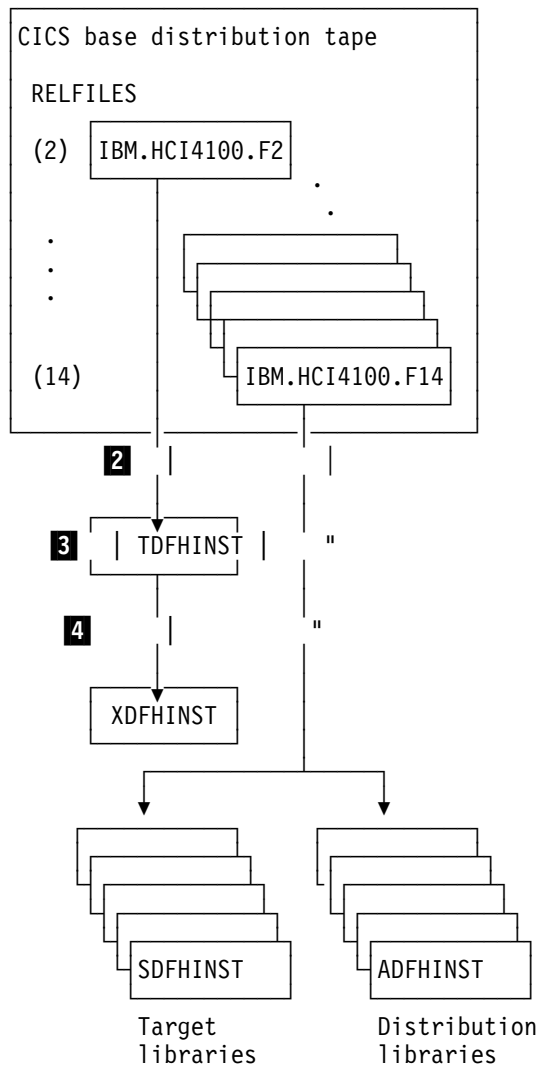
```
┌─────────────────────────────────────────┐        Installation process steps
│ CICS base distribution tape              │        (See page 107.)
│                                          │
│  RELFILES                                │        ┌─┐
│                                          │        │1│
│  (2)  ┌──────────────┐                   │        └─┘
│       │IBM.HCI4100.F2│          .        │        Check the distribution tape.
│       └──────────────┘          .        │
│                             ┌───────────┐│
│    .                      ┌─┤           ││
│    .                    ┌─┤ │           ││
│    .                  ┌─┤ │ │           ││        ┌─┐
│                       │ │ │ │           ││        │2│
│  (14)                 │ │ └─┤           ││        └─┘
│                       │ └───┤IBM.HCI4100││        Copy RELFILE(2), IBM.HCI4100.F2, to the
│                       └─────┤    .F14   ││        TDFHINST library.  The TDFHINST library
│                             └───────────┘│        is used to store the DFHISTAR job and
└─────────────────────────────────────────┘        skeleton installation jobs before you tailor
  ┌─┐    │          │                                the jobs to your CICS environment.
  │2│    │          │
  └─┘    │          │                                ┌─┐
         ▼          │                                │3│
  ┌─┐ ┌───────────┐ │                                └─┘
  │3│ │ TDFHINST  │ "                                Edit your copy of the DFHISTAR job in the
  └─┘ └───────────┘ │                                  TDFHINST library.
         │          │
  ┌─┐    │          "                                ┌─┐
  │4│    │                                           │4│
  └─┘    ▼                                           └─┘
      ┌───────────┐                                   Run your copy of the DFISTR job in the
      │ XDFHINST  │                                  TDFHINST library to tailor the skeleton
      └───────────┘                                  installation jobs and add them to the
         │    │                                      XDFHINST library.  The XDFHINST library
      ┌──┘    └──┐                                   is used to store the tailored, executable,
      ▼          ▼                                   copies of the installation jobs.
   ┌──────┐  ┌──────┐
  ┌┤      │ ┌┤      │                                ┌─┐
 ┌┤│      │┌┤│      │                                │5│
 ││└──────┘││└──────┘                                └─┘
 ││ ┌──────┐│ ┌──────┐                               Submit the installation jobs from the
 ││ │      ││ │      │                               XDFHINST library to create the CICS
 └┤ │SDFHINST└┤ │ADFHINST                            SMP/E-supported target and distribution
  └─│      │  └─│      │                             libraries and to transfer the other RELFILEs
    └──────┘    └──────┘                             (3 to 14) to those libraries.
    Target        Distribution
    libraries     libraries
```

*Figure 19. Installation process for CICS/ESA 4.1*

## 6.2  Check the distribution package

When you receive the box containing your copy of CICS, check that you have the appropriate materials (tapes, books, CD-ROMs, and so on.)

For further information about the contents of the distribution tapes, see 2.0, "Program Materials" on page 3.

There may also be a program update tape (PUT) with the distribution package.

Check that the tapes are the ones you ordered.

Record any discrepencies for when you call your IBM support center.

## 6.3  Check that you have the installation prerequisites

Check that you have the prerequisites for installing CICS/ESA 4.1, as given in 5.0, "Installation Requirements and Considerations" on page 14.

If you have not already done so, call your IBM Support Center to confirm that no further APAR fixes or PTFs are required, either for CICS or for the programs it works with (for example, MVS, VSAM, and DL/I). Ask for any additional PSP information for the UPGRADE and SUBSET values given in 3.0, "Program Support" on page 10.

For guidance information about applying APAR fixes and PTFs, see the *CICS/ESA Installation Guide.*

## 6.4  Copy RELFILE(2) from the distribution tape

The distribution tape contains several files, but at this stage, you only need to copy the third file, RELFILE(2), from the tape into a temporary installation library. (Later, all files are copied from tape to disk by SMP/E.)

To copy RELFILE(2) (named IBM.HCI4100.F2) from the tape:

 1. Choose a name for the temporary installation library, TDFHINST.  The default name is CICS410.TDFHINST.  You can use another name for the library to suit your installation's naming conventions.

    Record the name you choose on the checklist for use later in the installation process.

    **Note:**  Throughout this Program Directory, the CICS partitioned data sets are qualified by the high-level index **CICS410**.

 2. Edit and submit the sample job given in Figure 20 on page 35.

```
//COPYINST JOB (accounting information)
//*
//* Insert here instructions for mounting the tape.
//*
//COPYSTEP EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//SYSUT3   DD UNIT=SYSDA,SPACE=(CYL,(2,1))
//SYSUT4   DD UNIT=SYSDA,SPACE=(CYL,(2,1))
//R2       DD UNIT={TAPE|device-type|user-group-name},
//   VOL=SER=CI4100,LABEL=3,DSN=IBM.HCI4100.F2,
//   DISP=(OLD,KEEP)
//TDFHINST DD DSN=CICS410.TDFHINST,DISP=(,CATLG,DELETE),
//   UNIT=SYSDA,[VOL=SER=CI4100,]
//   SPACE=(6160,(70,15,10)),
//   DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
//*
//SYSIN    DD *
 COPY INDD=((R2,R)),OUTDD=TDFHINST
 /*
```

*Figure 20. Sample job for copying RELFILE(2) from tape*

### 6.4.1.1  Result of copying RELFILE(2)

When you have copied RELFILE(2) from the distribution tape, the CICS410.TDFHINST library contains the DFHISTAR job and the skeleton jobs, listed in Figure 21 on page 36, for installing CICS, creating CICS data sets, and running the installation verification procedures (IVPs).  The CICS410.TDFHINST library also contains the following members used by the CICS/ESA 4.1 installation process:

**Job        Function**

**DFHINST**  CLIST to tailor skeleton jobs

**DFHINST0** Member used to initialize CICS global catalogs and restart data sets.

---
**What next?**

You next tailor the skeleton jobs to your CICS environment, as described in 6.5, "Edit the DFHISTAR job" on page 37.

---

| Job | Function |
|-----|----------|
| DFH$ARCH | – Sample automatic journal archiving job |
| DFHALTDS | – Create data sets for XRF alternate CICS regions |
| DFHAUPLE | – Create CICS control tables |
| DFHCMACI | – Create CICS messages data set |
| DFHCMACU | – Update (service) CICS messages data set |
| DFHCOMDS | – Create data sets common to all CICS regions |
| DFHDEFDS | – Create data sets for each CICS region (not XRF alternate regions) |
| DFHIDLI | – Assemble and link-edit modules for local DL/I support, and add to the IMS macro libraries |
| DFHIDLIJ | – Imbed in DFHIDLI |
| DFHINST | – CLIST to tailor skeleton jobs |
| DFHINST1 | – 1st installation job |
| DFHINST2 | – 2nd installation job |
| DFHINST3 | – 3rd installation job |
| DFHINST4 | – 4th installation job |
| DFHINST5 | – 5th installation job |
| DFHINST6 | – 6th installation job |
| DFHINSTA | – Create additional set of target libraries |
| DFHINSTJ | – Install optional Japanese national language feature |
| DFHIPUBS | – Load books from publications distribution tape |
| DFHISMPD | – Define local DL/I modules to SMP/E |
| DFHISTAR | – Tailor skeleton jobs to customer environment |
| DFHIVPAL | – IVP to run an alternate CICS region (XRF=YES) |
| DFHIVPBT | – IVP (batch) to verify CICS startup |
| DFHIVPDB | – IVP to verify CICS-DBCTL interface |
| DFHIVPDL | – IVP to verify CICS-local DL/I interface |
| DFHIVPOL | – IVP to run an online CICS (with XRF=YES or XRF=NO) |
| DFHIVXRO | – Run sample overseer |
| DFHLPJPN | – Receive and apply sample SMP/E USERMOD DFH$UJPN |
| DFHLPUMD | – Receive and apply sample SMP/E USERMOD DFH$UMOD |
| DFHOPSRC | – Load optional source tapes |
| 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 |

*Figure 21. Skeleton jobs in RELFILE(2) copied to the TDFHINST library*

## 6.5 Edit the DFHISTAR job

Edit the DFHISTAR job, to assign values to installation parameters for your environment. The DFHISTAR job is in the TDFHINST library when you copy RELFILE(2) from the distribution tape. You can either edit the DFHISTAR job directly, or copy the DFHISTAR job (to preserve the CICS-supplied values) and edit your copy.

This section describes the process of editing the parameters in the DFHISTAR job, and contains sub-sections in an order that corresponds to the order of parameters in the DFHISTAR job.

To help you look up details about a particular parameter, Figure 22 lists the DFHISTAR parameters, in alphabetical order, with their CICS-supplied values. (The parameters in the DFHISTAR job are listed in associated groups.)

The default values of the parameters are the same as the CICS-supplied values, except for the DLIMACLIB parameter, which has no default. Therefore, if you want to add local DL/I support, you must code DLIMACLIB parameters to specify the DL/I macro libraries to be used.

You can use the CICS-supplied values, define your own values, or let the CICS/ESA 4.1 installation process determine default values for you.

**Note:** You can enter your values for parameters of the DFHISTAR job in lower case; the DFHISTAR job translates the values into upper case when it is run.

| Figure 22 (Page 1 of 2). Alphabetical list of parameters for the DFHISTAR job | | | |
|---|---|---|---|
| **Parameter** | **CICS-supplied value** | **Your value ?** | **See page** |
| ADDTVOL | CIC410 3380 | | 55 |
| AINDEX | CICS410.A | | 55 |
| ALINDEX | SYS1.CICS410.A | | 55 |
| ASMPSCDS | CICS410.A.SMPSCDS | | 55 |
| AZONE | AZONE | | 55 |
| AZONECSI | CICS410.A.AZONE | | 55 |
| AZONELOG | CICS410.A.AZONE.SMPLOG | | 55 |
| BLKFB80 | 6160 | | 41 |
| BLKU | 6144 | | 41 |
| CMACVOL | CIC410 | | 42 |
| DEFVOL | CIC410 3380 | | 42 |
| DISTVOL | CIC410 3380 | | 42 |
| DLI | 3.1.0 TARGLIBS | | 54 |
| DLIMACLIB | IMS.MTS DLIMTS | | 54 |
| DLIMACLIB | IMS.GENLIB GENLIB | | 54 |
| DLIMACLIB | IMS.GENLIBA GENLIBA | | 54 |
| DLIMACLIB | IMS.GENLIBB GENLIBB | | 54 |
| DLIMACLIB | IMS.OPTIONS OPTIONS | | 54 |
| DSINFO | CICS410 CIC410 3380 . . | | 52 |

| Figure 22 (Page 2 of 2). Alphabetical list of parameters for the DFHISTAR job | | | |
|---|---|---|---|
| **Parameter** | **CICS-supplied value** | **Your value ?** | **See page** |
| DZONE | DZONE | | 47 |
| DZONECSI | CICS410.DZONE NEW CIC410 3380 | | 47 |
| DZONELOG | CICS410.DZONE.SMPLOG NEW | | 47 |
| GZONE | NEW CICO410 | | 47 |
| GZONECSI | CICS410.GZONE NEW CIC410 3380 | | 47 |
| GZONELOG | CICS410.GZONE.SMPLOG NEW | | 47 |
| INDEX | CICS410 | | 41 |
| JES | JES2 | | 40 |
| JOB | (No valid value) | | 39 |
| LIB | CICS410.XDFHINST | | 38 |
| LINDEX | SYS1.CICS410 | | 41 |
| OPTVOL | CIC410 3380 | | 42 |
| PARMLIB | SYS1.PARMLIB | | 42 |
| PREFIX | DFH | | 40 |
| SCOPE | ALL | | 39 |
| SMPMTS | CICS410.SMPMTS | | 51 |
| SMPPTS | CICS410.SMPPTS | | 51 |
| SMPSCDS | CICS410.SMPSCDS | | 51 |
| SMPSTS | CICS410.SMPSTS | | 51 |
| SMPVOL | CIC410 3380 | | 42 |
| SMPWORK | SYSDA | | 51 |
| SMPWRK3 | CICS410.SMPWRK3 | | 51 |
| TAPEUNIT | 3480 | | 52 |
| TARGVOL | CIC410 3380 | | 42 |
| TEMPLIB | CICS410.TDFHINST | | 38 |
| TZONE | TZONE | | 47 |
| TZONECSI | CICS410.TZONE NEW CIC410 3380 | | 47 |
| TZONELOG | CICS410.TZONE.SMPLOG NEW | | 47 |
| UTILITIES | IEV90 IEWL GIMSMP IEBCOPY | | 40 |
| WORKUNIT | SYSDA | | 42 |

## 6.5.1  Specify the CICS/ESA 4.1 temporary installation libraries

Specify the data set names you want to use for the two temporary libraries that will be used to install CICS/ESA 4.1 If you do not want to use the default names, record your values for the TEMPLIB and LIB parameters.

**TEMPLIB library_name**
> This specifies the name of the temporary installation library that contains the skeleton installation jobs. Specify the name of the data set into which you copied RELFILE(2) from the distribution tape (in 6.4, "Copy RELFILE(2) from the distribution tape" on page 34).

> Also specify this name on the SYSPROC DD statement of the DFHISTAR job.

**LIB library_name**
Specifies the name of the installation output library to which the jobs generated by the DFHISTAR job are added.

## 6.5.2 Specify the JOB parameters for installation jobs

Decide what parameters you want to use on the JOB statements of the CICS/ESA 4.1 installation jobs, and specify them on the JOB parameter:

**JOB accounting_information**
Specifies the JOB statement and accounting information that you want substituted into the jobs generated by the DFHISTAR job. For example:

```
JOB //XXXXXXXX JOB 1,userid,MSGCLASS=A,MSGLEVEL=(1,1),
JOB //         CLASS=A,NOTIFY=userid
JOB /*JOBPARM SYSAFF=node1
JOB /*ROUTE PRINT node2.userid
```

**Notes:**

1. Do not change XXXXXXXX given in the sample JOB statement in the DFHISTAR job. This is the 8-character job name that is substituted by the DFHISTAR job. For example, for the installation job DFHIVPBT, the DFHISTAR job changes XXXXXXXX to DFHIVPBT.

2. Normal JCL rules for coding JOB statements apply to the JOB parameter.

3. If you want to add a TIME parameter to the CICS installation jobs, sample run times are given in 6.9.1.1, "Run times of the installation jobs" on page 59.

4. Delete (or comment out) extra lines of the JOB statement that you do not need.

5. Normal JCL rules apply when coding the JOB statement (for example, all lines except the last line must end in a comma).

## 6.5.3 Specify the scope of the installation

Specify the scope of the CICS/ESA 4.1 installation on the SCOPE parameter:

**SCOPE ALL|BASE|POST|DLI**
Specifies whether you want to generate all the CICS installation and post-installation jobs, only the post-installation jobs, or only the post-installation jobs that you can use for DL/I support. When installing CICS/ESA 4.1 from the distribution tape, you would normally specify SCOPE ALL (the default). You would normally code the other options, if necessary, during some post-installation tasks, as described in the *CICS/ESA Installation Guide*.

**ALL**
Specifies that you want to generate all the CICS installation jobs and all the post-installation jobs.

**BASE**
Specifies that you want to generate only the six installation jobs DFHINST1 through DFHINST6 that you can use to install CICS from the distribution tape.

**POST**
Specifies that you want to generate only the post-installation jobs, that you can use to create the CICS data sets, run the IVPs, and add local DL/I support.

**DLI**
Specifies that you want to generate only the post-installation jobs that you can use for local DL/I support. These jobs are: DFHIDLI, DFHIDLIJ, DFHISMPD, and DFHIVPDL.

## 6.5.4  Specify the type of JES to be used

Specify the type of job entry susbsystem (JES) that you intend to use to install CICS/ESA 4.1 on the JES parameter: This enables the DFHISTAR job to generate jobs with statements suitable for JES2 or JES3.

**JES JES2|2|JES3|3**
Specifies the release of JES that you are using. If you are using JES2, specify *JES2* or *2*. If you are using JES3, specify *JES3* or *3*.

## 6.5.5  Specify the utilities to be used

Specify the utilities to be used to install CICS/ESA 4.1 on the UTILITIES parameter:

**UTILITIES asmprog lkedprog smpeprog copyutil**
Specifies the names of utility programs to be used when installing CICS and programs that it uses.

**asmprog**
is the program name of the assembler.

**lkedprog**
is the program name of the linkage editor.

**smpeprog**
is the program name of the SMP/E program.

**copyutil**
is the program name of the data set copy utility program.

## 6.5.6  Specify the prefix of CICS jobs

Specify the prefix, as one through six characters, to be added to the jobs generated by the DFHISTAR job. This prefix overwrites the first characters of the job name. For example, `PREFIX USERID` changes the job name DFHINST1 to USERIDT1.

**PREFIX prefix**
One through six characters.

## 6.5.7  Specify the indexes of CICS/ESA 4.1 data sets

Specify the high-level indexes for the CICS distribution, target, and SMP/E libraries allocated by the installation process.

**INDEX library_prefix**
   Assigns a high-level index to the CICS distribution, target, and SMP/E libraries (except for the SDFHLINK and SDFHLPA target libraries) allocated by the installation process.

   **Notes:**

   1. The high-level index for the SDFHLINK and SDFHLPA libraries is defined by the LINDEX parameter.

   2. The high-level index for the data sets created by the jobs DFHCOMDS, DFHDEFDS, and DFHALTDS is defined by the *dsindex* operand of the DSINFO parameter.

   The *library_prefix* value must not be longer than 26 characters, and the leading character must be alphabetic.  If you specify more than one level of index, the names must be separated by a period (for example, `INDEX CICS410.TEST`).

**LINDEX library_prefix**
   Assigns a high-level index to the SDFHLPA and SDFHLINK libraries allocated by the installation process.  The *library_prefix* value must be defined in the MVS Master Catalog.

   The *library_prefix* value must not be longer than 26 characters, and the leading character must be alphabetic.  If you specify more than one level of index, the names must be separated by a period (for example, `LINDEX SYS1.CICS410.TEST`).

## 6.5.8  Specify block sizes

Specify the block sizes to be used when allocating data sets during installation on the BLKFB80 and BLKU paramaters:

**BLKFB80 blocksize**
   The block size to be used when allocating data sets that have a fixed block record format and record length of 80 bytes.

**BLKU blocksize**
   The block size to be used when allocating data sets that have an **undefined** record length.

To allow device independence, the SPACE parameters in the installation procedures are defined in terms of blocks.  The default block sizes of 6160 and 6144 are compromises, suitable for any device type.  You can specify other block sizes that are more appropriate for your own installation or DASD type.

If you intend using several types of DASD when installing CICS, use the default block sizes.

**Note:**  If you intend to copy or move modules to a different device type or data set after installation, you should either:

1. Make sure that the block sizes chosen for the CICS libraries are not larger than the block size or track capacity of the data set or device type you will be copying to, or

2. Use 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 command).

## 6.5.9  Specify the PARMLIB library to be used

Specify the name of the MVS library that contains the GIMOPCDE member to be used by SMP/E when installing CICS/ESA 4.1 on the PARMLIB parameter:

**PARMLIB library_name**
The name of the MVS library that contains the GIMOPCDE member to be used by SMP/E.

## 6.5.10  Specify the disk unit for work data sets

Specify the UNIT parameter for the disk or disks on which work data sets are stored on the WORKUNIT parameter:

**WORKUNIT disktype**
a unit identifier.

## 6.5.11  Specify disk volumes

If you intend installing CICS/ESA 4.1 into disk space managed by the storage management subsystem (SMS)[4] component of MVS/DFP, you do not need to specify your own disk volumes; device assignment can be determined by SMS.  In this case, proceed to 6.5.13, "Specify SMP/E zone attributes" on page 47.

To allow you to make the best use of your disk space, you can specify your own disk volumes and device types to be used to install CICS/ESA 4.1.  You can specify your own disk details on the following parameters:

**CMACVOL volume**
Defines the disk on which the VSAM KSDS, DFHCMACD, will reside.  This data set is used for the CICS messages facility (CICS-supplied transaction CMAC).

   **volume**
   is one of the following:

   - The volume serial identifier, in the range 1 through 6 characters, of the volume on which the VSAM KSDS, DFHCMACD, will reside

---

[4]  For further information about installing system-managed storage, and about planning for and migrating storage to an SMS-managed environment, see the *MVS Storage Management Library: Storage Management Subsystem Migration Planning Guide*, SC26-4406.

- A period (.) if the DFHCMACD data set is to be put onto the same volume as the library specified by the TEMPLIB parameter.

**Note:** If you omit the CMACVOL parameter, the DFHCMACD data set will be put onto the volume specified by the DEFVOL parameter. If the DEFVOL parameter is omitted, or if a period (.) is specified for its *volume* operand, the DFHCMACD data set will be put onto the same volume as the library specified by the TEMPLIB parameter.

**DEFVOL volume disktype**

Defines the default disk on which the contents of the disk volumes CMACVOL, DISTVOL, OPTVOL, SMPVOL, and TARGVOL will reside if the appropriate parameter is not coded in the DFHISTAR job. For example, if you do not code the DISTVOL parameter, the CICS distribution libraries will reside on the disk defined by DEFVOL.

**volume**

is one of the following:

- The volume serial identifier, in the range 1 through 6 characters, of the default volume.

- A period (.) if all volumes other than CMACVOL and SMPVOL that are not specifically defined by the appropriate parameter of the DFHISTAR job will be put onto any available volume. The CMACVOL and SMPVOL volumes will be put onto the same volume as the library specified by the TEMPLIB parameter.

**disktype**

is the UNIT parameter of the volume.

If you omit the DEFVOL parameter altogether, all volumes that are not specifically defined by the appropriate parameter of the DFHISTAR job will be put onto the same volume as the library specified by the TEMPLIB parameter.

**DISTVOL volume disktype**

Defines the disk on which the CICS distribution libraries will reside. These libraries are:

```
CICS410.ADFHAPD1
CICS410.ADFHAPD2
CICS410.ADFHCOB
CICS410.ADFHC370
CICS410.ADFHINST
CICS410.ADFHMAC
CICS410.ADFHMOD
CICS410.ADFHMSGS
CICS410.ADFHPARM
CICS410.ADFHPL1
CICS410.ADFHPROC
CICS410.ADFHSAMP
CICS410.ADFHSRC
CICS410.ADFHCLIB
CICS410.ADFHLANG
```

CICS410.ADFHMLIB
CICS410.ADFHPLIB
CICS410.ADFHSRCE

**volume**
    is one of the following:

- The volume serial identifier, in the range 1 through 6 characters, of the volume on which the distribution libraries will reside.

- A period (.) if the CICS libraries are to be put onto any available volume.

**disktype**
    is the UNIT parameter of the volume.

**Note:** If you omit the DISTVOL parameter, the distribution libraries will be put on the volume specified by the DEFVOL parameter. If the DEFVOL parameter is omitted, or if a period (.) is specified for its *volume* operand, the distribution libraries will be put onto any available volume.

**OPTVOL volume disktype**
Specifies details of the disk onto which the optional source material is copied.

**volume**
    is one of the following:

- The volume serial identifier, in the range 1 through 6 characters, of the volume on which the optional source material is to reside.

- A period (.) if the optional source material is to be put on any available volume.

**disktype**
    is the UNIT parameter of the volume. This is needed only if *volume* is specified.

**Note:** If you omit the OPTVOL parameter, the optional source material will be put on the volume specified by the DEFVOL parameter. If the DEFVOL parameter is omitted, or if a period (.) is specified for its *volume* operand, the optional source material will be put onto any available volume.

**TARGVOL volume disktype**
Specifies details of the disk containing the CICS target libraries. These libraries are:

CICS410.SDFHAPD1
CICS410.SDFHAPD2
CICS410.SDFHAUTH
CICS410.SDFHCOB
CICS410.SDFHC370
CICS410.SDFHINST
SYS1.CICS410.SDFHLPA
SYS1.CICS410.SDFHLINK
CICS410.SDFHLOAD
CICS410.SDFHMAC
CICS410.SDFHMSGS

```
CICS410.SDFHPARM
CICS410.SDFHPROC
CICS410.SDFHSAMP
CICS410.SDFHSRC
CICS410.SDFHPL1
CICS410.SDFHCLIB
CICS410.SDFHEXCI
CICS410.SDFHLANG
CICS410.SDFHLLIB
CICS410.SDFHMLIB
CICS410.SDFHPLIB
CICS410.SDFHSRCE
```

**volume**
> is one of the following:

> - The volume serial identifier, in the range 1 through 6 characters, of the volume on which the CICS target libraries are to reside.

> - A period (.) if the CICS target libraries are to be put onto any available volume.

**disktype**
> is the UNIT parameter for the volume.

**Note:** If you omit the TARGVOL parameter, the CICS target libraries will be put onto the volume specified by the DEFVOL parameter. If the DEFVOL parameter is omitted, or if a period (.) is specified for its *volume* operand, the CICS target libraries will be put onto any available volume.

### 6.5.11.1  When are these volumes used?

| DFHISTAR Volume Parameter | Installing | Applying Service | Customizing | Assembling Resource Tables | Running CICS |
|---|---|---|---|---|---|
| SMPVOL | * | * | * | * | |
| DISTVOL | * | * | * | | |
| TARGVOL | * | * | * | * | * |
| DZONECSI[1] | * | * | * | | |
| TZONECSI[1] | * | * | * | * | |
| GZONECSI[1] | * | * | * | * | |

[1] The entries for xZONECSI parameters are also for the associated xZONE parameters.

***6.5.11.1.1  During installation:***  The relfile data sets on SMPVOL are needed during installation only.

**6.5.11.1.2  *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 the extended recovery facility.

**6.5.11.1.3  *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 the second (alternate) CICS region.

**6.5.11.1.4  *Running CICS:*** Only TARGVOL is needed to run CICS.

## 6.5.12  Allocate the space for CICS/ESA 4.1 disk volumes

Whether or not you use SMS-managed data sets, you still need enough disk space in which to create the CICS/ESA 4.1 disk voulmes.

The space required by the installation jobs on these volumes depends on the type of disk you intend to use.  The number of cylinders required on the different types of DASD are given in Figure 23.  The size of the CICS/ESA 4.1 distribution and target libraries are given in 5.2.5, "DASD Storage Requirements" on page 20.

| Figure 23. DASD storage requirements for CICS/ESA 4.1 | | |
|---|---|---|
| **Identification** | **3380** | **3390** |
| CICS410.TDFHINST | 1 | 1 |
| CICS410.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 |

Allow up to 15% on the values in Figure 23 for servicing requirements.  Secondary allocations are 10% of the primary allocations.

If you intend to store other IBM software or your own application programs in these libraries, then you must modify the generated jobs accordingly.

## 6.5.13  Specify SMP/E zone attributes

Specify the attributes of the SMP/E distribution zone, global zone, target zone, and any additional target zones.

**Note:**  The CICS-DB2 attachment facility feature (JCI4106) contains modules named with the DSN prefix. Therefore, to prevent existing DB2 modules with the same DSNxxxxx names from being overwritten, you should not install CICS/ESA 4.1 into the same target and distribution zones as DB2.

To specify SMP/E zone attributes, use the following parameters:

**DZONE zonename**
> Specifies the name of the distribution zone.

> **zonename**
>> is the name of the distribution zone to be used by SMP/E.  This name must be unique within the global zone.  It must not be longer than 7 characters, and the leading character must be alphabetic.

**DZONECSI cluster NEW|OLD volume disktype**
> Specifies details of the distribution zone CSI.

> **cluster**
>> is the VSAM cluster name, minus the qualifier '.CSI'.

> **NEW|OLD**
>> specifies whether an existing distribution zone CSI is to be used.  If you specify NEW, any existing distribution zone CSI with the specified *cluster* name is deleted, and a new distribution zone CSI is allocated.  If you specify OLD, an existing distribution zone CSI is used.

> **volume**
>> is either the volume serial (volser) identifier for the volume on which the distribution zone CSI is to be allocated or a period (.) if the CSI is to be put on a volume determined by the CICS/ESA 4.1 installation process.

> **disktype**
>> is the UNIT parameter for the volume.

**DZONELOG dsname NEW|OLD**
> Specifies details of the SMP/E log for the distribution zone CSI.

> **dsname**
>> is the name of the distribution zone log.

**NEW|OLD**

Specifies whether an existing distribution zone log is to be used. If you specify NEW, any existing distribution zone log with the specified *dsname* is deleted, and a new distribution zone log is allocated. If you specify OLD, an existing distribution zone log is used.

## GZONE NEW|OLD options

Specifies whether the global zone to be used already exists.

**NEW|OLD**

Specifies whether an existing global zone is to be used. If you specify NEW, any existing CICS global zone is deleted, and a new global zone is allocated. If you specify OLD, an existing CICS global zone is used.

**Note:** If you specify OLD, but specify NEW for the GZONECSI parameter, both parameters are assigned the NEW disposition.

**options**

Specifies the name of the SMP/E options (on the SET BOUNDARY command) to be used.

## GZONECSI cluster NEW|OLD volume disktype

Specifies details of the global zone CSI.

**cluster**

is the VSAM cluster name, minus the qualifier '.CSI'.

**NEW|OLD**

Specifies whether an existing global zone CSI is to be used. If you specify NEW, any existing global zone CSI with the specified *cluster* name is deleted, and a new global zone CSI is allocated. If you specify OLD, an existing global zone CSI is used.

**volume**

is either the volume serial (volser) identifier for the volume on which the global zone CSI is to be allocated or a period (.) if the CSI is to be put on a volume determined by the CICS/ESA 4.1 installation process.

**disktype**

is the UNIT parameter for the volume.

## GZONELOG dsname NEW|OLD

Specifies details of the SMP/E log for the global zone CSI.

**dsname**

is the name of the global zone log.

**NEW|OLD**

Specifies whether an existing global zone log is to be used. If you specify NEW, any existing global zone log with the specified *dsname* is deleted, and a new global zone log is allocated. If you specify OLD, an existing global zone log is used.

**SMPVOL volume disktype**
Specifies the disk that contains the permanent, non-VSAM SMP/E data sets for CICS that are associated with global or distribution zones, and are therefore unique. These data sets are:

```
CICS410.SMPMTS
CICS410.SMPPTS
CICS410.SMPSCDS
CICS410.SMPSTS
CICS410.SMPWRK3
```

**volume**
is one of the following:

- The volume serial identifier, in the range 1 through 6 characters, of the volume on which the permanent non-VSAM SMP/E data sets are to reside.

- A period (.) if the permanent non-VSAM SMP/E data sets are to be put onto the same volume as the library specified by the TEMPLIB parameter.

**disktype**
is the UNIT parameter for the volume.

**Note:** If you omit the SMPVOL parameter, the permanent non-VSAM SMP/E data sets for CICS will be put on the volume specified by the DEFVOL parameter. If the DEFVOL parameter is omitted, or if a period (.) is specified for its *volume* operand, the data sets will be put onto the same volume as the library specified by the TEMPLIB parameter.

**TZONE zonename**
Specifies the name of the target zone.

**zonename**
is 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 7 characters, and the leading character must be alphabetic.

**TZONECSI cluster NEW|OLD volume disktype**
Specifies details of the target zone CSI.

**cluster**
is the VSAM cluster name, minus the qualifier '.CSI'.

**NEW|OLD**
Specifies whether an existing target zone CSI is to be used. If you specify NEW, any existing target zone CSI with the specified *cluster* name is deleted, and a new target zone CSI is allocated. If you specify OLD, an existing target zone CSI is used.

**volume**
is either the volume serial (volser) identifier for the volume on which the target zone CSI is to be allocated or a period (.) if the CSI is to be put on a volume determined by the CICS/ESA 4.1 installation process.

**disktype**
is the UNIT parameter for the volume.

**TZONELOG dsname NEW|OLD**
Specifies details of the SMP/E log for the target zone CSI.

**dsname**
is the name of the target zone log.

**NEW|OLD**
Specifies whether an existing target zone log is to be used.  If you specify NEW, any existing target zone log with the specified *dsname* is deleted, and a new target zone log is allocated.  If you specify OLD, an existing target zone log is used.

### 6.5.13.1  SMP/E zone and zone log dispositions

As supplied, the DFHISTAR job assumes that you are going to install CICS/ESA 4.1 into new target and distribution zones.  However you can specify a new or old global zone, and new or old zone logs by the disposition option NEW|OLD on the associated parameters of the DFHISTAR job.  The disposition option NEW means that the DFHINST3 job deletes any existing zone or zone log with name specified before redefining it.  For example, if you specify the parameter

```
GZONELOG CICS410.GZONE.SMPLOG NEW
```

the DFHINST3 job deletes any existing SMP/E global zone log with the name CICS410.GZONE.SMPLOG before defining a new SMP/E global zone log with that name.

Further, if you specify different dispositions for a zone parameter and its associated zone log parameter, they are both given the default disposition NEW.  This is to ensure that both a zone and its zone log have the same disposition.

If you intend installing CICS/ESA 4.1 using one new CSI for all zones, you must specify the disposition NEW on all three CSI parameters of the DFHISTAR job.  For example:

```
DZONE           DZONE
DZONECSI        CICS410.SMPZONE NEW CIC410 3380
DZONELOG        CICS410.DZONE.SMPLOG NEW
GZONE           NEW CICO410
GZONECSI        CICS410.SMPZONE NEW CIC410 3380
GZONELOG        CICS410.GZONE.SMPLOG NEW
TZONE           TZONE
TZONECSI        CICS410.SMPZONE NEW CIC410 3380
TZONELOG        CICS410.TZONE.SMPLOG NEW
```

## 6.5.14 Specify attributes of the temporary SMP/E work data sets

You must define the attributes of the temporary SMP/E work data sets (SMPWRK1, SMPWRK2, SMPWRK4, and SMPWRK6): for the following CICS jobs: DFHINSTJ, DFHLPJPN, DFHLPUMD, and DFHSMPE. You define the attributes of those SMP/E data sets on the SMPWORK parameter:

The CICS jobs used to install CICS/ESA 4.1 have DD statements for the SMP/E data sets that they need to know about.

**SMPWORK disktype**
> This is the UNIT parameter for the disk that is to contain the temporary SMP/E work data sets (SMPWRK1, SMPWRK2, SMPWRK4, and SMPWRK6) needed to install CICS. (The SMPWRK3 data set is permanent and is defined by the SMPWRK3 parameter of the DFHISTAR job.)
>
> If you specify a value for *disktype*, or omit the SMPWORK parameter altogether, `//SMPWRKn` DD statements are added to the following jobs generated by the DFHISTAR job:
>
>> DFHINSTJ
>> DFHLPJPN
>> DFHLPUMD
>> DFHSMPE
>
> If you specify NO, a period (.), or a null string, CICS assumes that SMP/E knows about the temporary SMP/E work data sets. To define the attributes of the SMP/E work data sets, you must do one of the following:
>
> - Provide appropriate DDDEFS for the temporary SMP/E work data sets.
>
> - Have applied the SMP/E sample usermod (SMP0001) that contains superzap statements for updating the default attributes of the SMP/E data sets in the GIMMPDFT module.
>
>   The GIMMPDFT module, which is part of SMP/E, defines the default attributes of SMP/E data sets, and can be used to dynamically allocate data sets to be used by all zones. The usermod is in member GIMZPDFT in the SYS1.SAMPLIB library. You can use this usermod as a model, change it to meet your needs, or install it as supplied. For further information about the entries in the GIMMPDFT module and the sample entry values in the usermod SMP0001, see the *System Modification Program Extended: Reference* manual, SC28-1107.

**Notes:**

1. The SMPWRK6 data set must not be allocated to Virtual I/O (VIO). If you specify a value for *disktype*, ensure that this cannot happen.

2. The SMPWRK3 data set is permanent and is defined by the SMPWRK3 parameter of the DFHISTAR job. (see 6.5.15, "Specify attributes of the permanent SMP/E data sets.")

## 6.5.15 Specify attributes of the permanent SMP/E data sets

Specify the attributes of the permanent SMP/E data sets on the following parameters:

**SMPMTS dsname**
Specifies the name of the SMP/E macro temporary store (MTS) data set used to store updated versions of macros. Although required by SMP/E, this MTS data set is not used by CICS.

**SMPPTS dsname**
Specifies the name of the SMP/E primary data set used to store temporarily PTF function SYSMODs or other fixes that are in RECEIVE or APPLY status; that is, PTF fixes that have not been rejected or accepted.

**SMPSCDS dsname**
Specifies the name of the SMP/E saved control data set (SCDS) used to store old target zone entries that have been modified by inline JCLIN processing in a SYSMOD.

**SMPSTS dsname**
Specifies the name of the SMP/E source temporary store (STS) data set used to store updated versions of source elements. Although required by SMP/E, this STS data set is not used by CICS.

**SMPWRK3 dsname**
Specifies the name of the permanent SMPWRK3 data set.

The CICS jobs that need to know the attributes of the SMP/E data sets have DD statements for them.

## 6.5.16  Specify the high-level qualifiers for SMP/E data sets

For each different high-level qualifier that you have specified for SMP/E zone CSIs, logs, and other SMP/E data sets, you must create an ALIAS definition in the master catalog before the data sets can be used.

## 6.5.17  Specify the distribution tape device type

Specify the type of device that is to be used to load the CICS/ESA 4.1 distribution tape on the TAPEUNIT parameter:

**TAPEUNIT devicetype**
Specifies the device type to be used to read the distribution tape. Use 3480 for the 3480 tape cartridge, 3400-6 for the 6250 tape, or the unit names in use in your installation.

## 6.5.18  Specify attributes of the CICS system data sets

Specify attributes of the CICS system data sets, to be created when you run the post-installation jobs DFHCOMDS, DFHDEFDS, and DFHALTDS[5] jobs, on the DSINFO parameter:

**DSINFO dsindex volume disktype qualifier alternate_qualifier**
Defines the following attributes of CICS system data sets:

---

[5] For more information about the post-installation jobs DFHCOMDS, DFHDEFDS, and DFHALTDS jobs, see the *CICS/ESA Installation Guide*.

**dsindex**

Assigns a high-level index to all the data sets defined by the jobs, DFHCOMDS, DFHDEFDS, and DFHALTDS.

The leading character of *dsindex* must be alphabetic. *dsindex* can have one or two levels of index, but each level must be no longer than eight characters. If you specify more than one level of index, the names must be separated by a period (for example, `hlqname.IVP410`).

**volume**

is the volume identifier of the volume.

**disktype**

is the UNIT parameter for the volume.

**qualifier**

is a partial qualifier added to the index for the data sets created by the jobs DFHCOMDS and DFHDEFDS. You can specify a partial qualifier of up to four alphanumeric characters; these characters are appended to the characters CICS to make the qualifier. If you specify a period (.) no qualifier is used.

**alternate_qualifier**

is a partial qualifier added to the index for the data sets created by the DFHALTDS job, for use by alternate CICS regions. You can specify a partial qualifier of up to four alphanumeric characters; these characters are appended to the characters CICS to make the qualifier. If you specify a period (.) no qualifier is used.

**Notes:**

1. If you specify *qualifier*, but omit *alternate_qualifier*, it is assigned the same value as *qualifier*.

2. If you intend running the DFHALTDS job to create data sets for an alternate CICS region (for example, if you intend running the CICS-supplied IVPs with XRF), you must specify a valid data set qualifier on the *alternate_qualifier* option of the DSINFO parameter. This qualifier is used to distinguish the data sets for the alternate CICS region from those for the active CICS region in an XRF environment.

For example, if you specify:

```
DSINFO hlqname.CICS410 H3P060 3380 IDA IDB
```

this defines the names for the CICS local catalogs created by the jobs DFHDEFDS and DFHALTDS as `hlqname.CICS410.CICSIDA.DFHLCD` and `hlqname.CICS410.CICSIDB.DFHLCD` respectively.

The CICS system data sets are listed in Figure 24, Figure 25, and Figure 26 on page 54.

| *Figure 24. CICS data sets created by the DFHCOMDS job* |
|---|
| DFHCSD, CICS region definition data set<br>DFHJPDS, JCL data set containing DFH$ARCH<br>SYSIN, SYSIN data set |

| Figure 25. CICS data sets created by the DFHDEFDS job |
|---|
| DFHGCD, CICS global catalog<br>DFHLCD, CICS local catalog<br>DFHTEMP, temporary storage data set<br>DFHINTRA, intrapartition transient data set<br>DFHRSD, restart data set<br>DFHJACD, automatic journal archive control data set<br>FILEA, sample program file<br>DFHXRCTL, XRF control data set<br>DFHXRMSG, XRF message data set<br>DFHDMPA, non-VSAM dump (A) data set<br>DFHDMPB, non-VSAM dump (B) data set<br>DFHAUXT, non-VSAM auxiliary trace (A) data set<br>DFHBUXT, non-VSAM auxiliary trace (B) data set<br>DFHJ01A, journal (A) data set<br>DFHJ01B, journal (B) data set<br>DFHJ01X, emergency journal data set |

| Figure 26. CICS data sets created by the DFHALTDS job |
|---|
| DFHLCD, CICS local catalog<br>DFHAUXT, non-VSAM auxiliary trace (A) data set<br>DFHBUXT, non-VSAM auxiliary trace (B) data set<br>DFHDMPA, non-VSAM dump (A) data set<br>DFHDMPB, non-VSAM dump (B) data set |

## 6.5.19  Specify IMS attributes

If you *do not* intend using CICS with IMS, proceed to 6.5.20, "Specify attributes of any additional target libraries" on page  55.

**DLI ims_release DISTLIBS|TARGLIBS**
   Specifies the release of IMS that CICS is to use and whether the CICS distribution libraries or target libraries are to be used for assembly of local DL/I support.

   **ims_release**
      is the release of IMS that CICS is to use.  It can be one of the following:

      | Value | meaning |
      |---|---|
      | 4.1.0 | IMS/ESA 4.1 |
      | 3.1.0 | IMS/ESA 3.1 |

   **DISTLIBS|TARGLIBS**
      specifies whether the CICS distribution libraries (DISTLIBS) or target libraries (TARGLIBS) are to be used for assembly of local DL/I support.

**DLIMACLIB ims_library_name ddname**
Defines the name of an IMS macro library to be included in the SYSLIB concatenation. Repeat this parameter once for each IMS macro library to be included in the SYSLIB concatenation (for example, see Figure 22 on page 37).

**Note:** If you do not specify any DLIMACLIB parameters in the DFHISTAR job, support for local DL/I is generated, but does not include any IMS macro libraries.

**ims_library_name**
is the complete name of an IMS macro library.

The names of the IMS libraries GENLIB, GENLIBA, GENLIBB, and OPTIONS are used in the DDEFs within the CICS SMPCSI, for the SMP/E target and distribution zones. The names are also used in the DL/I installation verification procedure, DFHIVPDL.

**ddname**
is the DD name to be used for the IMS library. If you do not specify a value for *ddname*, it assumes the last level of *ims_library_name*. For example, the parameter:

```
DLIMACLIB IMS.GENLIB
```

adds the IMS macro libary, IMS.GENLIB, to the SYSLIB concatenation, and uses GENLIB as the DD name for the library.

## 6.5.20 Specify attributes of any additional target libraries

If you want to create extra copies of the CICS/ESA 4.1 target libraries, specify the attributes of those libraries on the following parameters:

**ADDTVOL volume disktype**
Specifies the volume and unit type to contain all the additional zone data sets.

**volume**
is the volume serial identifier of the volume.

**disktype**
is the UNIT parameter for the volume.

**AINDEX library_prefix**
Assigns a high-level index to the additional set of CICS target libraries copied by a version of the DFHINSTA job.

**Notes:**

1. The high-level index for the additional SDFHLINK and SDFHLPA libraries is defined by the ALINDEX parameter.

2. The high-level index for the data sets created by the jobs DFHCOMDS, DFHDEFDS and DFHALTDS is defined by the dsindex operand of the DSINFO parameter.

The AINDEX value must be unique (for example, it must be different from the INDEX value), it must not be longer than 26 characters, and the leading character must be alphabetic. If you specify more

than one level of index, the names must be separated by a period (for example, `AINDEX CICS410.A.TEST`).

**ASMPSCDS dsname**

Specifies the name of the additional zone SMP/E SCDS data set.

**dsname**

is the name of the additional zone SMP/E SCDS data set.

**ALINDEX library_prefix**

Assigns a high-level index to the additional SDFHLPA and SDFHLINK libraries allocated by running a version of the DFHINSTA job.

The *library_prefix* value must not be longer than 26 characters, and the leading character must be alphabetic. If you specify more than one level of index, the names must be separated by a period (for example, `ALINDEX SYS1.CICS410.A.TEST`).

**AZONE zonename**

Specifies the name of the additional target zone, to be used for the set of CICS target libraries copied by a version of the DFHINSTA job.

**zonename**

is the name of the additional 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.

**AZONECSI cluster**

Specifies details of the additional target zone CSI. The CSI data set is created on the volume and unit specified by the ADDTVOL parameter.

**cluster**

is the VSAM cluster name, minus the qualifier **.CSI**.

**AZONELOG dsname**

Specifies details of the SMP/E log for the additional target zone CSI.

**dsname**

is the name of the additional target zone log to be used by SMP/E.

## 6.6  Create RACF profiles for the CICS/ESA 4.1 data sets

Liaise with your Security Administrator to create appropriate RACF profiles for the CICS/ESA 4.1 data sets, as described in the *CICS/ESA RACF Security Guide*.

At this stage, you need authority to access only the data set qualifiers specified on the TEMPLIB, LIB, and INDEX parameters. (The DFHISTAR job uses a temporary sequential data set, with the high-level qualifier specified on the INDEX parameter, to resolve the parameters to be substituted into the jobs being tailored.) However, it is worth coordinating the access authority for all the CICS/ESA 4.1 data sets at the same time.

## 6.7  Run the DFHISTAR job

When you have edited the DFHISTAR job with the values of installation parameters for your CICS environment, save it.

When you are ready to tailor the skeleton jobs, submit the DFHISTAR job.

When the DFHISTAR job has run, the jobs listed in Figure 21 on page 36 (apart from the DFHISTAR job) are tailored to your CICS environment and added to the library that you specified on the LIB parameter of the DFHISTAR job (by default, the CICS410.XDFHINST library).  If necessary, the DFHISTAR job creates the library specified on the LIB parameter.

## 6.7.1  Check the output from the DFHISTAR job

Check the output from the DFHISTAR job, and if needed, edit and submit the DFHISTAR job again.

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 CICS410.XDFHINST library.  For error code 12, the skeleton jobs are not tailored or copied.  To resolve the cause of either error code, examine the output job log and, if necessary, edit and submit the DFHISTAR job again.

You can run the DFHISTAR job any number of times to alter the attributes of the jobs that it creates.

When running the DFHISTAR job after the first time, you can select specific jobs to be created, by using the SCOPE or SELECT parameter:

**SCOPE ALL|BASE|POST|DLI**
>  Specifies whether you want to generate all the CICS installation and post-installation jobs, only the post-installation jobs, or only the post-installation jobs that you can use for DL/I support.  When installing CICS/ESA 4.1 from the distribution tape, you would normally specify SCOPE ALL (the default). You would normally code the other options, if necessary, during some post-installation tasks, as described in the *CICS/ESA Installation Guide*.

>  **ALL**
>>  Specifies that you want to generate all the CICS installation jobs and all the post-installation jobs.

>  **BASE**
>>  Specifies that you want to generate only the six installation jobs DFHINST1 through DFHINST6 that you can use to install CICS from the distribution tape.

>  **POST**
>>  Specifies that you want to generate only the post-installation jobs, that you can use to create the CICS data sets, run the IVPs, and add local DL/I support.

**DLI**

Specifies that you want to generate only the post-installation jobs that you can use for local DL/I support.  These jobs are: DFHIDLI, DFHIDLIJ, DFHISMPD, and DFHIVPDL.

**SELECT jobname newname**

Specifies the new name for a copy of a post-installation job to be generated when you run the DFHISTAR job.  You can specify several SELECT parameters to select several post-installation jobs to be regenerated in one run of the DFHISTAR job.  The SELECT parameter overrides both the POST and DL1 parameters; that is, if you use the SELECT parameter in the DFHISTAR job, only those jobs specified by SELECT are generated.

**Note:**  If you are using the SELECT parameter to generate copies of the post-installation jobs for a new CICS region, you should also change the DSINFO parameter to specify details of the data sets for the new CICS region.

For example, to create copies of the jobs DFHDEFDS and DFHIVPOL for the CICS region CICSINS you could specify the DSINFO and SELECT parameters of the DFHISTAR job:

```
DSINFO userid.CICS410 H3P061 3380 INS
SELECT DFHDEFDS INSDEFDS
SELECT DFHIVPOL INSIVPOL
```

If you then run the DFHISTAR job, it would create the INSDEFDS job as a copy of the DFHDEFDS job, and the INSIVPOL job as a copy of the DFHIVPOL job, substituting the values that you specified on DSINFO into the new jobs.

You could then change the DSINFO and SELECT parameters, and run the DFHISTAR job to create other copies of the post-installation jobs for another CICS region.

## 6.8  Check that you are ready to run the installation jobs

Check that you are now ready to run the installation jobs:

1. Check the names of the data sets to be created by these jobs, because any existing data sets with those names are deleted by the installation jobs.  If you want to keep an existing data set with a name specified in one of the installation jobs, you must change the name to be used for the new data set.  For example, for the installation parameter *DZONECSI dsname NEW* the data set *dsname* is deleted and a new distribution zone CSI called *dsname* is allocated.

2. The CICS-supplied installation JCL will install CICS/ESA 4.1 into new target and distribution zones.  If you want to install CICS/ESA 4.1 into existing target and distribution zones, you must modify the DFHINST3 job.

   **Caution:**  *If you intend using an existing target or distribution zone that contains an earlier release of CICS, as any earlier release of CICS will be cleared before being replaced by CICS/ESA 4.1.*

3. If you intend installing CICS/ESA 4.1 using both existing and new CSIs, any new CSIs must have the same control interval size as the existing CSIs.

If your existing CSIs do not have a control interval size of 4096 bytes, you must edit the DFHINST3 job (before running it) to change the CONTROLINTERVALSIZE(4096) parameter on the commands used to create the VSAM data sets for the new CSIs, to specify the same control interval size as the existing CSIs.

For further information about considerations for allocating CSI data sets, see the *System Modification Program Extended: Reference* manual, SC28-1107.

4. If you intend installing CICS/ESA 4.1 onto partition data set/extended (PDSEs), edit the DFHINST2 job to specify DSNTYPE=PDS for the ADFHMSGS relfile.  For example:

```
//* CICS410.ADFHMSGS
//*
//DD16   DD DSN=IBM.CICS410.HCI4100.F10,
// DISP=(NEW,CATLG,DELETE),UNIT=3380,VOL=SER=CIC410,
// DCB=(RECFM=V,LRECL=30646,BLKSIZE=30650),
// SPACE=(30650,(150,15,200),,,ROUND)
```

Alternatively, apply a PTF for APAR OY68063.

Without one of these actions, IEBCOPY cannot load the relfile data set for CICS410.ADFHMSGS (written to the CICS distribution tape as a PDS) into a PDSE.

5. Ensure that you have appropriate RACF authority for the CICS/ESA 4.1 data sets.  For more information, see your Security Administrator and the *CICS/ESA RACF Security Guide*.

## 6.9  Run the installation jobs

After you have run the DFHISTAR job to create the installation jobs, submit those jobs in sequence to install CICS/ESA 4.1.  This section describes the CICS installation jobs, and gives considerations that may affect how you use them.

The CICS/ESA 4.1 jobs are in the CICS410.XDFHINST library as a result of running the DFHISTAR job, which you copied from the distribution tape, as described in 6.4, "Copy RELFILE(2) from the distribution tape" on page  34.

These jobs should be run one at a time.  Before you run a job, read the information about it (starting on page 60).

After you have run a job, check its output before proceeding to the next job.  If a job terminates abnormally, find out why it failed (the job log lists the error messages produced on each run).  Correct the error, and then proceed as advised in the job description.  In any case, do not attempt to run the next job until the previous job has run successfully.

### 6.9.1.1  Run times of the installation jobs

To give you an idea what run times to expect, we ran the installation jobs on an IBM 4381 system shared with CICS test regions.  The run times were:

| Job | Processor Time | Elapsed Time |
|---|---|---|
| DFHINST1 | 1.88 seconds | 44.0 seconds |
| DFHINST2 | 0.66 seconds | 11.0 seconds |
| DFHINST3 | 6.41 seconds | 39.0 seconds |
| DFHINST4 | 5.31 seconds | 29.0 seconds |
| DFHINST5 | 57.89 seconds | 3 minutes 16.0 seconds |
| DFHINST6 | 19 minutes 30.42 seconds | 54 minutes 30.0 seconds |

These time values are suitable to run the installation jobs on an IBM 4381 T91 or bigger system. If you have a system smaller than an IBM 4381, you may need to review these values.

### 6.9.1.2  The DFHINST1 job

This job allocates and catalogs CICS distribution and target libraries.

To ensure that this job can be rerun, it deletes (and uncatalogs) the data sets that are allocated in the second step of the job.

If the DFHINST1 job terminates abnormally, examine the job log to determine the cause, correct the problem, then rerun the job.

### 6.9.1.3  The DFHINST2 job

This job allocates the CICS RELFILE data sets. It is optional, but we recommend that you run it.

---

**Before you run the DFHINST2 job**

If you intend installing CICS/ESA 4.1 onto partition data set/extended (PDSEs), edit the DFHINST2 job to specify DSNTYPE=PDS for the ADFHMSGS relfile. For example:

```
//* CICS410.ADFHMSGS
//*
//DD16   DD DSN=IBM.CICS410.HCI4100.F10,
// DISP=(NEW,CATLG,DELETE),UNIT=3380,VOL=SER=CIC410,
// DCB=(RECFM=V,LRECL=30646,BLKSIZE=30650),
// SPACE=(30650,(150,15,200),,,ROUND)
```

Alternatively, apply a PTF for APAR OY68063.

Without one of these actions, IEBCOPY cannot load the relfile data set for CICS410.ADFHMSGS (written to the CICS distribution tape as a PDS) into a PDSE.

---

• If you run the DFHINST2 job now, you ensure that enough space has been allocated to the RELFILE data sets to allow the DFHINST5 job to complete.

- If you do not run this job, SMP/E allocates the RELFILE data sets in the DFHINST5 job, using values obtained from the DFHINST4 job. If there is not enough space available, you do not find this out until DFHINST5 fails, and in this case time is wasted.

To ensure that the job can be rerun, it deletes (and uncatalogs) the data sets (if they exist) that it allocates later.

Remember, if you choose not to run this job, and are relying on the DSSPACE values in the DFHINST4 job, the supplied defaults are not large enough.

If the DFHINST2 job terminates abnormally, examine the job log to determine the cause, correct the problem, then rerun the job.

### 6.9.1.4  The DFHINST3 job

This job allocates the CICS SMP/E data sets.

<div style="border: 1px solid black; padding: 10px;">

**Before you run the DFHINST3 job**

If you intend installing CICS/ESA 4.1 using both existing and new CSIs, any new CSIs must have the same control interval size as the existing CSIs.

**Caution:**  *If you intend using an existing target or distribution zone that contains an earlier release of CICS, as any earlier release of CICS will be cleared before being replaced by CICS/ESA 4.1.*

If your existing CSIs do not have a control interval size of 4096 bytes, you must edit the DFHINST3 job (before running it) to change the CONTROLINTERVALSIZE(4096) parameter on the commands used to create the VSAM data sets for the new CSIs, to specify the same control interval size as the existing CSIs.

For further information about considerations for allocating CSI data sets, see the *System Modification Program Extended: Reference* manual, SC28-1107.

</div>

To ensure that the job can be rerun, it deletes (and uncatalogs) the data sets (if they exist) that it allocates later.

This job also sets up the global, target, and distribution zones, depending on the parameters that you specified to the DFHISTAR job, as follows:

1. If you specified NEW for GZONE, the global zone is deleted and redefined.
2. The distribution zone is deleted and redefined.
3. The target zone is deleted and redefined.
4. Member GIMZPOOL from SYS1.MACLIB is REPROed into the zones redefined in the previous steps.

5. If you specified OLD for GZONE, the entries for the DZONE and TZONE names are removed from the global zone.

If the DFHINST3 job terminates abnormally, examine the job log to find the cause, correct the problem, then rerun the job.

### 6.9.1.5  The DFHINST4 job

This job primes the global zone, target zone, and distribution zone.

> ┌─ **Before you run the DFHINST4 job** ─────────────────────────────────────────
> 
> If you did not run the DFHINST2 job, increase the DSSPACE values in the DFHINST4 job, before submitting it.

If the DFHINST4 job terminates abnormally, examine the job log to determine the cause, correct the problem, then repeat all jobs, beginning with DFHINST1.  This avoids SMP/E space problems, and consequent X37 abends, during reruns of these SMP/E jobs.

### 6.9.1.6  The DFHINST5 job

This job RECEIVEs the CICS software from the distribution tape into the RELFILE data sets created by the DFHINST2 job.  It is the only installation job (apart from the initial IEBCOPY job) that requires the distribution tape to be mounted.

> ┌─ **Before you run the DFHINST5 job** ─────────────────────────────────────────
> 
> If you have ordered CICS/ESA 4.1 with the Japanese language feature, you can RECEIVE this feature by adding the FMID, JCI4104, to the RECEIVE step of the DFHINST5 job.  Alternatively, you can use the DFHINSTJ job after installing the base CICS/ESA 4.1 functions.

If the DFHINST5 job terminates abnormally, examine the job log to determine the cause, correct the problem, then repeat all jobs, beginning with DFHINST1.  This avoids SMP/E space problems, and consequent X37 abends, during reruns of these SMP/E jobs.

### 6.9.1.7  The DFHINST6 job

This job performs the SMP/E APPLY and ACCEPT functions needed to install CICS into the target and distribution libraries respectively.

> **Before you run the DFHINST6 job**
>
> If you have modified the other installation jobs (for example, to use existing libraries and therefore existing target and distribution zones), you should consider splitting the DFHINST6 job to do APPLY CHECK, APPLY, ACCEPT CHECK, and ACCEPT functions as four separate jobs.
>
> If you have ordered CICS/ESA 4.1 with the Japanese language feature, you can APPLY and ACCEPT this feature by adding the FMID, JCI4104, to the APPLY and ACCEPT steps of the DFHINST6 job. Alternatively, you can use the DFHINSTJ job after installing the base CICS/ESA 4.1 functions.

The DFHINST6 job is the longest running of all the installation jobs (see 6.9.1.1, "Run times of the installation jobs" on page 59), and produces a large amount of printed output. You may need to adjust your JES parameters (for example, with a JES2 /*JOBPARM LINES=99 statement) to avoid a system abend 722.

This job gives a return code of 4 when all is well. (See the "GIM23903I - LINK SUCCESSFUL . . " message, listed in the report that is output by the apply job.)

If the linkage editor is used message IEW0461 is produced during the APPLY stage for unresolved external references while some CICS load modules are being link-edited during installation, giving a return code of 4. You can ignore this IEW0461 message, which is output for component object modules of executable CICS load modules.

If the binder is used a number of IEW2454W messages are produced during the APPLY stage for unresolved external references while some CICS load modules are being link-edited during installation, giving a return code of 4. You may also receive numerous IEW2646W and IEW2651W messages, which are conflicts with user-specified RMODE and AMODEs respectively. You can ignore these IEWxxxx messages, which are output for component object modules of executable CICS load modules.

When you have run the DFHINST6 job, you should see the following SMP/E message in the output from the job:

```
GIM20502I  GIMSMP PROCESSING IS COMPLETE - THE HIGHEST RETURN CODE WAS 04 -
```

This SMP/E message can be ignored. If any other SMP/E messages appear, see the *System Modification Program Extended: Messages and Codes* manual for guidance information about their meaning, and take the appropriate action.

If the DFHINST6 job terminates abnormally, examine the job log to determine the cause, correct the problem, then repeat all the jobs, beginning with DFHINST1. This avoids SMP/E space problems, and consequent X37 abends, during reruns of these SMP/E jobs.

**Note:** If the DFHINST6 job fails and you are using an existing global zone (that is, you specified the GZONE parameter of the DFHISTAR job with the disposition parameter OLD), you must first REJECT the CICS base-level function SYSMOD before rerunning the DFHINST1 job. When you rerun the installation jobs, some steps that were successfully completed in the previous run will produce return codes with a value of '8'.

## 6.9.2  Check the output from the installation jobs

When you have successfully run all of the installation jobs described in this chapter, CICS/ESA 4.1 will have been loaded into the following libraries:

CICS410.SDFHAPD1
CICS410.SDFHAPD2
CICS410.SDFHAUTH
CICS410.SDFHCLIB
CICS410.SDFHCOB
CICS410.SDFHC370
CICS410.SDFHEXCI
CICS410.SDFHINST
CICS410.SDFHLANG
CICS410.SDFHLLIB
CICS410.SDFHLOAD
CICS410.SDFHMAC
CICS410.SDFHMLIB
CICS410.SDFHMSGS
CICS410.SDFHPARM
CICS410.SDFHPL1
CICS410.SDFHPLIB
CICS410.SDFHPROC
CICS410.SDFHSAMP
CICS410.SDFHSRC
CICS410.SDFHSRCE
SYS1.CICS410.SDFHLINK
SYS1.CICS410.SDFHLPA

You now have CICS/ESA 4.1 installed on your DASD.  Back up the volume on which CICS/ESA 4.1 resides.  This avoids the need to re-run the installation jobs if any errors occur during customization later.

## 6.10  What next?

You should next copy the CICS procedures into a cataloged procedure library, load any CICS features that you have, and tailor the CICS/ESA 4.1 to your needs.  For information about copying the CICS procedures, and loading the CICS features, see the following sections.  For information about tailoring CICS/ESA 4.1 to your needs, see the *CICS/ESA 4.1 Installation Guide*.

### 6.10.1  Copy the CICS procedures into a procedure library

CICS supplies the procedures listed in Figure 27.

| Figure 27 (Page 1 of 2). CICS-supplied procedures | |
|---|---|
| **Procedure** | **Description** |
| **DFHASMVS** | Assembles some CICS programs and user-written assembler language programs. |
| **DFHAUPLE** | Assembles and link-edits CICS control tables, and makes the assembly and link-edit information available to SMP/E. |
| **DFHCRST** | Restarts, for the XRF overseer, a failed region that was executing as a job. |
| **DFHEBTAL** | Translates, assembles, and link-edits assembler application programs using EXEC DLI commands in a batch or CICS shared-database environment. |
| **DFHEBTPL** | Translates, compiles, and link-edits PL/I application programs using EXEC DLI commands in a batch or CICS shared-database environment. |
| **DFHEBTVL** | Translates, compiles, and link-edits VS COBOL II application programs using EXEC DLI commands in a batch or CICS shared-database environment. |
| **DFHEITAL** | Translates, assembles, and link-edits assembler application programs using the command-level interface. |
| **DFHEITDL** | Translates, compiles, and link-edits C/370 application programs using the command-level interface. |
| **DFHEITPL** | Translates, compiles, and link-edits PL/I application programs using the command-level interface. |
| **DFHEITVL** | Translates, compiles, and link-edits VS COBOL II application programs using the command-level interface. |
| **DFHEXTAL** | Translates, assembles, and link-edits assembler application programs using the external CICS interface. |
| **DFHEXTDL** | Translates, compiles, and link-edits C/370 application programs using the external CICS interface. |
| **DFHEXTPL** | Translates, compiles, and link-edits PL/I application programs using the external CICS interface. |
| **DFHEXTVL** | Translates, compiles, and link-edits VS COBOL II application programs using the external CICS interface. |
| **DFHLNKVS** | Link-edits CICS programs and application programs. |
| **DFHMAPS** | Prepares physical and symbolic maps. |
| **DFHSMPE** | Executes SMP/E. |
| **DFHSTART** | Starts CICS/ESA 4.1. |
| **DFHYBTPL** | Translates, compiles, and link-edits PL/I application programs using EXEC DLI commands in a batch or CICS shared-database environment under Language Environment/370. |
| **DFHYBTVL** | Translates, compiles, and link-edits VS COBOL application programs using EXEC DLI commands in a batch or CICS shared-database environment under Language Environment/370. |
| **DFHYITDL** | Translates, compiles, and link-edits C/370 application programs using the command-level interface under Language Environment/370. |
| **DFHYITPL** | Translates, compiles, and link-edits PL/I application programs using the command-level interface under Language Environment/370. |

| Figure 27 (Page 2 of 2). CICS-supplied procedures | |
|---|---|
| **Procedure** | **Description** |
| **DFHYITVL** | Translates, compiles, and link-edits VS COBOL application programs using the command-level interface under Language Environment/370. |
| **DFHYXTDL** | Translates, compiles, and link-edits C/370 application programs using the external CICS interface. under Language Environment/370. |
| **DFHYXTPL** | Translates, compiles, and link-edits PL/I application programs using the external CICS interface under Language Environment/370. |
| **DFHYXTVL** | Translates, compiles, and link-edits VS COBOL application programs using the external CICS interface under Language Environment/370. |
| **Note:** | |
| For further information about using the CICS-supplied procedures, see: | |

- The *CICS/ESA Operations and Utilities Guide*, SC33-1167, for information about DFHCRST
- The *CICS/ESA Installation Guide*, SC33-1163, for information about DFHSMPE and DFHSTART
- The *CICS/ESA System Definition Guide*, SC33-1164, for information about the other procedures.

The procedures DFHAUPLE, DFHSMPE, and DFHSTART are tailored to your CICS environment and stored in the CICS410.XDFHINST library when you run the DFHISTAR job. The other procedures are **not** modified by the DFHISTAR job and are copied into the CICS410.SDFHPROC library when you run the CICS installation jobs.

You should copy all these procedures into a cataloged procedure library (for example, SYS1.PROCLIB).

**Before you copy the procedures**, read the following:

1. Your procedure library may already contain procedures, supplied with an earlier release of CICS, that have the same names as the new procedures but are, in fact, different. If so, you must find some way of selecting the right release. Here are some ways of using the new versions:

   a. For the time being, rename either set of procedures, and modify the appropriate jobs to use the new names.

   b. Insert the new procedures into the job streams that use them, and use the procedures as instream procedures. The inserted procedures should be placed between the JOB statement and the first EXEC statement. You must insert a `// PEND` statement after the inserted procedures. When the new release becomes the production system, you can copy the new procedures into your procedure library.

   c. Indicate the DDNAME of the cataloged procedure library that is to be used to convert the JCL for the job. For example, you could use the JES2 `/*JOBPARM PROCLIB=xxxxxxxx`. For further information about specifying DDNAMEs in JCL, see the *MVS/ESA JCL Reference* manual.

2. If service is applied to the CICS procedures, it is the versions in the libraries CICS410.SDFHINST and CICS410.SDFHPROC that will be updated by SMP/E. You must then copy the updated procedures into your procedure library.

3. The default for the symbolic parameter GZONE in the procedures DFHSMPE and DFHAUPLE is taken from the value that you specified by the GZONE parameter of the DFHISTAR job.

4. The default for the ZNAME symbolic parameter in the procedures DFHSMPE and DFHAUPLE is taken from the value that you specified by the TZONE parameter of the DFHISTAR job. For a description of how the ZNAME parameter is used, see the SMPCNTL DD statement in the *CICS/ESA Installation Guide*, SC33-1163.,

5. Check the IMSIND parameter in DFHEBTAL, DFHEBTCL, DFHEBTDL, DFHEBTPL, and the DFHEBTVL procedure, and ensure that it is the same as the the high-level qualifiers of the IMS data sets, specified on the `DLIMACLIB` parameters of the DFHISTAR job.

6. Change the OUTC parameter as required.

When you have read these notes, and acted on them as necessary, copy the procedures into a cataloged procedure library.

## 6.10.2  Create extra sets of CICS target libraries (optional)

You can use the CICS installation job, DFHISTAR, to generate an optional installation job which you can use to create extra copies of the CICS target libraries. This CICS multiple library support is primarily intended to provide some benefits if you operate CICS with XRF. However, it can offer some benefits if you run CICS without XRF.

Some of the benefits of using multiple libraries are:

- **Generating DL/I support** – you can add or upgrade support for DL/I, and then migrate easily from one set of libraries to the other.

- **Backing out PTFs and APARs** – if you apply PTFs or APARs to CICS and if they fail a fix-test, you can back out the changes with minimum disruption.

- **DASD failure** – multiple libraries protect you against failure of the DASD on which the CICS load libraries reside. This is of particular benefit when running CICS with XRF.

- **Service** – you can apply and test service without the need to shut down CICS. This benefit is available only when running CICS with XRF.

Base the decision to use multiple libraries for CICS on the following factors:

- Your need for high availability – as already stated, the use of multiple libraries can protect you against CICS downtime due to DASD failure or incorrect service (either from IBM-supplied PTFs or your own modifications to your CICS region).

- The extra DASD needed – multiple libraries require more disk space.

- Other ways of providing high availability; for example, use of a CICSplex, VTAM persistent sessions, and MVS functions to provide restart of CICS regions.

- The added complexity of maintaining multiple sets of CICS libraries – two or more sets of CICS target libraries, together with the SMP/E procedures needed to support them, increase the complexity of

maintenance. You will need to define procedures to ensure that upgrades to the CICS libraries are kept under control.

- Alternative solutions – if you have already established a proven process for fix verification and for testing applications developed for your production CICS region, you may decide you don't need multiple CICS libraries.

You can use the DFHINSTA job, generated by the DFHISTAR job, to create extra sets of CICS target libraries fully under the control of SMP/E. Each time you run the DFHINSTA job, you can only generate one extra set of target libraries.

To create an extra sets of target libraries, you should complete the following steps. You can repeat the steps to create more sets of target libraries.

1. Edit the DFHISTAR job to specify values for:

   - The ADDTVOL, AINDEX, ASMPSCDS, AZONE, AZONECSI, and AZONELOG parameters, for the new set of target libraries.

   - The INDEX, TZONE, TZONECSI, and TZONELOG parameters, for the primary target libraries you want to copy from. (The TZONE, TZONECSI, and TZONELOG parameters must specify the target zone that contains the CICS target libraries defined with the high-level qualifier provided by the INDEX parameter.)

   - The DZONE, DZONECSI, and DZONELOG parameters, fot the distibution libraries to be associated with the new set of target libraries.

   - The SELECT parameter, to specify DFHINSTA (that you want to copy) and the member name you want the generated version of DFHINSTA to be stored as in the CICS410.XDFHINST library. For example,

     ```
     SELECT DFHINSTA INSTA111
     ```

     will store the generated version of DFHINSTA into member INSTA111 of the CICS410.XDFHINST library when you submit the DFHISTAR job.

     Each time you copy DFHINSTA (to create a new set of target libraries), you should specify a new name on the SELECT parameter (to save each copy with a different name in case you need it again in the future).

   For further information about editing the DFHISTAR job, and about the parameters of the DFHISTAR job, see 6.5, "Edit the DFHISTAR job" on page 37. The other parameters in the DFHISTAR job should not be changed.

2. Submit the DFHISTAR job

   When you run the DFHISTAR job, it saves the generated version of the DFHINSTA job in the CICS410.XDFHINST library with the member name specified on the SELECT parameter in the DFHISTAR job. The data set name of the CICS410.XDFHINST library is specified in the LIB parameter of the DFHISTAR job.

3. Submit DFHINSTA

The DFHINSTA job (or a copy of it) copies the CICS target libraries specified by the INDEX parameter, and creates corresponding CICS SMP/E data sets for them. In particular, it allocates a new SMP/E CSI data set for the extra target zone.

So that DFHINSTA job can be run more than once, step 1 deletes previous copies of the data sets to be created. Step 3 deletes the SMP/E CSI data set. Step 6 removes the ZONEINDEX entry for the extra target zone.

The first time the DFHINSTA job is run, Step 6 will give the following messages:

```
GIM35701E ** ZINDEX SUBENTRY azone WAS NOT DELETED BECAUSE
                    IT DOES NOT EXIST.
GIM25601I   THE SPECIFIED ENTRY WAS NOT UPDATED BECAUSE OF
                 AN ERROR DURING UCLIN PROCESSING.
```

You can ignore these messages the first time the job is run.

## 6.10.3  Load the CICS/ESA 4.1 source material (optional)

You can use the sample job, DFHOPSRC, to load the optional CICS/ESA 4.1 source from the distribution tape. The DFHOPSRC job is generated in the CICS410.XDFHINST library when you run the DFHISTAR job.

The DFHOPSRC job runs the MVS IEBCOPY utility program to load the optional source data sets from tape into a single DASD data set.

For further information about the IEBCOPY program, see the *MVS/ESA Data Administration: Utilities Manual* (SC26-4516).

**Note:**  The DFHOPSRC job loads the tape files to a DASD device of your choice, using a BLKSIZE parameter of 6160. You can specify a different BLKSIZE parameter on the DCB and SPACE statements if you want, in which case the space allocation should be reviewed (It may need to be changed.).

## 6.10.4  Load the Japanese national language feature (optional)

You can use the sample job, DFHINSTJ, to load the optional Japanese national language feature from the distribution tape. The DFHINSTJ job is generated in the CICS410.XDFHINST library when you run the DFHISTAR job. Alternatively, you can load the Japanese language feature when you install the CICS/ESA 4.1 base, by adding the FMID, JCI4104, to the RECEIVE step of the DFHINST5 job and the APPLY and ACCEPT steps of the DFHINST6 job, as described in 6.9, "Run the installation jobs" on page 59.

The only libraries updated by installing this feature are CICS410.SDFHAUTH, CICS410.SDFHLOAD, and CICS410.ADFHMOD. Existing members of these libraries are *not* updated.

The Japanese language feature becomes operational when CICS/ESA 4.1 is activated after the feature has been installed.

## 6.10.5  Loading the Supplementary Data Areas feature from tape

On the Supplementary Data Areas softcopy distribution tape for features 5040 and 5041 there is one book sequential data set: IBM.DFHLS502.BOOK.

To load the book file from the distribution tape, you should edit and submit the sample job given in Figure 28 on page 70.

```
//COPY     JOB (accounting information)
//*
//* Insert here instructions for mounting the tape.
//*
//COPYSTEP EXEC PGM=IEBGENER,REGION=2M
//SYSPRINT DD SYSOUT=*
//SYSIN    DD DUMMY
//SYSUT1   DD UNIT={TAPE|device-type|user-group-name},
//    VOL=SER=CI410A,LABEL=(1,SL),DSN=IBM.DFHLS502.BOOK,
//    DISP=OLD
//SYSUT2   DD DSN=IBM.DFHLS502.BOOK,DISP=(,CATLG,DELETE),
//    UNIT=SYSDA,VOL=SER=??????,
//    SPACE=(24576,(70,15),RLSE),
//    DCB=(RECFM=FB,LRECL=4096,BLKSIZE=24576)
```

**Specify your own values for:**

 1. The UNIT parameter for the input to the job (on SYSUT1 DD).

 2. The VOLSER parameter of the output from the job (on SYSUT2 DD).

*Figure 28. Sample job to load the Supplementary Data Areas from tape*

You can use BookManager READ/MVS to read the softcopy book sequential data sets on MVS, or transfer the data sets to your VM systems or workstations, for use with BookManager on those platforms. If you transfer the data sets, note the format of the tape member:

*Figure 29. Contents of the Supplementary Data Areas softcopy distribution tape*

| Publication Title | PDS Member name | Format | Size (bytes) | VM filetype |
|---|---|---|---|---|
| CICS/ESA 4.1 Supplementary Data Areas | DFHLS502 | Binary | 819200 | BOOK |

## 6.11  Activating CICS/ESA 4.1

After you have loaded CICS/ESA 4.1 to disk, you should perform the following steps, described in the
*CICS/ESA Installation Guide*, SC33-1163:

1. (If needed) Apply service

2. Integrate CICS with MVS

3. Create CICS system data sets

4. (Optional) Install DL/I support

5. (Optional) Install CICS-DATABASE 2 support

6. (Optional) Install MRO and ISC support

7. (Optional) Run the installation verification procedures (IVPs).

The *CICS/ESA Installation Guide* also contains information about how to get CICS/ESA 4.1 into
operational status, as part of the process of verifying the installation.

# Appendix A.  CICS/ESA 4.1 Install Logic

Figure 30 shows the System Modification Program install logic for CICS/ESA 4.1 (HCI4100).  Figure 31 on page 85 shows the System Modification Program install logic for the Japanese language feature of CICS/ESA 4.1 (JCI4104).

If you ordered CICS/ESA 4.1 as an individual product (not in CBIPO or CBPDO), then the entire set of SMP/E modification control statements for the installation can be obtained by printing the first file of the CICS/ESA 4.1 program tape.

```
++FUNCTION(HCI4100 ) REWORK(1994244 )
                  RFDSNPFX(IBM     )  FILES(16)
  /*     THIS STATEMENT IDENTIFIES CICS/ESA 4.1.0
         5655-018
         THIS PRODUCT CONTAINS 'RESTRICTED MATERIALS OF IBM'
         (C) COPYRIGHT IBM CORP 1974,1994
         ALL RIGHTS RESERVED
         U.S. GOVERNMENT USERS RESTRICTED RIGHTS
           - USE, DUPLICATION OR DISCLOSURE RESTRICTED
             BY GSA ADP SCHEDULE CONTRACT WITH IBM CORP.
         LICENSED MATERIALS - PROPERTY OF IBM
         REFER TO COPYRIGHT INSTRUCTION FORM NUMBER G120-2083 */
 .
++VER(C150 ) DELETE(HCI1500  HCI1601  HCI1602  HCI1612  HCI1613
                  HCI1702  HCI1703  HCI2103  HCI2113  HCI2212
                  HCI2310  HCI2312  HCI2320  HCI3321  HCI3330 )
              SUP(AN53428  AN53433  AN53466  AN53467  AN53473
                  AN53538  AN53539  AN53545  AN53590  AN53591
                  AN53592  AN53593  AN53594  AN53597  AN53599
                  AN53601  AN53602  AN53608  AN53619  AN53672
                  AN53679  AN53682  AN53683  AN53752  AN53753
```

*Figure  30 (Part  1  of  14).  System Modification Program install logic for CICS/ESA 4.1*

```
AN53754   AN53755   AN53756   AN53757   AN53758
AN53760   AN53761   AN53763   AN53764   AN53765
AN53782   AN53786   AN53787   AN53788   AN53789
AN53790   AN53796   AN53797   AN53798   AN53892
AN53894   AN53895   AN53896   AN53898   AN53899
AN54063   AN54064   AN54066   AN54067   AN54068
AN54069   AN54070   AN54071   AN54072   AN54073
AN54074   AN54075   AN54077   AN54078   AN54079
AN54083   AN54084   AN54085   AN54190   AN54192
AN54226   AN54227   AN54228   AN54229   AN54297
AN54298   AN54299   AN54300   AN54367   AN54368
AN54369   AN54370   AN54371   AN54436   AN54437
AN54438   AN54439   AN54523   AN54524   AN54525
AN54526   AN54575   AN54576   AN54577   AN54578
AN54579   AN54673   AN54674   AN54675   AN54676
AN54677   AN54678   AN54755   AN54756   AN54757
AN54758   AN54759   AN54760   AN54761   AN54820
AN54822   AN54823   AN54849   AN54898   AN54899
AN54900   AN55038   AN55221   AN55264   AN55265
AN55266   AN55267   AN55326   AN55327   AN55328
AN55329   AN55338   AN55396   AN55397   AN55401
AN55510   AN55524   AN55588   AN55595   AN55596
AN55597   AN55664   AN55676   AN55682   AN55773
AN55774   AN55775   AN55776   AN55787   AN55794
AN55844   AN55973   AN55979   AN56017   AN56018
AN56019   AN56020   AN56022   AN56023   AN56024
AN56082   AN56090   AN56132   AN56216   AN56227
AN56294   AN56296   AN56297   AN56298   AN56299
AN56300   AN56325   AN56328   AN56372   AN56488
AN56595   AN56605   AN56606   AN56697   AN56778
AN56896   AN56920   AN56921   AN57061   AN57063
AN57065   AN57071   AN57208   AN57302   AN57427
AN57429   AN57458   AN57527   AN57543   AN57569
AN57655   AN57770   AN57973   AN57975   AN57976
AN57977   AN58050   AN58052   AN58053   AN58054
AN58055   AN58057   AN58066   AN58071   AN58113
AN58114   AN58116   AN58168   AN58184   AN58383
AN58446   AN58457   AN58465   AN58569   AN58600
AN58601   AN58712   AN58720   AN58798   AN58846
AN58847   AN58848   AN58913   AN58952   AN58956
```

*Figure 30 (Part 2 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
                   AN58975   AN59073   AN59157   AN59172   AN59326
                   AN59339   AN59461   AN59469   AN59497   AN59621
                   AN59626   AN59629   AN59632   AN59636   AN59637
                   AN59687   AN59752   AN59799   AN59908   AN59989
                   AN59990   AN60130   AN60233   AN60515   AN60638
                   AN60639   HCI1500   HCI1601   HCI1602   HCI1612
                   HCI1613   HCI1702   HCI1703   HCI2103   HCI2113
                   HCI2212   HCI2310   HCI2312   HCI2320   HCI3321
                   HCI3330   UN59771   UN60370   UN60620   UN61639
                   UN61943   UN62414   UN62425   UN63317   UN63682
                   UN63932   UN64225   UN64333   UN64737   UN65066
                   UN65277   UN65719   UN66068   UN66186 ) .
++IF FMID(JCI4102 )
    REQ(UN60372  UN60622   UN62418   UN63684   UN64207   UN64335
        UN65294 ) .
++IF FMID(JCI4101 )
    REQ(UN60371  UN61645   UN62417   UN63683   UN64206   UN64334
        UN65280 ) .
++IF FMID(JCI4104 )
    REQ(UN60621  UN61644   UN61944   UN62415   UN64738   UN65101
        UN65295 ) .
++IF FMID(JCI4107 )
    REQ(UN61945  UN64741   UN65102 ) .
++IF FMID(JCI4103 )
    REQ(UN61946  UN64208   UN66232 ) .
++JCLIN                 ASM( PGM=IEV90 ) LKED( PGM=IEWL )


++FUNCTION(JCI4101 ) REWORK(1994244 )
                    RFDSNPFX(IBM      )  FILES(2)
  /*      THIS STATEMENT IDENTIFIES CICS/ESA 4.1.0
          5655-018
          THIS PRODUCT CONTAINS 'RESTRICTED MATERIALS OF IBM'
          (C) COPYRIGHT IBM CORP 1974,1994
          ALL RIGHTS RESERVED
          U.S. GOVERNMENT USERS RESTRICTED RIGHTS
            - USE, DUPLICATION OR DISCLOSURE RESTRICTED
              BY GSA ADP SCHEDULE CONTRACT WITH IBM CORP.
```

*Figure 30 (Part 3 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
         LICENSED MATERIALS - PROPERTY OF IBM
         REFER TO COPYRIGHT INSTRUCTION FORM NUMBER G120-2083 */
 .
++VER(C150    ) FMID(HCI4100 )
                REQ(UN60370   UN61639   UN62414   UN63682   UN63932
                    UN64333   UN65277 )
                SUP(AN53597   AN54080   AN55596   AN56896   AN58446
                    AN58847   AN59989   UN60371   UN61645   UN62417
                    UN63683   UN64206   UN64334   UN65280 ) .
++IF FMID(JCI4102 ) REQ(UN60372   UN62418 ) .
++IF FMID(JCI4104 ) REQ(UN61644   UN62415 ) .
++DATA1(DFHAID  ) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHAUSDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA03DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA04DS) DISTLIB(ADFHCOB ) RMID(UN64334 )
                  SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA05DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA06DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA08DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA09DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA10DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA11DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA12DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA13DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA14DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA16DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA17DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA18DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA19DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA20DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA21DS) DISTLIB(ADFHCOB ) RMID(UN62417 )
                  SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA22DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA23DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA24DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHA25DS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHBMSCA) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHCMCOB) DISTLIB(ADFHCOB ) ALIAS(CMCOBOL )
                  SYSLIB(SDFHCOB )  RELFILE(1).
```

*Figure 30 (Part 4 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++DATA1(DFHDBUDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHDEGDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHDSGDS) DISTLIB(ADFHCOB ) RMID(UN63683 )
                 SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHDYP ) DISTLIB(ADFHCOB ) RMID(UN64206 )
                 SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHDYPDS) DISTLIB(ADFHCOB ) RMID(UN64206 )
                 SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHEIBLK) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHEILIC) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHEIVAR) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHLDGDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHLDRDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHMNGDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHMNTDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHMSRCA) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHPGACO) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHPGAOX) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFHPGGDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSDGDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSDRDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSMDDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSMSDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSMTDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSNGSO) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSRCOB) DISTLIB(ADFHCOB ) ALIAS(SRRCOBOL)
                 SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSTGDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSTIDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHSZAPO) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHTCUDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHTDGDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHTDRDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHTIOA ) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHUIBO ) DISTLIB(ADFHCOB ) ALIAS(DLIUIB  )
                 SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHURLDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHUSGDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHXCPLO) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHXCRCO) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
```

*Figure 30 (Part 5 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++DATA1(DFHXMCDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHXMGDS) DISTLIB(ADFHCOB ) RMID(UN60371 )
                  SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHXMRDS) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHXMRSO) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHXTAB ) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).
++DATA1(DFHZCTDX) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BCA ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BCR ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BFKT) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BFPD) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BHP ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BHPD) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BHR ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BHT ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BLST) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BMSG) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BRT ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BTSQ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BZCO) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BZMO) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BZ10) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BZ20) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BZ40) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0BZ50) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CALL) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CBDC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CBRW) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CCOM) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CFIL) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CLOG) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CL86) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CMNU) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CPKO) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CPLA) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CREN) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CREP) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CRFC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0CXCC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
```

*Figure 30 (Part 6 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++DATA1(DFH0DLCC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0DLCE) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0FORC) DISTLIB(ADFHSAMP) RMID(UN65280 )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0GMAP) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0GNIT) DISTLIB(ADFHSAMP) RMID(UN61645 )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0SINX) DISTLIB(ADFHSAMP) ALIAS(ACCTINDX)
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0SIXR) DISTLIB(ADFHSAMP) ALIAS(ACIXREC )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0SREC) DISTLIB(ADFHSAMP) ALIAS(ACCTREC )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0STAT) DISTLIB(ADFHSAMP) RMID(UN60371 )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0S00 ) DISTLIB(ADFHSAMP) ALIAS(ACCT00  )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0S01 ) DISTLIB(ADFHSAMP) ALIAS(ACCT01  )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0S02 ) DISTLIB(ADFHSAMP) ALIAS(ACCT02  )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0S03 ) DISTLIB(ADFHSAMP) ALIAS(ACCT03  )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0S04 ) DISTLIB(ADFHSAMP) ALIAS(ACCT04  )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VAB ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VABT) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VBRW) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VDEL) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VDQ ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VHLP) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VHP ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VLIO) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VLST) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VNEW) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VOL ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VOPN) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VPRT) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VRIO) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VSAS) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
```

*Figure 30 (Part 7 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++DATA1(DFH0VTBL) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VT1 ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VUPD) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZPA) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZPS) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZQS) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZTD) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZTK) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZTR) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZTS) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZUC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZUU) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZUX) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH0VZXS) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA1(DFH2980 ) DISTLIB(ADFHCOB ) SYSLIB(SDFHCOB )  RELFILE(1).


++FUNCTION(JCI4102 ) REWORK(1994244 )
                    RFDSNPFX(IBM    ) FILES(2)
  /*     THIS STATEMENT IDENTIFIES CICS/ESA 4.1.0
         5655-018
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         LICENSED MATERIALS - PROPERTY OF IBM
         REFER TO COPYRIGHT INSTRUCTION FORM NUMBER G120-2083 */
 .
++VER(C150     ) FMID(HCI4100 )
              REQ(UN60370  UN60620  UN62414  UN63682  UN63932
                  UN64333  UN65277 )
              SUP(AN53597  AN53800  AN55596  AN56896  AN58446
                  AN58847  AN59989  UN60372  UN60622  UN62418
                  UN63684  UN64207  UN64335  UN65294 ) .
++IF FMID(JCI4101 ) REQ(UN60371  UN62417 ) .
```

*Figure 30 (Part 8 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++IF FMID(JCI4104 ) REQ(UN60621  UN62415 ) .
++DATA2(DFH$CRFP) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$DLPC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$DLPE) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$FORP) DISTLIB(ADFHSAMP) RMID(UN65294 )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PALL) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PBRW) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PCOM) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PDUM) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PFIL) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PLOG) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PL86) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PMNU) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PPKO) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PPLA) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PREN) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PREP) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH$PXCC) DISTLIB(ADFHSAMP) RMID(UN60622 )
                  SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFHAID ) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHAUSDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA03DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA04DS) DISTLIB(ADFHPL1 ) RMID(UN64335 )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA05DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA06DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA08DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA09DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA10DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA11DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA12DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA13DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA14DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA16DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA17DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA18DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA19DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA20DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
```

*Figure 30 (Part 9 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++DATA2(DFHA21DS) DISTLIB(ADFHPL1 ) RMID(UN62418 )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA22DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA23DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA24DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHA25DS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHBMSCA) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHCMPLI) DISTLIB(ADFHPL1 ) ALIAS(CMPLI   )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHDBUDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHDEGDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHDSGDS) DISTLIB(ADFHPL1 ) RMID(UN63684 )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHDYP  ) DISTLIB(ADFHPL1 ) RMID(UN64207 )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHDYPDS) DISTLIB(ADFHPL1 ) RMID(UN64207 )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHEIBLK) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHEILIP) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHLDGDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHLDRDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHMNGDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHMNTDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHMSRCA) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHPGACL) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHPGALX) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFHPGGDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSDGDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSDRDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSMDDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSMSDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSMTDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSNGSL) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSRPLI) DISTLIB(ADFHPL1 ) ALIAS(SRRPLI  )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSTGDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSTIDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHSZAPP) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHTCUDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
```

*Figure 30 (Part 10 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++DATA2(DFHTDGDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHTDRDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHTIOA ) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHUIBP ) DISTLIB(ADFHPL1 ) ALIAS(DLIUIB  )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHURLDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHUSGDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHXCPLL) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHXCRCL) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHXMCDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHXMGDS) DISTLIB(ADFHPL1 ) RMID(UN60372 )
                  SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHXMRDS) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHXMRSL) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHXTAB ) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).
++DATA2(DFHZPTDX) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH0BZCP) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH0BZMP) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH0BZ7P) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH0PZTK) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(2).
++DATA2(DFH2980 ) DISTLIB(ADFHPL1 ) SYSLIB(SDFHPL1 )  RELFILE(1).


++FUNCTION(JCI4103 ) REWORK(1994244 )
                     RFDSNPFX(IBM      ) FILES(2)
  /*      THIS STATEMENT IDENTIFIES CICS/ESA 4.1.0
          5655-018
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          LICENSED MATERIALS - PROPERTY OF IBM
          REFER TO COPYRIGHT INSTRUCTION FORM NUMBER G120-2083 */
 .
++VER(C150    ) FMID(HCI4100 )
                REQ(UN61943  UN63932  UN66186 )
                SUP(AN55264  AN57065  AN58446  UN61946  UN64208
                    UN66232 ) .
++IF FMID(JCI4107 ) REQ(UN61945 ) .
++IF FMID(JCI4104 ) REQ(UN61944 ) .
++DATA3(DFH$DALL) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
```

*Figure 30 (Part 11 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++DATA3(DFH$DBRW) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH$DCOM) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH$DFIL) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH$DL86) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH$DMNU) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH$DREN) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH$DREP) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH$DXCC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFHAID ) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHBMSCA) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHCDBLK) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHCMC ) DISTLIB(ADFHC370) ALIAS(CMC     )
                 SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHDYP ) DISTLIB(ADFHC370) RMID(UN64208 )
                 SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHDYPDS) DISTLIB(ADFHC370) RMID(UN64208 )
                 SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHEILID) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHHLPDS) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHMSRCA) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHNEPCA) DISTLIB(ADFHC370) RMID(UN66232 )
                 SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHPCOMD) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHPEPD ) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFHPGACH) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHPGAHX) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFHSNGSH) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHSRRC ) DISTLIB(ADFHC370) ALIAS(SRRC    )
                 SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHSZAPC) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHTCUDS) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHUIBC ) DISTLIB(ADFHC370) ALIAS(DLIUIB  )
                 SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHURLDS) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHXCPLH) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHXCRCH) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHXMRSH) DISTLIB(ADFHC370) SYSLIB(SDFHC370)  RELFILE(2).
++DATA3(DFHZDTDX) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH0BZCC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
```

*Figure 30 (Part 12 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++DATA3(DFH0BZMC) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH0BZ6C) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH0CZTK) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).
++DATA3(DFH0CZXS) DISTLIB(ADFHSAMP) SYSLIB(SDFHSAMP)  RELFILE(1).


++FUNCTION(JCI4106 ) REWORK(1994244 )
                     RFDSNPFX(IBM     ) FILES(4)
  /*      THIS STATEMENT IDENTIFIES CICS/ESA 4.1.0
          5655-018
          THIS PRODUCT CONTAINS 'RESTRICTED MATERIALS OF IBM'
          (C) COPYRIGHT IBM CORP 1974,1994
          ALL RIGHTS RESERVED
          U.S. GOVERNMENT USERS RESTRICTED RIGHTS
            - USE, DUPLICATION OR DISCLOSURE RESTRICTED
              BY GSA ADP SCHEDULE CONTRACT WITH IBM CORP.
          LICENSED MATERIALS - PROPERTY OF IBM
          REFER TO COPYRIGHT INSTRUCTION FORM NUMBER G120-2083 */
 .
++VER(C150    ) FMID(HCI4100 )
                SUP(AN55122  AN55133  AN55990  AN58437  UN60857
                    UN62336  UN63781  UN64978 ) .
++JCLIN              ASM( PGM=IEV90 ) LKED( PGM=IEWL )


++FUNCTION(JCI4107 ) REWORK(1994244 )
                     RFDSNPFX(IBM     ) FILES(4)
  /*      THIS STATEMENT IDENTIFIES CICS/ESA 4.1.0
          5655-018
          THIS PRODUCT CONTAINS 'RESTRICTED MATERIALS OF IBM'
          (C) COPYRIGHT IBM CORP 1974,1994
          ALL RIGHTS RESERVED
          U.S. GOVERNMENT USERS RESTRICTED RIGHTS
            - USE, DUPLICATION OR DISCLOSURE RESTRICTED
              BY GSA ADP SCHEDULE CONTRACT WITH IBM CORP.
          LICENSED MATERIALS - PROPERTY OF IBM
          REFER TO COPYRIGHT INSTRUCTION FORM NUMBER G120-2083 */
 .
```

*Figure 30 (Part 13 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++VER(C150    ) FMID(HCI4100 )
               REQ(UN61943  UN64737  UN65066 )
               SUP(AN54762  AN58600  AN58846  AN59629  UN61945
                   UN64741  UN65102 ) .
++IF FMID(JCI4104 ) REQ(UN61944 ) .
++IF FMID(JCI4103 ) REQ(UN61946 ) .
++JCLIN                 ASM( PGM=IEV90 ) LKED( PGM=IEWL )
```

*Figure 30 (Part 14 of 14). System Modification Program install logic for CICS/ESA 4.1*

```
++FUNCTION(JCI4104 ) REWORK(1994244 )
                 RFDSNPFX(IBM     ) FILES(2)
  /*      THIS STATEMENT IDENTIFIES CICS/ESA 4.1.0
          5655-018
          THIS PRODUCT CONTAINS 'RESTRICTED MATERIALS OF IBM'
          (C) COPYRIGHT IBM CORP 1974,1994
          ALL RIGHTS RESERVED
          U.S. GOVERNMENT USERS RESTRICTED RIGHTS
            - USE, DUPLICATION OR DISCLOSURE RESTRICTED
              BY GSA ADP SCHEDULE CONTRACT WITH IBM CORP.
          LICENSED MATERIALS - PROPERTY OF IBM
          REFER TO COPYRIGHT INSTRUCTION FORM NUMBER G120-2083 */
 .
++VER(C150    ) FMID(HCI4100 )
               REQ(UN60620  UN61639  UN61943  UN62414  UN64737
                   UN65066  UN65277 )
               DELETE(JCI2311 JCI2313 JCI2322 JCI3324 JCI3326 )
               SUP(AN53782  AN54073  AN54228  AN54675  AN55264
                   AN55265  AN58600  AN58846  AN58913  JCI2311
                   JCI2313  JCI2322  JCI3324  JCI3326  UN60621
```

*Figure 31 (Part 1 of 2). System Modification Program install logic for CICS/ESA 4.1*

```
                     UN61644  UN61944  UN62415  UN64738  UN65101
                     UN65295 ) .
++IF FMID(JCI4101 ) REQ(UN61645  UN62417 ) .
++IF FMID(JCI4107 ) REQ(UN61945 ) .
++IF FMID(JCI4103 ) REQ(UN61946 ) .
++IF FMID(JCI4102 ) REQ(UN60622  UN62418 ) .
++JCLIN                ASM( PGM=IEV90 ) LKED( PGM=IEWL )
```

*Figure 31 (Part 2 of 2). System Modification Program install logic for CICS/ESA 4.1*

# Appendix B.  APAR fixes incorporated in CICS/ESA 4.1

This appendix lists the APAR fixes against CICS/ESA 3.3 that have been incorporated into this release.

| | | | |
|---|---|---|---|
| PN13161 | PN19573 | PN21870 | PN23662 |
| PN14460 | PN19619 | PN21966 | PN23706 |
| PN15393 | PN19628 | PN21981 | PN23735 |
| PN15773 | PN19695 | PN22062 | PN23740 |
| PN15782 | PN19700 | PN22118 | PN23853 |
| PN16508 | PN19705 | PN22122 | PN23883 |
| PN17191 | PN19722 | PN22150 | PN23905 |
| PN17199 | PN19820 | PN22293 | PN23908 |
| PN17202 | PN19823 | PN22313 | PN24079 |
| PN17203 | PN20075 | PN22316 | PN24134 |
| PN17204 | PN20084 | PN22319 | PN24136 |
| PN17482 | PN20142 | PN22329 | PN24152 |
| PN17500 | PN20144 | PN22406 | PN24209 |
| PN17656 | PN20145 | PN22487 | PN24213 |
| PN17765 | PN20163 | PN22633 | PN24276 |
| PN17942 | PN20221 | PN22722 | PN24286 |
| PN18019 | PN20274 | PN22731 | PN24298 |
| PN18047 | PN20280 | PN22748 | PN24304 |
| PN18051 | PN20282 | PN22829 | PN24316 |
| PN18059 | PN20304 | PN22857 | PN24368 |
| PN18142 | PN20389 | PN22951 | PN24377 |
| PN18315 | PN20432 | PN22991 | PN24393 |
| PN18603 | PN20541 | PN23010 | PN24442 |
| PN18604 | PN20557 | PN23028 | PN24451 |
| PN18624 | PN20626 | PN23095 | PN24482 |
| PN18689 | PN20710 | PN23109 | PN24564 |
| PN18922 | PN20726 | PN23158 | PN24580 |
| PN18953 | PN20809 | PN23171 | PN24612 |
| PN18992 | PN20859 | PN23212 | PN24625 |
| PN19019 | PN20932 | PN23267 | PN24652 |
| PN19022 | PN20994 | PN23288 | PN24654 |
| PN19029 | PN21012 | PN23295 | PN24686 |
| PN19030 | PN21081 | PN23296 | PN24704 |
| PN19118 | PN21083 | PN23303 | PN24825 |
| PN19121 | PN21360 | PN23355 | PN24831 |
| PN19441 | PN21455 | PN23356 | PN24833 |
| PN19490 | PN21467 | PN23446 | PN24842 |
| PN19508 | PN21518 | PN23557 | PN24947 |
| PN19555 | PN21632 | PN23576 | PN24951 |
| PN19568 | PN21756 | PN23658 | PN24957 |

| | | | |
|---|---|---|---|
| PN25020 | PN27060 | PN28848 | PN30342 |
| PN25247 | PN27065 | PN28902 | PN30350 |
| PN25257 | PN27074 | PN28919 | PN30360 |
| PN25262 | PN27111 | PN28922 | PN30369 |
| PN25275 | PN27156 | PN28936 | PN30383 |
| PN25280 | PN27380 | PN28983 | PN30403 |
| PN25281 | PN27394 | PN29066 | PN30408 |
| PN25310 | PN27559 | PN29069 | PN30419 |
| PN25382 | PN27610 | PN29125 | PN30587 |
| PN25437 | PN27625 | PN29150 | PN30593 |
| PN25441 | PN27652 | PN29195 | PN30672 |
| PN25522 | PN27686 | PN29196 | PN30731 |
| PN25625 | PN27753 | PN29200 | PN30759 |
| PN25670 | PN27804 | PN29224 | PN30828 |
| PN25739 | PN27815 | PN29228 | PN31115 |
| PN25852 | PN27816 | PN29270 | PN31150 |
| PN26120 | PN27828 | PN29296 | PN31166 |
| PN26121 | PN27829 | PN29358 | PN31246 |
| PN26122 | PN27847 | PN29405 | PN31248 |
| PN26148 | PN27849 | PN29422 | PN31309 |
| PN26170 | PN27865 | PN29506 | PN31398 |
| PN26182 | PN27885 | PN29539 | PN31409 |
| PN26329 | PN27904 | PN29584 | PN31428 |
| PN26330 | PN27949 | PN29589 | PN31460 |
| PN26335 | PN27951 | PN29608 | PN31462 |
| PN26403 | PN28035 | PN29637 | PN31469 |
| PN26465 | PN28036 | PN29702 | PN31485 |
| PN26466 | PN28037 | PN29733 | PN31498 |
| PN26477 | PN28038 | PN29831 | PN31568 |
| PN26567 | PN28117 | PN29836 | PN31570 |
| PN26569 | PN28233 | PN29886 | PN31594 |
| PN26612 | PN28299 | PN29904 | PN31640 |
| PN26616 | PN28404 | PN29984 | PN31658 |
| PN26641 | PN28497 | PN30020 | PN31659 |
| PN26674 | PN28498 | PN30027 | PN31719 |
| PN26720 | PN28518 | PN30036 | PN31868 |
| PN26727 | PN28531 | PN30047 | PN31872 |
| PN26748 | PN28543 | PN30057 | PN31910 |
| PN26780 | PN28577 | PN30076 | PN31913 |
| PN26881 | PN28580 | PN30107 | PN31923 |
| PN26882 | PN28600 | PN30278 | PN31963 |
| PN26913 | PN28606 | PN30290 | PN32007 |
| PN26986 | PN28610 | PN30319 | PN32009 |
| PN27021 | PN28682 | PN30334 | PN32011 |
| PN27049 | PN28687 | PN30340 | PN32026 |
| | | | PN32097 |

| | | | |
|---|---|---|---|
| PN32117 | PN33541 | PN34567 | PN35685 |
| PN32141 | PN33562 | PN34584 | PN35687 |
| PN32179 | PN33574 | PN34648 | PN35771 |
| PN32193 | PN33594 | PN34680 | PN35776 |
| PN32215 | PN33609 | PN34682 | PN35778 |
| PN32218 | PN33701 | PN34716 | PN35859 |
| PN32240 | PN33743 | PN34761 | PN35879 |
| PN32288 | PN33795 | PN34768 | PN35882 |
| PN32289 | PN33800 | PN34786 | PN35891 |
| PN32309 | PN33815 | PN34813 | PN35894 |
| PN32367 | PN33851 | PN34836 | PN35926 |
| PN32384 | PN33897 | PN34846 | PN35932 |
| PN32438 | PN33908 | PN34885 | PN35968 |
| PN32465 | PN33909 | PN34896 | PN35975 |
| PN32470 | PN33913 | PN34923 | PN36012 |
| PN32473 | PN33919 | PN35053 | PN36027 |
| PN32477 | PN33922 | PN35055 | PN36028 |
| PN32484 | PN33923 | PN35059 | PN36044 |
| PN32600 | PN33934 | PN35107 | PN36084 |
| PN32656 | PN33978 | PN35110 | PN36087 |
| PN32725 | PN33979 | PN35136 | PN36093 |
| PN32763 | PN33980 | PN35166 | PN36100 |
| PN32772 | PN34000 | PN35169 | PN36153 |
| PN32846 | PN34001 | PN35283 | PN36156 |
| PN32890 | PN34055 | PN35326 | PN36206 |
| PN32970 | PN34167 | PN35365 | PN36219 |
| PN32974 | PN34220 | PN35384 | PN36230 |
| PN32988 | PN34239 | PN35392 | PN36308 |
| PN33006 | PN34269 | PN35435 | PN36317 |
| PN33020 | PN34278 | PN35471 | PN36334 |
| PN33021 | PN34286 | PN35474 | PN36352 |
| PN33032 | PN34295 | PN35501 | PN36377 |
| PN33048 | PN34326 | PN35504 | PN36803 |
| PN33058 | PN34348 | PN35515 | PN36885 |
| PN33160 | PN34357 | PN35522 | PN36959 |
| PN33168 | PN34369 | PN35535 | PN36961 |
| PN33273 | PN34398 | PN35538 | PN36991 |
| PN33336 | PN34438 | PN35578 | PN37019 |
| PN33356 | PN34490 | PN35582 | PN37040 |
| PN33395 | PN34499 | PN35592 | PN37085 |
| PN33459 | PN34523 | PN35609 | PN37124 |
| PN33471 | PN34550 | PN35631 | PN37147 |
| PN33490 | PN34556 | PN35650 | PN37155 |
| PN33498 | PN34560 | PN35664 | PN37174 |
| PN33501 | PN34566 | PN35681 | PN37176 |
| | | | PN37201 |

| | | | |
|---|---|---|---|
| PN37237 | PN38278 | PN39833 | PN41131 |
| PN37239 | PN38401 | PN39835 | PN41174 |
| PN37240 | PN38500 | PN39842 | PN41238 |
| PN37252 | PN38507 | PN39853 | PN41298 |
| PN37254 | PN38571 | PN39939 | PN41339 |
| PN37309 | PN38656 | PN39940 | PN41364 |
| PN37335 | PN38661 | PN39941 | PN41410 |
| PN37336 | PN38663 | PN39952 | PN41422 |
| PN37377 | PN38673 | PN39994 | PN41485 |
| PN37386 | PN38720 | PN40003 | PN41506 |
| PN37396 | PN38786 | PN40023 | PN41584 |
| PN37408 | PN38837 | PN40069 | PN41587 |
| PN37425 | PN38840 | PN40132 | PN41625 |
| PN37429 | PN38890 | PN40135 | PN41629 |
| PN37440 | PN38947 | PN40218 | PN41657 |
| PN37493 | PN38949 | PN40245 | PN41671 |
| PN37531 | PN38959 | PN40251 | PN41688 |
| PN37538 | PN38962 | PN40266 | PN41713 |
| PN37635 | PN39036 | PN40280 | PN41798 |
| PN37667 | PN39088 | PN40290 | PN41824 |
| PN37681 | PN39092 | PN40360 | PN42005 |
| PN37707 | PN39222 | PN40442 | PN42031 |
| PN37773 | PN39256 | PN40452 | PN42124 |
| PN37823 | PN39313 | PN40480 | PN42131 |
| PN37842 | PN39351 | PN40489 | PN42136 |
| PN37863 | PN39352 | PN40493 | PN42144 |
| PN37875 | PN39356 | PN40545 | PN42146 |
| PN37881 | PN39375 | PN40579 | PN42158 |
| PN37884 | PN39376 | PN40636 | PN42165 |
| PN37928 | PN39391 | PN40662 | PN42170 |
| PN37931 | PN39501 | PN40663 | PN42277 |
| PN37990 | PN39516 | PN40667 | PN42307 |
| PN37991 | PN39519 | PN40704 | PN42316 |
| PN38007 | PN39559 | PN40781 | PN42461 |
| PN38012 | PN39574 | PN40795 | PN42542 |
| PN38032 | PN39579 | PN40849 | PN42593 |
| PN38080 | PN39585 | PN40913 | PN42633 |
| PN38113 | PN39594 | PN40916 | PN42650 |
| PN38123 | PN39600 | PN40968 | PN42655 |
| PN38146 | PN39625 | PN40978 | PN42716 |
| PN38158 | PN39636 | PN40980 | PN42736 |
| PN38177 | PN39640 | PN41027 | PN42755 |
| PN38183 | PN39697 | PN41058 | PN42833 |
| PN38237 | PN39701 | PN41122 | PN42888 |
| PN38277 | PN39702 | PN41127 | PN42897 |
| | | | PN42919 |

| | | | |
|---|---|---|---|
| PN42927 | PN44177 | PN45450 | PN47123 |
| PN42984 | PN44231 | PN45468 | PN47150 |
| PN43019 | PN44401 | PN45481 | PN47159 |
| PN43044 | PN44403 | PN45495 | PN47165 |
| PN43098 | PN44405 | PN45503 | PN47176 |
| PN43100 | PN44429 | PN45536 | PN47178 |
| PN43157 | PN44431 | PN45616 | PN47190 |
| PN43203 | PN44447 | PN45869 | PN47229 |
| PN43210 | PN44462 | PN46007 | PN47236 |
| PN43335 | PN44498 | PN46053 | PN47238 |
| PN43336 | PN44522 | PN46092 | PN47369 |
| PN43340 | PN44524 | PN46107 | PN47370 |
| PN43435 | PN44565 | PN46216 | PN47397 |
| PN43452 | PN44581 | PN46220 | PN47406 |
| PN43455 | PN44611 | PN46222 | PN47424 |
| PN43466 | PN44613 | PN46269 | PN47426 |
| PN43481 | PN44618 | PN46301 | PN47631 |
| PN43494 | PN44628 | PN46306 | PN47689 |
| PN43503 | PN44754 | PN46318 | PN47723 |
| PN43509 | PN44812 | PN46378 | PN47801 |
| PN43514 | PN44906 | PN46398 | PN47854 |
| PN43523 | PN44921 | PN46414 | PN47929 |
| PN43528 | PN44927 | PN46473 | PN47932 |
| PN43565 | PN44972 | PN46559 | PN47983 |
| PN43576 | PN45039 | PN46576 | PN47997 |
| PN43642 | PN45119 | PN46602 | PN48059 |
| PN43685 | PN45123 | PN46640 | PN48135 |
| PN43686 | PN45180 | PN46663 | PN48143 |
| PN43700 | PN45230 | PN46709 | PN48227 |
| PN43740 | PN45231 | PN46769 | PN48236 |
| PN43759 | PN45232 | PN46772 | PN48297 |
| PN43765 | PN45269 | PN46779 | PN48317 |
| PN43844 | PN45293 | PN46857 | PN48326 |
| PN43881 | PN45300 | PN46858 | PN48390 |
| PN43904 | PN45310 | PN46879 | PN48393 |
| PN43933 | PN45318 | PN46895 | PN48409 |
| PN43942 | PN45335 | PN46905 | PN48432 |
| PN43954 | PN45342 | PN46933 | PN48434 |
| PN44005 | PN45355 | PN46963 | PN48435 |
| PN44068 | PN45356 | PN46988 | PN48447 |
| PN44075 | PN45368 | PN47034 | PN48469 |
| PN44076 | PN45403 | PN47054 | PN48471 |
| PN44080 | PN45419 | PN47093 | PN48535 |
| PN44125 | PN45430 | PN47100 | PN48538 |
| PN44176 | PN45435 | PN47105 | PN48701 |
| | | | PN48737 |

| | | | |
|---|---|---|---|
| PN48849 | PN50207 | PN51369 | PN53499 |
| PN48925 | PN50313 | PN51416 | PN53505 |
| PN48965 | PN50317 | PN51420 | PN53511 |
| PN48970 | PN50344 | PN51432 | PN53547 |
| PN48971 | PN50415 | PN51526 | PN53588 |
| PN48972 | PN50437 | PN51547 | PN53717 |
| PN49007 | PN50517 | PN51586 | PN53829 |
| PN49049 | PN50576 | PN51632 | PN53924 |
| PN49112 | PN50578 | PN51667 | PN54108 |
| PN49132 | PN50605 | PN51694 | PN54224 |
| PN49216 | PN50607 | PN51701 | PN54272 |
| PN49223 | PN50641 | PN51749 | PN54306 |
| PN49241 | PN50699 | PN51752 | PN54393 |
| PN49250 | PN50728 | PN51770 | PN54473 |
| PN49271 | PN50802 | PN51805 | PN54649 |
| PN49276 | PN50803 | PN51811 | PN54707 |
| PN49288 | PN50804 | PN51883 | PN54938 |
| PN49375 | PN50820 | PN51901 | PN55131 |
| PN49384 | PN50847 | PN51980 | PN55217 |
| PN49397 | PN50856 | PN51992 | PN55330 |
| PN49429 | PN50857 | PN52050 | PN55406 |
| PN49434 | PN50871 | PN52067 | PN57335 |
| PN49528 | PN50887 | PN52077 | PN57337 |
| PN49531 | PN50904 | PN52087 | PN57632 |
| PN49537 | PN50913 | PN52164 | PN57669 |
| PN49610 | PN50914 | PN52175 | PN58663 |
| PN49645 | PN50955 | PN52214 | PN59218 |
| PN49666 | PN50962 | PN52221 | PN59269 |
| PN49668 | PN50964 | PN52271 | PN59352 |
| PN49669 | PN50968 | PN52291 | PN59377 |
| PN49670 | PN51046 | PN52478 | PN59545 |
| PN49773 | PN51147 | PN52507 | PN60981 |
| PN49863 | PN51202 | PN52575 | PN61420 |
| PN49930 | PN51241 | PN52900 | PN61496 |
| PN50039 | PN51277 | PN52962 | PN62074 |
| PN50066 | PN51280 | PN52976 | PN62618 |
| PN50075 | PN51305 | PN53090 | PN62799 |
| PN50106 | PN51306 | PN53184 | PN62961 |
| PN50123 | PN51317 | PN53282 | |
| PN50128 | PN51329 | PN53294 | |

# Appendix C.  CICS/ESA support for the MVS automatic restart manager

This appendix describes how CICS/ESA 4.1 increases the availability of your systems by using the automatic restart manager feature of MVS/ESA  5.2.  It covers the following topics:

- Overview
- Benefits of the MVS automatic restart manager
- Requirements for the MVS automatic restart manager
- Changes to CICS externals
- Problem determination.

## C.1  Overview

MVS automatic restart management is a sysplex-wide integrated automatic restart mechanism that:

- Restarts MVS subsystems in place if they abend (or if notified of a stall condition by a monitor program).

- Restarts all the elements of a workload (for example, CICS terminal-owning regions, application-owning regions, file-owning regions, DB2, and so on) on another MVS image after an MVS failure.

- Restarts a failed MVS image.

**Note:**  CICS/ESA 4.1 reconnects to DBCTL and VTAM automatically, if either subsystem fails.  There is no dependency on MVS automatic restart manager for this reconnection support, which is provided automatically on any CICS/ESA 4.1 region running on the minimum supported release of MVS/ESA.

You cannot use MVS automatic restart for CICS regions running with XRF—it is available only to non-XRF CICS regions.

## C.1.1  Registering to the MVS automatic restart manager

MVS automatic restart management is available only to those MVS subsystems that register with the automatic restart manager.  CICS/ESA 4.1 regions register with automatic restart manager automatically as part of CICS system initialization, but only if they are not running in an XRF environment.  If a CICS region fails before it has registered for the first time with the automatic restart manager, it will not be restarted.  After a CICS region has registered, it can be restarted by the automatic restart manager according to a predefined **policy** for the workload.

## C.1.2  CICS restart JCL and parameters

Each CICS restart can use the previous startup JCL and system initialization parameters, or can use a new job and parameters.

If the XRF system initialization parameter is changed to XRF=YES for a CICS region being restarted by the automatic restart manager, CICS issues message DFHKE0407 to the console then terminates.

### C.1.2.1  Startup JCL with START=COLD

If your JCL specifies START=COLD when starting a CICS region for the first time, and you specify that automatic restart manager is to use the same JCL for a restart, CICS overrides the start parameter and enforces START=AUTO.  This is reported by message DFHPA1934, and ensures recoverable data is correctly handled by the resultant emergency restart.

If the automatic restart manager policy specifies different JCL for an automatic restart, and that JCL specifies START=COLD, CICS obeys this parameter with a risk of loss of data integrity.  Therefore, if you need to specify different JCL to automatic restart manager, you should specify START=AUTO to ensure data integrity.

Thus, if you always use the same JCL, even if it specifies START=COLD, CICS ensures a correct emergency restart takes place.

Alternatively, you can specify START=AUTO, which covers warm starts after a normal shutdown *and* emergency restarts.  When you start a region for the first time, with newly initialized catalogs, CICS enforces a cold start.

## C.1.3  Workload policies

Workloads are started initially by scheduling or automation products.

The components of the workload, and the MVS images capable of running them, are specified as part of the policies for MVS workload manager and automatic restart manager.  The MVS images must have access to the databases, logs, and program libraries required for the workload.

Administrative policies provide the automatic restart manager with the necessary information to perform appropriate restart processing.  You can define one or more administrative policies, but can have only one active policy for all MVS images in a sysplex.  You can modify administrative policies by using an MVS-supplied utility, and can activate a policy with the MVS SETXCF command.

## C.1.4  MVS automatic restart management definitions

If you are using CICS on MVS/ESA 5.2, you can exploit the MVS automatic restart management facility that it provides, to implement a sysplex-wide integrated automatic restart mechanism.  MVS automatic restart management provides improved function without the need for XRF alternate regions.

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, as outlined in C.1.4.1, "Implementing MVS automatic restart management."

2. Ensure that CICS startup JCL used to restart CICS regions is suitable for MVS automatic restart management, as outlined in C.1.4.2, "CICS startup JCL considerations for automatic restart management."

If you have not installed MVS/ESA 5.2, or do not wish to use the MVS automatic restart management facility, you can still use XRF to provide restart of failed CICS regions.  For background information about XRF, see the *CICS/ESA 3.3 XRF Guide*, SC33-0661.

### C.1.4.1  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/ESA 5.2.  Information about MVS automatic restart management is provided in the appropriate MVS/ESA publications.

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 CICS regions you want to use automatic restart management

- Define restart processes for the candidate CICS regions

- Define automatic restart manager policies for the candidate CICS regions

- Ensure that the system initialization parameter XRF=NO is specified for CICS startup.

### C.1.4.2  CICS startup JCL considerations for automatic restart management

If you intend using MVS automatic restart management for CICS, you must ensure that the JCL used to restart CICS does not specify the XRF=YES system initialization parameter.  (If you do specify XRF=YES, CICS restarts but deregisters from MVS automatic restart manager, issues message DFHKE0407, and terminates.)

## C.2  Benefits of the MVS automatic restart manager

The main benefits of the MVS automatic restart manager are that it:

- Eliminates the need for operator or automatic package restarts, thereby:

    - Improving restart times
    - Reducing errors
    - Reducing complexity

- Ensures that the workload is restarted on MVS images with spare capacity, by working with MVS workload manager.

## C.3  Requirements for MVS automatic restart management

To use the automatic restart manager you need the following software:

- MVS/ESA – JES2 Version 5 Release 2 or a later, upward-compatible, release

- MVS/ESA – JES3 Version 5 Release 2 or a later, upward-compatible, release

## C.4  Changes to CICS externals

CICS use of the MVS automatic restart manager result in several changes to CICS externals.  These are:

- Changes to the system programming interface (SPI)
- Changes to CICS interfaces with other products
- Changes to CICS-supplied transactions
- New messages
- New trace points.

## C.4.1  Changes to the system programming interface (SPI)

A new keyword, NORESTART, is added to the EXEC CICS PERFORM SHUTDOWN command to enable you to inhibit automatic restart.

### C.4.1.1  EXEC CICS PERFORM SHUTDOWN command

The NORESTART option is provided to allow you to prevent an automatic restart.  If, for some reason, you don't want CICS to restart automatically following a SHUTDOWN IMMEDIATE command, specify NORESTART.

NORESTART and TAKEOVER are mutually exclusive, and if issued in the same command, the first of these options is taken and the other ignored.  A translator message with severity E (for assembler, C, and PL/I) or C (for COBOL) is issued (return code 8).

***C.4.1.1.1  Function*** The new NORESTART option specifies that CICS is not to be restarted automatically after an immediate shutdown.

***C.4.1.1.2  Syntax***

```
►►──PERFORM SHUTDOWN──────────────────────────────►◄
                     ├─...──────────────────┤
                     ├─IMMEDIATE─┬──────────┤
                     │           └─NORESTART─┘
                     ├─TAKEOVER──────────────┤
                     └─...──────────────────┘
   Conditions:
     INVREQ, NOTAUTH
```
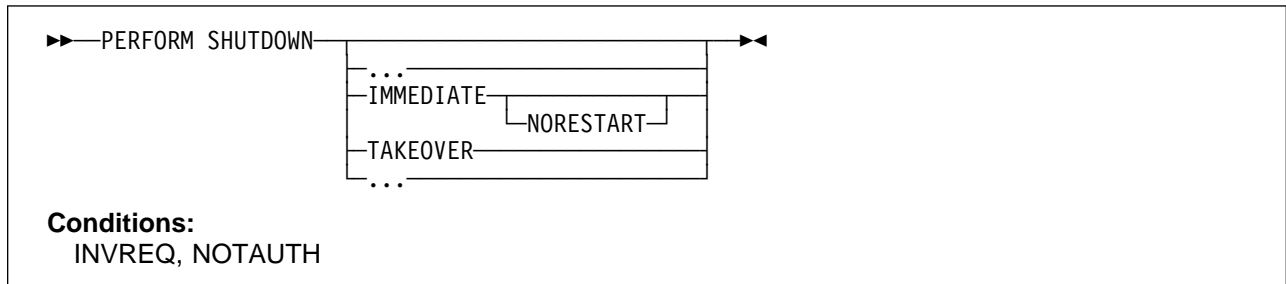
## C.4.1.2  PERFORM SHUTDOWN options

**NORESTART**
specifies that this CICS region should not be restarted (by MVS automatic restart manager) after the CICS region has completed shutting down.

This option applies to immediate shutdowns only.  If you specify NORESTART without IMMEDIATE, CICS performs an immediate shutdown as if you specified the command as PERFORM SHUTDOWN IMMEDIATE NORESTART.

NORESTART (with or without IMMEDIATE) and TAKEOVER are mutually exclusive.  If you specify both NORESTART and TAKEOVER, the option named last on the command is ignored and the CICS translator issues an error message (severity E or C, depending on the language used).

**Note:**  CICS can restart automatically only if it is registered with the MVS automatic restart manager (during CICS initialization), has an MVS policy for automatic restart, and is running on a release of MVS/ESA that provides the automatic restart manager.

**TAKEOVER**
specifies that this CICS region should be closed down, and that the alternate CICS region is to take over.  This option is valid only when the system initialization parameter XRF=YES is specified on CICS startup.

TAKEOVER and NORESTART are mutually exclusive.  If you specify both TAKEOVER and NORESTART, the option named last on the command is ignored and the CICS translator issues an error message (severity E or C, depending on the language used).

The other options of the PERFORM SHUTDOWN command remain unchanged from CICS/ESA 3.3.

## C.4.2  Changes to CICS interfaces with other products

There are changes to CICS interfaces with DBCTL and VTAM.

## C.4.2.1  Changes for DBCTL

As in earlier releases of CICS, the CICS-supplied module, DFHDXAX, is provided to handle reconnections to DBCTL.

DFHDXAX is one of the modules supplied by CICS for use with DBCTL, known as the IMS control exit routines.  The main CICS-supplied IMS control exit is DFHDBCTX, which calls DFHDXAX.  For more information about the IMS control exit routines, see the *IMS/ESA Customization Guide: Database*, SC26-3064.

DFHDXAX is provided to ensure that CICS reconnects to DBCTL without operator intervention in the event of a DBCTL restart, or a restart of both CICS and DBCTL.  Prior to CICS/ESA 4.1, the actions of DFHDXAX were based on the use of a recovery service table (RST), because it was intended for use where either CICS, DBCTL, or both, were running with XRF.

DFHDXAX is extended in CICS/ESA 4.1 to try and avoid operator intervention in those instances when there is not an RST defined; that is, where there is no XRF support.  It does this invoking an existing retry loop (based on a timer).

For a DBCTL restart, the control exit is invoked as for any DBCTL connection attempt.  However, instead of returning control directly to the database resource adaptor, the control transaction invokes the DFHDXAX module.  This control exit routine checks to see if it is being invoked for a failing connection:

- If it is not being invoked for a failing connection, it does not attempt to connect and passes control back.

- If it is being invoked for a failing connection, it checks the input arguments to determine whether:

    - An IDENTIFY attempt failed, and
    - CICS is not in the process of terminating.

If an IDENTIFY failed, and CICS is not terminating, the action taken then depends on whether there is an RST defined, which may or may not contain alternative DBCTL ids.

*C.4.2.1.1  For CICS regions with an RST:*  If an RST is defined, and it does contain alternative DBCTL ids to which CICS can try to connect, DFHDXAX module selects each DBCTL subsystem ID in the RST in turn as a candidate for reconnection.

The processing, which can take one of two courses, is as described in the *CICS/ESA CICS-IMS Database Control Guide*.

*C.4.2.1.2  For CICS regions without an RST:*  If there is not an RST, DFHDXAX selects the current DBCTL ID, and initiates repeated attempts to reconnect to the current  DBCTL.

Retries are made every 5 seconds for a ten minute period.  If reconnection is still not successful after ten minutes, DFHDXAX abandons the attempt, and requests IMS to issue message DFS0690, which requires operator intervention.

### C.4.2.2  Changes for VTAM

In a VTAM network, the session between CICS and VTAM is started automatically if VTAM is started
before CICS.  If VTAM is not active when you start CICS, you receive the following messages:

```
 F NET,USERVAR,ID=generic-applid,VALUE=specific-applid
 +DFHSI1589D 'applid' VTAM is not currently active.
 +DFHSI1572 'applid'  Unable to OPEN VTAM ACB - RC=xxxxxxxx, ACB CODE=yy.
```

Although the MVS MODIFY command (F NET, USERVAR in the above example) is significant only when
you are running CICS with XRF, the USERVAR message occurs for CICS startup regardless of what is
specified on the XRF system initialization parameter.  See C.4.4, "The COVR transaction" on page 100 for
information about this new CICS-supplied transaction.

## C.4.3  Changes to CICS-supplied transactions

There are two changes to CICS-supplied transactions for automatic restart management:

1. The NORESTART option is added to the CEMT PERFORM SHUTDOWN command
2. The COVR transaction is supplied for use with VTAM reconnections.

### C.4.3.1  CEMT PERFORM SHUTDOWN command

#### C.4.3.1.1  Syntax

```
►►──PERFORM SHUTDOWN─────────────────────────────►◄
                       ─IMMEDIATE─
                                  └─NORESTART─┘
                     │─...──────────────────────│
                     └─TAKEOVER─────────────────┘

   Conditions:
     INVREQ, NOTAUTH
```

### C.4.3.2  SHUTDOWN options

The NORESTART option on the CEMT PERFORM SHUTDOWN command provides the same function as
on the EXEC CICS PERFORM SHUTDOWN command.  However, in the case of the CEMT command,
the IMMEDIATE option is mandatory with NORESTART.  If you specify NORESTART without IMMEDIATE
on the CEMT PERFORM SHUT command, CICS ignores the command and issues an error message.
(See C.4.1, "Changes to the system programming interface (SPI)" on page 96 for an explanation of
NORESTART.

## C.4.4  The COVR transaction

The new transaction COVR, and the program it uses, DFHZCOVR, are introduced in CICS/ESA 4.1.

To ensure that CICS reconnects to VTAM in the event of a VTAM ABEND, CICS keeps retrying to OPEN the VTAM ACB using a time-delay mechanism via the non-terminal transaction, COVR.  After CICS has cleaned up following the VTAM failure, it invokes the CICS open VTAM retry (COVR) transaction.  The COVR transaction invokes the terminal control open VTAM retry program, DFHZCOVR, which performs an OPEN VTAM retry loop with a 5-second wait.  CICS issues a DFHZC0200 message every minute, while the open is unsuccessful, and each attempt is recorded on the CSNE transient data queue.  After 10 minutes, CICS issues a DFHZC0201 message and terminates the transaction.  If CICS shutdown is initiated while the transaction is running, CICS issues a DFHZC0201 message and terminates the transaction.

You cannot run the COVR transaction from a terminal.  If you invoke COVR from a termninal, it abends with an AZCU transaction abend.

## C.4.5  New messages associated with automatic restart

There are some new CICS messages for automatic restart manager support, which CICS can issue during startup if problems are encountered when CICS tries to connect to automatic restart manager.

The new message numbers are:

| | | | |
|---|---|---|---|
| DFHKE0401 | DFHKE0404 | DFHKE0407 | DFHZC0200 |
| DFHKE0402 | DFHKE0405 | DFHKE0408 | DFHZC0201 |
| DFHKE0403 | DFHKE0406 | | |

For the text of these messages, see the *CICS/ESA Messages and Codes*

## C.4.6  Changes to trace points

There are some new trace points for DFHKEAR.  These trace points are yet to be documented.

## C.5  Problem determination

There are changes to aid problem determination in connection with automatic restart in the form of new messages and additional trace points.  The new messages are listed in C.4.5, "New messages associated with automatic restart." The new trace points are listed in C.4.6, "Changes to trace points."

# Appendix D. A summary of CICS/ESA 4.1 contents

This appendix contains:

- A summary of the CICS load libraries
- A summary of the sample control tables.

## D.1 The CICS load libraries

The base CICS/ESA 4.1 product is installed into the load libraries CICS410.SDFHAUTH, CICS410.SDFHEXCI, CICS410.SDFHLLIB, CICS410.SDFHLOAD, CICS410.SDFHPARM, SYS1.CICS410.SDFHLINK, and SYS1.CICS410.SDFHLPA. It comprises versions of CICS modules, sample tables, and sample application programs.

The contents of these libraries are listed in the following sections.

### D.1.1 The CICS410.SDFHAUTH library

The CICS410.SDFHAUTH library contains versions of programs that either must be loaded from the CICS APF-authorized library, or require the protection of the CICS authorized STEPLIB library before being installed in an MVS system library.

Most modules are LPA-eligible. For information about using LPA-eligible modules, see the *CICS/ESA Installation Guide*.

### D.1.2 The CICS410.SDFHEXCI library

The CICS410.SDFHEXCI library includes those CICS modules that are needed by the CICS external CICS interface. For more information about this interface, see the *CICS/ESA External CICS Interface Guide*.

### D.1.3 The CICS410.SDFHLLIB library

The CICS410.SDFHLLIB library includes those CICS modules that are needed by the message editing utility program. For more information about this utility, see the *CICS/ESA Operations and Utilities Guide*.

### D.1.4 The CICS410.SDFHLOAD library

The CICS410.SDFHLOAD library includes all CICS modules other than those modules provided in the other CICS load libraries. It also includes the assembler language versions of the sample application programs, for which information is given in the These programs are described in the *CICS/ESA Sample Applications Guide* and the *CICS Application Programming Primer (VS COBOL II)*.

## D.1.5  The CICS410.SDFHPARM library

The CICS410.SDFHPARM library contains only DFHIPCSP, the CICS IPCS imbed file that provides CICS exit control data for inclusion in the IBM-supplied BLSCECT member in the SYS1.PARMLIB library.

## D.1.6  The SYS1.CICS410.SDFHLINK library

The SYS1.CICS410.SDFHLINK library contains the following modules that must be in a library in the MVS linklist:

| | | |
|---|---|---|
| DFHDTCV | DFHSNPTO | DFHSNVTO |
| DFHDTSVC | DFHSNVCL | DFHSSIN |
| DFHMVRMS | DFHSNVID | DFHSSMGT |
| DFHPD410 | DFHSNVPR | DFHXCSVC |
| DFHSNNFY | | |

## D.1.7  The SYS1.CICS410.SDFHLPA library

The SYS1.CICS410.SDFHLPA library contains the following modules that must be in the LPA:

| | | |
|---|---|---|
| DFHCSVC | DFHDUMPX | DFHSSEN |
| DFHDSPEX | DFHIRP | DFH99SVC |

and the following modules that must either be in the LPA or in an APF-authorized library in the MVS linklist.

    DFHSSGC
    DFHSSWT

For information about using LPA-eligible modules, see the *CICS/ESA Installation Guide*, SC33-1163.

---

## D.2  Sample control tables

The CICS-supplied sample tables (listed in Figure 32 on page 103) are supplied as source code and as pre-assembled tables, except for the sample sign-on table which is provided as source code only.  The source code used to assemble the sample tables is provided in CICS410.ADFHSAMP, and the pre-assembled tables are supplied in the following load libraries:

| Load library | Table |
|---|---|
| CICS410.SDFHAUTH | DFHCLT1$ and DFHSIT6$ |
| CICS410.SDFHLOAD | All other sample tables |

The names of the table members in CICS410.ADFHSAMP are the same as those of the pre-assembled tables. You can use these tables as they are, or you can modify them to suit your own needs.

| Table | Suffix | Function |
|-------|--------|----------|
| *Figure 32. The CICS-supplied sample tables* | | |
| Command list table (CLT) | 1$ | Provides a sample command list for use with XRF, and is used by the XRF IVP DFHIVPAL. |
| Destination control table (DCT) | 2$ | Provides the transient data queues needed for the CICS sample application programs, and also for CICS messages and CEDA command logging. |
| Journal control table (JCT) | 2$ | Provides an entry for a CICS system log defined on two disk data sets (JTYPE=DISK2) and using automatic archiving. |
| System initialization table (SIT) | 6$ | Provides entries for DCT=2$, JCT=2$, SRT=1$, TCT=NO, and XRF=YES. |
| System recovery table (SRT) | 1$ | Default SRT. |
| Terminal control table (TCT) | 5$ | Provides entries for input and output sequential-access method devices, only. |

# Definition of SMP/E terms

**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 called "corrective" service because they are installed 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 preventive service (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(HCI4100)
```

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*, SC28-1302.

**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/ESA 4.1 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/ESA 4.1, it is always HCI4100.

**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.

**JCLIN (function of SMP/E)**. SMP/E control statement that can be used to update the target zone, using a job stream in a format that is suitable for input to SMP. JCLIN processing can be performed in two ways:

1. Inline at APPLY time, as described earlier
2. As a stand-alone SMP/E function.

The JCLIN job will create or update the following target zone entries:

```
MOD
MAC
LMOD
ASSEM
```

**load module**.  In the context of SMP/E, an executable load module in a target library (such as CICS410.SDFHLOAD).  The standard SMP/E abbreviation for a load module is LMOD.

**LOG (history log data set)**.  Sequential data set in which all SMP/E actions are recorded.  Each *zone* has its own SMPLOG data set, which you specify on the DZONELOG, GZONELOG, or TZONELOG parameters of the DFHISTAR job.

**MTS (macro temporary store)**.  The SMP/E MTS data set is used to hold updated versions of macros that will not be placed in a target system library.  They are stored during APPLY processing and deleted by ACCEPT or RESTORE processing.

**PTF (program temporary fix)**.  IBM-supplied preventive fixes to elements of IBM-supplied function SYSMODs.  PTFs are termed "preventive service" because they 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 for the problems. These changes be 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 (HCI4100) as the owner of the modules being serviced.

For example:

```
++PTF(UP12345)
++VER(C150) FMID(HCI4100)
```

**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.

**SCDS (saved CDS)**.  The data set used to hold old target zone entries that have been modified as a result of inline JCLIN processing in a SYSMOD.  These entries are used by RESTORE to re-create target zone entries, if required, and are deleted by ACCEPT processing.  Each target zone must have its own unique SCDS data set, and the SCDS must also be used with the related distribution zone.

**STS (source temporary store)**.  The SMP/E primary data set, used to hold updated versions of source elements.

**SYSMOD (system modification)**.  (1) An IBM-supplied product (function SYSMOD). (2) An IBM-supplied preventive service (PTF). (3) An IBM-supplied corrective service (APAR). (4) A user-supplied modification (USERMOD).

**Target zone**.  Describes the structure and contents of a set of target system libraries.

**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.

# Checklist for the CICS/ESA 4.1 Installation

| Step | Done? | Description | See page |
|---|---|---|---|
| | | *Figure 33. CICS/ESA 4.1 installation checklist* | |
| **Step** | **Done?** | **Description** | **See page** |
| 1 | | Check that you have received the material that you ordered. | 33 |
| 2 | | Check that you have all the installation prerequisites, | 34 |
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| 4.20 | | Specify attributes of any additional target libraries | 55 |
| 5 | | Create RACF profiles for the CICS/ESA 4.1 data sets | 56 |
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| 10 | | Create any extra sets of CICS target libraries (optional) | 67 |
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| 12 | | Load the Japanese national language feature (optional) | 69 |

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# S

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 satisfied  <====================>  dissatisfied  applicable
     1        2       3       4          5            N
```

| | **Satisfaction** | | | | | |
|---|---|---|---|---|---|---|
| Ease of product installation | 1 | 2 | 3 | 4 | 5 | N |
| Contents of program directory | 1 | 2 | 3 | 4 | 5 | N |
| Installation Verification Programs | 1 | 2 | 3 | 4 | 5 | N |
| Time to install the product | 1 | 2 | 3 | 4 | 5 | N |
| Readability and organization of program directory tasks | 1 | 2 | 3 | 4 | 5 | N |
| Necessity of all installation tasks | 1 | 2 | 3 | 4 | 5 | N |
| Accuracy of the definition of the installation tasks | 1 | 2 | 3 | 4 | 5 | N |
| Technical level of the installation tasks | 1 | 2 | 3 | 4 | 5 | N |
| Ease of getting the system into production after installation | 1 | 2 | 3 | 4 | 5 | N |

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___ Independent
___ Other

Is this the first time your organization has installed this product?

___ Yes
___ No

Were the people who did the installation experienced with the installation of these products?

___ Yes  (How many years? __ )
___ No

If you have any comments to make about your ratings above, or any other aspect of the product installation, please list them below:

_____

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_____

Please provide the following contact information:

_____
Name and Job Title

_____
Organization

_____

_____
Address

_____
Telephone

Thank you for your participation.

Please send the completed form to (or give to your IBM representative who will forward it to the Customer Information Control System/ Enterprise Systems Architecture Development group):

IBM United Kingdom Laboratories Ltd.
Information Development Department (MP 095)
Hursley Park
Winchester
Hampshire SO21 2ZZ
United Kingdom

Alternatively, you can send the completed form, or any other comments about this Program Directory to:

International Business Machines Corporation
Attn: Dept ACV-H
1001 WT HARRIS BLVD
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