



Program Directory
For CBPDO Installation and ServerPac Reference

z/OS

V2.1.0

Program Number 5650-ZOS

CBPDO Level SMC1310

Service Level 1302

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Note

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 403.

This program directory (Document Date: September 2013) applies to the elements of z/OS Version 2 Release 1, program number 5650-ZOS.

FMIDs

System Name

(z/OS Element Base and Feature FMIDs are listed in Figure 1 on page 3)

z/OS V2.1.0

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How to send your comments to IBM

Exclusive elements of z/OS V2.1.0 (Service Level 1302)

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

IBM or any other organizations will only use the personal information that you supply to contact you about the issues that you submit.

For each of the topics below please indicate your satisfaction level by circling your choice from the rating scale. If a statement does not apply, please circle N.

RATING SCALE						
very satisfied	<=====>				very dissatisfied	not 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

What order media was this product received?

- CBPDO
- ServerPac
- Systempac
- 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 z/OS products?

- Yes
- No

If yes, how many years? ___

If you have any comments to make about your ratings above, or any other aspect of the product installation, please list them below:

Thank you for your participation.

To send us comments, visit the Contact z/OS Web page at
<http://www.ibm.com/systems/z/os/zos/webqs.html>

Include the following information:

- Your name and e-mail address
- The publication title and order number
- The topic and page number related to your comment
- The text of your comment.

1.0 What is in this Program Directory?

This Program Directory addresses the installation of z/OS Version 2 Release 1, which is also referred to as z/OS V2.1.0. See *z/OS Planning for Installation*, for planning information on z/OS V2.1.0. See *z/OS Migration*, for information on migration to z/OS V2.1.0.

This Program Directory is intended for the system programmer who is responsible for installing the z/OS Version 2 Release 1 elements using the CBPDO delivery option. If you are installing z/OS V2.1.0 with ServerPac, use the book *ServerPac: Installing Your Order*, which is shipped with your ServerPac to install z/OS. That book might refer to specific sections of this Program Directory for information that applies to the ServerPac installation path.

Attention z/OS V2.1.0 Users

Please review the z/OS Licensed Product Specification, which is available for download from the following locations:

- IBM Publication worldwide site:
<http://www-05.ibm.com/e-business/linkweb/publications/servlet/pbi.wss>
- z/OS Internet Library:
<http://www-03.ibm.com/systems/z/os/zos/bkserv/>
- z/OS Information Center:
<http://www-03.ibm.com/systems/z/os/zos/bkserv/>

<http://www.ibm.com/shop/publications/order/>

The CBPDO installation of z/OS Version 2 Release 1 should occur in separate stages, called **waves**. Each wave consists of multiple SMP/E steps that are documented later in this Program Directory. **All waves must be completed entirely.**

The z/OS V2.1.0 SDSF only assembles with the z/OS V2.1.0 JES2. Therefore, SDSF is installed in Wave 2.

1. Wave 0 installs the FMIDs required for the driving system including HLASM, SMP/E and the Program Management Binder. This wave is documented in 7.0, "Installation instructions for Wave 0 FMIDs" on page 51.
2. Wave 1 installs the core set of FMIDs in z/OS. This wave is documented in 8.0, "Installation instructions for Wave 1 and Wave 2 FMIDs" on page 71.
3. Wave 2 installs the z/OS Version 2 Release 1 level of the SDSF, JES2 and JES3 elements. This wave is documented in 8.0, "Installation instructions for Wave 1 and Wave 2 FMIDs" on page 71.

Note: Wave 2 can also be combined with Wave 1. Wave 2, however, cannot occur before Wave 1.

In OS/390 Release 3, the *Program Directory* expanded on the “wave” concept and further documented the installation of *all* elements into **ripples**. These ripples take into consideration element dependencies and natural installation separation points. The ripples give an overall installation scenario that includes every element in order to expedite the CBPDO installation path.

1.1 z/OS V2.1.0 FMIDs documented in this Program Directory

Installation instructions for all z/OS elements are included in this Program Directory. No other program directories are required.

The z/OS V2.1.0 FMIDs can be found in 6.5.3, “Elements in each Wave, Ripple, and FMIDSET” on page 37. Some elements documented in this Program Directory are also available as separately-orderable products. Information for these separately-orderable products, such as target and distribution libraries, is integrated in this Program Directory. Therefore, the separate program directories are not necessary.

1.1.1 z/OS V2.1.0 Summary Table of Elements and Features

Figure 1 on page 3 lists all elements and features in z/OS V2.1.0, describes some of their characteristics, and identifies which ones have various installation-related jobs. The table uses the following headings.

Element or Feature

Name and FMID of the z/OS Version 2 Release 1 base element or optional feature. If language FMIDs are listed with an element or feature in Figure 1 on page 3, those FMIDs are included in unpriced language features that are orderable with z/OS.

Level Latest OS/390 or z/OS level in which the element or feature changed (added to OS/390 or z/OS or updated). For non-exclusive elements and features, the equivalent level of the stand-alone product is listed in parenthesis.

Type One of the following values for each element or feature:

- Base, for base elements
- Priced Feature, for priced optional features
- No Charge Feature, for unpriced optional features

Excl Indicates if the element or feature is exclusive (available **only** within z/OS, not also as a separately-orderable product). **Y** for Yes; **N** for No.

Dynam Indicates if the element or feature supports dynamic enablement (**Y** or **N**).

Ripple Logical set of elements that are installed within a wave.

Alloc Indicates if the element or feature has a sample allocate job (**Y** or **N**). Allocations for dependent elements are done by the base FMID, unless otherwise noted.

DDDEF Indicates if the element or feature has a sample job to define DDDEF entries (**Y** or **N**).

Post-I Indicates if the element or feature has any post-installation jobs (**Y** or **N**). Note that customization tasks are **not** considered post-installation jobs in this table.

IVP Indicates if the element or feature has any installation verification procedure (IVP) jobs (**Y** or **N**).

Note: Some elements listed in Figure 1 provide sample jobs to create the file system directories. For more information about these sample jobs and elements, see Figure 21 on page 57, Figure 30 on page 92, and 8.3.4, “Set up File System Directories for Wave 2” on page 124.

<i>Figure 1 (Page 1 of 10). z/OS Base Elements and Optional Features</i>									
Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
Alternate Library for REXX HWJ9143 JWJ9144 (Japanese)	z/OS V1.9.0	Base	N	N	Wave 1D	Y	Y	Y	N
Base Control Program (BCP) HBB7790 JBB779C (Simplified Chinese) JBB779J (Japanese)	z/OS V2.1.0	Base	Y	Y	Wave 1A Wave 1AL	Y	Y	Y	Y
HUN7790 (BCP- Support for Unicode) JUN779J (Support for Unicode Japanese)	z/OS V2.1.0	Base	Y	N	Wave 1A Wave 1AL	Y	Y	N	N
HPM7790 (Program Management Binder)		Base			Wave 0	Y	Y	N	N
HPV7790 (BCP - Capacity Provisioning)			N	N	Wave 1E	N	Y	N	N
IOCP HIO1104	OS/390 R1 (MVS/ESA V3)		N	N	Wave 1B	N	N	N	N
BDT HBD6602	OS/390 R2	Base	Y	N	Wave 1F	Y	Y	N	N
Note: You cannot activate any BDT functions until one or both of the optional BDT features (BDT File-to-File or BDT SNA NJE) is installed and enabled.									
BDT File-to-File JBD6201	OS/390 R2	Priced Feature	Y	Y	Wave 1F	N	N	N	N
BDT SNA NJE JBD6202	OS/390 R2	Priced Feature	Y	Y	Wave 1F	N	N	N	N

Figure 1 (Page 2 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D D E F	P o s t - I	I V P
BookManager /Build HBKP300 JBKP310 (English) JBKP311 (French) JBKP312 (German) JBKP313 (Spanish) JBKP314 (Brazilian Portuguese) JBKP315 (Canadian French)	OS/390 R1	Priced Feature	Y	Y	Wave 1C	Y	Y	Y	Y
BookManager READ HBKM300 JBKM310 (English) JBKM311 (Dutch) JBKM312 (French) JBKM313 (German) JBKM314 (Spanish) JBKM315 (Italian) JBKM316 (Brazilian Portuguese) JBKM317 (Canadian French) JBKM318 (Danish)	OS/390 R1 (V1.3.0)	Base	N	N	Wave 1C	Y	Y	Y	Y
XL C/C++ HLB7790 (XL C/C++ Base) JLB779J (XL C/C++ Japanese)	z/OS V2.1.0	Priced Feature	Y	Y	Wave 1E	Y	Y	N	Y
H24P111 (Host Performance Analyzer) J24P112 (Japanese)	OS/390 R4	Priced Feature	Y	Y	Wave 1E	Y	Y	N	Y
Common Information Model (CIM) HPG7790	z/OS V2.1.0	Base	Y	N	Wave 1E	Y	Y	Y	Y

Figure 1 (Page 3 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
Communications Server IP Services HIP6210 (Base)	z/OS V2.1.0	Base	Y	Y	Wave 1A	Y	Y	Y	Y
JIP621X (XWindows X11R4)					Wave 1A	N	N	N	N
Communications Server SNA Services HVT6210					Wave 1A	N	N	N	N
Notes: 1. IP is the current name for the Communications Server component that supports secure TCP/IP networking. In support of dynamic enablement, the old name TCP/IP is still being used in parmlib member IFAPRDxx. 2. Starting in z/OS V1.10.0, the Communications Server HFS FMID has been merged into the Communications Server IP Services FMID.									
Communications Server Security Level 3 JIP621K	z/OS V2.1.0	No Charge Feature	Y	N	Wave 1AL	N	N	N	N

Figure 1 (Page 4 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
Cryptographic Services									
Open Cryptographic Services Facility (OCSF) Base HCRY740	z/OS V1.9.0	Base	Y	N	Wave 1D	Y	Y	N	N
Integrated Cryptographic Service Facility (ICSF) HCR77A0	z/OS V2.1.0				Wave 1A	Y	Y	N	N
Cryptographic Services PKI Services HKY7790	z/OS V2.1.0				Wave 1D	Y	Y	Y	N
System SSL HCPT410 JCPT41J (System SSL Japanese)	z/OS V2.1.0				Wave 1A Wave 1AL	Y	Y	N	N
Note: OCSF France has been removed from Cryptographic Services in a previous release.									
DFSMSdfp HDZ2210 (Base) JDZ221K (Japanese)	z/OS V2.1.0	Base	Y	N	Wave 1B	Y Y	Y Y	N N	Y N
DFSMSdss see DFSMSdfp	z/OS V2.1.0	Priced Feature	Y	Y	Wave 1B	N	N	Y	N
DFSMSStvs see DFSMSdfp	z/OS V2.1.0	Priced Feature	Y	Y	Wave 1B	N	N	Y	N

Figure 1 (Page 5 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
DFSMSHsm see DFSMSdfp	z/OS V2.1.0	Priced Feature	Y	Y	Wave 1B	N	N	N	Y
DFSMSrmm see DFSMSdfp	z/OS V2.1.0	Priced Feature	Y	Y	Wave 1B	N	N	N	Y
DFSORT HSM1L00 (Resident, Non-resident, Locale)	z/OS V2.1.0	Priced Feature	Y	Y	Wave 1F	Y	Y	N	Y
Note: DFSORT panels are no longer provided.									
Distributed File Service H0H2410 J0H241J (Japanese) HZFS410 (z/OS File System) JZFS41J (z/OS File System Japanese)	z/OS V2.1.0 z/OS V2.1.0 z/OS V2.1.0	Base	Y	N	Wave 1G	Y	Y	N	N
EREP EER3500	z/OS V1.7.0 (V3R5)	Base	N	N	Wave 1C	N	N	N	N
Note: EREP was SUP'd in z/OS V1.7.0; as a result, PTFs have been incorporated into FMID EER3500. See Appendix B, "APARs Incorporated into Elements of z/OS V2.1.0" on page 319 for the list of service that has been incorporated.									
ESCON Director Support HSWF100	OS/390 R1 (MVS/ESA V5)	Base	Y	N	Wave 1C	N	N	N	N
FFST HFST101	OS/390 R2 (V1.2.0)	Base	Y	N	Wave 1C	N	N	Y	Y

Figure 1 (Page 6 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
GDDM HGD3200 JGD3219 (English) JGD3220 (Brazilian Portuguese) JGD3221 (Simplified Chinese) JGD3222 (Danish) JGD3223 (French) JGD3224 (German) JGD3225 (Korean) JGD3226 (Italian) JGD3227 (Japanese) JGD3228 (Norwegian) JGD3229 (Canadian French) JGD3230 (Spanish) JGD3231 (Traditional Chinese) JGD3232 (Swedish)	OS/390 R2 (V3R2)	Base	N	N	Wave 1C	Y	Y	N	Y
GDDM-PGF HGD3201	OS/390 R2 (V2R1.3)	Priced Feature	N	Y	Wave 1C	N	N	N	Y
GDDM-REXX See GDDM	OS/390 R2 (V3R2)	Priced Feature	N	Y	Wave 1C	N	N	N	Y
HCD HCS7790 (Base, English) JCS779J (Japanese)	z/OS V2.1.0	Base	Y	N	Wave 1B	Y	Y	N	Y
HCM HCM1E10	z/OS V2.1.0	Priced Feature	Y	Y	Wave 1F	Y	Y	N	N
HLASM HMQ4160	z/OS V1.10.0 (HLASM V1.6)	Base	N	N	Wave 0	Y	Y	N	Y
Note: If High Level Assembler has not been previously installed, it must be installed on the driving system prior to installing Wave 1 and the resulting libraries must be used for the remaining installations.									
HLASM Toolkit JMQ416A	z/OS V1.10.0 (HLASM V1.6)	Priced Feature	N	Y	Wave 1F	Y	Y	N	Y
IBM HTTP Server HIMW530 (IBM HTTP Server) JIMW53B (Japanese)	OS/390 R10	Base	Y	N	Wave 1G	Y	Y	N	N

Figure 1 (Page 7 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
IBM HTTP Server NA Secure JIMW531	OS/390 R10	Base	Y	N	Wave 1G	N	N	N	N
IBM TDS HRSL410 (IBM Tivoli Directory Server for z/OS Base) JRSL41J (IBM Tivoli Directory Server for z/OS JPN)	z/OS V2.1.0	Base	Y	N	Wave 1A Wave 1AL	Y	Y	N	N
Note: The Integrated Security Services LDAP Server, HRSL3AA (LDAP Server), was removed in z/OS V1.11.0. You must now use IBM TDS.									
ICKDSF EDU1H01 FDU1H07 FDU1H08 (English panels) FDU1H09 (Japanese panels)	z990 Com- pati- bility Support (V1R17)	Base	N	N	Wave 1C	Y	Y	N	Y
Infoprint Server HMOS705 (IP PrintWay basic mode) JMOS7J5 (Japanese) HNET790 (NetSpool) JNET79J (Japanese) HOPI790 (Print Interface and IP Printway extended mode) JOPI79J (Japanese)	z/OS V1.2.0 z/OS V2.1.0	Priced Feature	Y	Y	Wave 1G	Y	Y	N	N
Note: IP Printway Extended Mode function is integrated into the HOPI790 FMID.									
Integrated Security Services Enterprise Identity Mapping HIT7750	z/OS V1.10.0	Base	Y	N	Wave 1D	Y	Y	N	N
Network Authentication Service HSWK410 JSWK41J (Japanese)	z/OS V2.1.0				Wave 1A Wave 1AL	Y	Y	N	N
Open Cryptographic Enhanced Plug-ins HRO7740	z/OS V1.9.0				Wave 1D	N	N	N	N

Figure 1 (Page 8 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
ISPF HIF7N02 JIF7N11 (Swiss German) JIF7N14 (Japanese) JIF7N15 (German) JIF7N16 (Upper Case English)	z/OS V2.1.0	Base	Y	N	Wave 1A Wave 1AL Wave 1AL Wave 1AL Wave 1AL Wave 1AL	Y	Y	N	Y
JES2 HJE7790 JJE779J (Japanese)	z/OS V2.1.0	Base	Y	N	Wave 2	Y	Y	Y	N
JES3 HJS7790	z/OS V2.1.0	Priced Feature	Y	Y	Wave 2	Y	Y	Y	N
Language Environment HLE7790 JLE779J (Japanese)	z/OS V2.1.0	Base	Y	N	Wave 1A Wave 1AL	Y	Y	N	Y
Library Server HBKQ400	z/OS V2.1.0	Base	Y	N	Wave 1G	Y	Y	N	Y
Note: Library Server was formerly known as BookManager BookServer.									
Metal C Runtime Library HSD7780	z/OS V1.13.0	Base	Y	N	Wave 1A	Y	Y	N	N
MICR/OCR EMI2220	OS/390 R1 (MVS/XA)	Base	Y	N	Wave 1C	N	N	N	N
Network File System HDZ221N (NFS) JDZ221J (NFS Japanese)	z/OS V2.1.0	Base	Y	N	Wave 1G	Y	Y	N	Y
OSA/SF H0GI400	z990 Compatibility Support	Base	Y	N	Wave 1F	Y	Y	N	N
RMF HRM7790 JRM779J (Japanese)	z/OS V2.1.0	Priced Feature	Y	Y	Wave 1E	Y	Y	N	Y

Figure 1 (Page 9 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
Runtime Library Extensions HTV7790 JTV779J (Japanese)	z/OS V2.1.0	Base	Y	N	Wave 1E	Y	Y	N	Y
Note: Runtime Library Extensions was formerly known as C++ IBM Open Class Library.									
SDSF HQX7790 JQX779J (Japanese) JJE779S (SDSF JES2 Support)	z/OS V2.1.0	Priced Feature	Y	Y	Wave 2	Y	Y	Y	N
Note: As of z/OS V1.9.0, z/OS V1.9.0 SDSF only assembles with z/OS V1.9.0 JES2.									
Security Server (RACF) HRF7790 JRF779J (Japanese)	z/OS V2.1.0	Priced feature	Y	Y	Wave 1D	Y	Y	Y	N
SMP/E HMP1J00 JMP1J11 (Japanese) HBCND0B (Planning & Migration Assistant) JBCND1B (Japanese) HBCNC00 (Software Information Base)	z/OS V1.13.0 (V3R6) z/OS V1.2.0 OS/390 R7	Base	N	N	Wave 0 Wave 1F	Y N	Y N	N N	N N
TIOC ETI1106	OS/390 R1 (MVS V5)	Base	Y	N	Wave 1A	N	N	N	N
TSO/E HTE7790 JTE779E (Information Center Facility and English) JTE779G (German) JTE779J (Japanese) JTE779C (Simplified Chinese)	z/OS V2.1.0	Base	Y	N	Wave 1C	Y	Y	Y	N

Figure 1 (Page 10 of 10). z/OS Base Elements and Optional Features

Element or Feature FMIDs	Level	Type	E X C L	D y n a m	Ripple	A l l o c	D D E F	P o s t - I	I V P
z/OS Security Level 3		No Charge Feature			Wave 1D				
OCSF Security Level 3 JCRY741	z/OS V1.9.0		Y	N		N	N	Y	N
System SSL Security Level 3 JCPT411	z/OS V2.1.0		Y	N		N	N	N	N
Network Authentication Service Security Level 3 JSWK411	z/OS V2.1.0		Y	N		N	N	N	N
IBM TDS Security Level 3 JRSL411	z/OS V2.1.0		Y	N		N	N	N	N
z/OS Font Collection HFNT110 HFNT11J (Chinese, Japanese, Korean)	z/OS V2.1.0	Base	Y	N	Wave 1G	Y Y	Y Y	N N	N N
z/OS UNIX System Services HOT7790 (Application Services) JOT779C (Simplified Chinese) JOT779J (Japanese)	z/OS V2.1.0	Base	Y	N	Wave 1B	Y	Y	N	N
Note: z/OS UNIX System Services Application Services (formerly called OpenEdition Application Services) includes the Shell, Utilities, Debugger, US English, and the tcsh (C-Shell).									
zEnterprise data Compression (zEDC)	z/OS V2.1.0	priced feature	Y	Y	Wave 1B	N	N	N	N
3270 PC File Transfer Program HFX1112	OS/390 R2 (V1R1.1)	Base	N	N	Wave 1C	N	N	Y	N

1.2 How to use this Program Directory

This Program Directory contains information about the material and procedures associated with the installation of the z/OS V2.1.0 elements and optional features (see Figure 1 on page 3). You should keep this document for future reference. Before taking any action, you should read the sections that apply to the elements and features you want to install. This Program Directory contains the following sections:

- 2.0, “Program Materials” on page 15 identifies the basic and optional program materials and documentation for z/OS V2.1.0.
- 3.0, “Program support” on page 17 describes the IBM support available for z/OS V2.1.0.
- 4.0, “Program and service level information” on page 23 lists the APARs (program level) and PTFs (service level) incorporated into z/OS V2.1.0.
- 5.0, “Installation requirements and considerations” on page 29 identifies the resources and considerations for installing and using z/OS V2.1.0.
- 6.0, “Preparing the installation path” on page 33 provides detailed information for planning and preparing installation paths.
- 7.0, “Installation instructions for Wave 0 FMIDs” on page 51 provides detailed installation instructions for Wave 0 FMIDs, which must be available on the driving system for the subsequent installation of Wave 1 and Wave 2 elements. It also refers to publications that describe how to activate the functions of z/OS V2.1.0.
- 8.0, “Installation instructions for Wave 1 and Wave 2 FMIDs” on page 71 provides detailed installation instructions for all Wave 1 FMIDs and Wave 2 FMIDs. It also refers to publications that describe how to activate the functions of z/OS V2.1.0.
- Appendix A, “Component IDs for Elements in z/OS V2.1.0” on page 307 lists the component IDs of the z/OS V2.1.0.
- Appendix B, “APARs Incorporated into Elements of z/OS V2.1.0” on page 319 lists the integrated APARs for the z/OS V2.1.0 elements.
- Appendix C, “DASD Storage Requirements Tables” on page 343 describes the space requirements for the z/OS Version 2 Release 1 data sets.
- Appendix D, “Do global zone cleanup for deleted FMIDs” on page 401 describes how to do Global Zone Cleanup for Deleted FMIDs.

See *z/OS Migration* for information on what libraries and paths are changed for a particular z/OS release, or library names before z/OS Version 2 Release 1 or in z/OS Version 2 Release 1.

Before installing z/OS V2.1.0, read 3.2, “Preventive Service Planning (PSP)” on page 17. This section tells you how to find any updates to the information and procedures in this Program Directory.

If you are installing z/OS V2.1.0 with ServerPac, use *ServerPac: Installing Your Order*, which was shipped with your ServerPac to install z/OS Version 2 Release 1. That book might refer to specific sections of this Program Directory for information that applies to the ServerPac installation path.

If you are installing z/OS V2.1.0 using the MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), you will receive a PDF file of the Program Directory from either an internet delivery or from a DVD shipped with physical media delivery. A hard copy version is not provided. However, you can print a

copy of the Program Directory, either by downloading the PDF file from the internet or by unloading it from the DVD.

2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for z/OS V2.1.0 is 5650-ZOS.

The program announcement material describes the features supported by z/OS V2.1.0. If you have not already received a copy, ask your IBM marketing representative for this information.

The following sections identify:

- The basic program materials available with this program.
- Publications useful during installation.

2.1 Basic Machine-Readable Material

Basic Machine-Readable Materials are materials that are supplied under the base license and feature number, and are required for the use of the product.

You will receive all z/OS Version 2 Release 1 FMIDs (whether ordered or not) except for the following:

- FMIDs for languages not ordered.
- FMIDs for export regulated features not ordered.
- FMIDs for no charge features.

See the *MVS CBPDO Memo to Users Extension* for a full list of FMIDs and for detailed information on tape volumes and file format.

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for z/OS V2.1.0.

2.3 Program publications

For the titles of all the publications associated with z/OS V2.1.0, see *z/OS Information Roadmap*.

2.4 Program source materials

No program viewable program listings (View Program Listings) are provided for z/OS V2.1.0

2.5 Publications useful during installation

For element-specific installation manuals, refer to *z/OS Information Roadmap*. To order copies of the publications referred to in this program directory, contact your IBM representative or visit the IBM Publications Center on the Internet at:

<http://www.ibm.com/shop/publications/order/>

You can also access these publications online at the following URL:

<http://www-03.ibm.com/systems/z/os/zos/bkserv/>

3.0 Program support

This section describes the IBM support available for z/OS V2.1.0.

3.1 Program services

Contact your IBM marketing and sales representatives for specific information about available program services.

3.2 Preventive Service Planning (PSP)

Before installing z/OS V2.1.0, make sure that you have reviewed the current Preventive Service Planning (PSP) information. Review the PSP Bucket for general information, installation documentation, and the cross product Dependencies sections. For the recommended service section, instead of reviewing the PSP Bucket, it is recommended you use the IBM.ProductInstall-RequiredService fix category in SMP/E to ensure you have all the recommended service installed. Use the FIXCAT(IBM.ProductInstall-RequiredService) operand on the APPLY CHECK command. See Figure 25, SMP/E APPLY CHECK (All Wave 0 FMIDs and Service for z/OS Version 2 Release 1) for a sample APPLY command.

If you obtained z/OS V2.1.0 as part of a CBPDO, HOLDDATA is included on the CBPDO. If the CBPDO for z/OS V2.1.0 is more than two weeks old when you install it, you need to obtain the current PSP (PSP Bucket).

To obtain the current PSP information, enhanced HOLDDATA, and other information related to z/OS software support, go to the following URL:

<http://www14.software.ibm.com/webapp/set2/psearch/search?domain=psp>

The elements in Figure 2 are included in the **ZOSV2R1** UPGRADE. The entries in Figure 3 on page 20 are in alphabetic order based on the Element column. For descriptions of the FMIDs in the table, see 1.1.1, “z/OS V2.1.0 Summary Table of Elements and Features” on page 2.

<i>Figure 2 (Page 1 of 4). PSP Bucket Information for z/OS Version 2 Release 1 Elements in ZOSV2R1 UPGRADE</i>		
Element	ZOSV2R1 PSP Subset	FMIDs Included
General information	ZOSGEN	General information

Figure 2 (Page 2 of 4). PSP Bucket Information for z/OS Version 2 Release 1 Elements in ZOSV2R1 UPGRADE

Element	ZOSV2R1 PSP Subset	FMIDs Included
BCP	BCP	HBB7790 JBB779J JBB779C HIO1104
BCP - Capacity Provisioning	CAPPROV	HPV7790
BCP Program Management Binder	PMBINDER	HPM7790
BCP-Support for Unicode Base BCP-Support for Unicode JPN	UNICODE	HUN7790 JUN779J
Bulk Data Transfer (BDT)	BDT	HBD6602 JBD6201 JBD6202
XL C/C++	ZOSCCPP	HLB7790 JLB779J
CIM	CIM	HPG7790
Communications Server IP	CSIP	HIP6210 JIP621K JIP621X
Communications Server SNA Services	CSSNA	HVT6210
Cryptographic Services Open Cryptographic Services Facility Base	OCSF	HCRY740
Cryptographic Services Integrated Cryptographic Service Facility	ICSF77A0	HCR77A0
Cryptographic Services PKI Services	PKISERV	HKY7790
Cryptographic Services System SSL	SSL	HCPT410 JCPT41J
DFSMS	DFSMS	HDZ2210 JDZ221K
DFSORT	DFSORT	HSM1L00
Distributed File Service (includes DFS/SMB and z/OS File System (zFS))	DFSSMB (includes zFS)	H0H2410 J0H241J HZFS410 JZFS41J
ESCON Director	ESCONDIR	HSWF100
HCD	HCD	HCS7790 JCS779J
HCM	HCM	HCM1E10

Figure 2 (Page 3 of 4). PSP Bucket Information for z/OS Version 2 Release 1 Elements in ZOSV2R1 UPGRADE

Element	ZOSV2R1 PSP Subset	FMIDs Included
Infoprint Server	INFOPRINT	HMOS705 JMOS7J5 HOPI790 JOPI79J HNET790 JNET79J
Integrated Security Services Enterprise Identity Mapping	EIM	HIT7750
IBM TDS	LDAP	HRSL410 JRSL41J
Integrated Security Services Network Authentication Service	NAPS	HSWK410 JSWK41J
Integrated Security Services OCEP	OCEP	HRO7740
ISPF	ISPF	HIF7N02 JIF7N11 JIF7N14 JIF7N15 JIF7N16
JES2	JES2	HJE7790 JJE779J
JES3	JES3	HJS7790
Language Environment	LANGENV	HLE7790 JLE779J
Library Server	BKSRV400	HBKQ400
Metal C Runtime Library	METALC	HSD7780
MICR/OCR	MICROCR	EMI2220
Network File System	NFS	HDZ221N JDZ221J
OSA/SF	OSA	H0GI400
RMF	RMF	HRM7790 JRM779J
Runtime Library Extensions	ZOSCCPP	HTV7790 JTV779J
SDSF	SDSF	HQX7790 JQX779J JJE779S
Security Server RACF	RACF	HRF7790 JRF779J

Figure 2 (Page 4 of 4). PSP Bucket Information for z/OS Version 2 Release 1 Elements in ZOSV2R1 UPGRADE

Element	ZOSV2R1 PSP Subset	FMIDs Included
TSO/E	TSOE	HTE7790 JTE779E JTE779J JTE779G JTE779C
IBM HTTP Server	MVSWEB10	HIMW530 JIMW53B JIMW531
z/OS Security Level 3	OCSF SSL NAPS LDAP	JCRY741 JCPT411 JSWK411 JRSL411
z/OS UNIX System Services	UNIXSS	HOT7790 JOT779J JOT779C
z/OS Font Collection	ZOSFONTS	HFNT110 HFNT11J
3270 PC File Transfer Program	3270PC	HFX1112

3.3 Additional PSP information

Figure 3 lists the PSP UPGRADEs and associated FMIDs that are NOT included in the z/OS V2.1.0 UPGRADE. These subsets are usually the associated FMIDs. To determine the subset name(s), see the respective UPGRADEs.

Figure 3 (Page 1 of 2). PSP Bucket Information Described Outside of z/OS V2.1.0 UPGRADE

Element	PSP UPGRADE	Associated FMIDs
BookManager READ	BKMGR130	HBKM300 JBKM310 JBKM311 JBKM312 JBKM313 JBKM314 JBKM315 JBKM316 JBKM317 JBKM318

Figure 3 (Page 2 of 2). PSP Bucket Information Described Outside of z/OS V2.1.0 UPGRADE

Element	PSP UPGRADE	Associated FMIDs
C/C++ Host Performance Analyzer (The FMIDs are the subset names.)	HOSTPA	H24P111 J24P112
Device Support Facility (ICKDSF)	ICKDSF017	EDU1H01 FDU1H07 FDU1H08 FDU1H09
EREP	EREP350	EER3500
FFST	FFST120	HFST101
GDDM	GDDM320	HGD3200 JGD3219 JGD3220 JGD3221 JGD3222 JGD3223 JGD3224 JGD3225 JGD3226 JGD3227 JGD3228 JGD3229 JGD3230 JGD3231 JGD3232
GDDM-PGF	GDDM320	HGD3201
HLASM	HLASM160	HMQ4160
HLASM Toolkit	HLASM160	JMQ416A
Alternate Library for REXX	REXXCOMPR140	HWJ9143 JWJ9144
SMP/E	SMPE360	HMP1J00 JMP1J11 HBCND0B JBCND1B HBCNC00
TIOC	TIOC106	ETI1106

3.4 Statement of support procedures

Report any difficulties you have using this program to the IBM Support Center. If an APAR is required, the Support Center will provide the address to which any accompanying documentation can be sent. The component IDs (COMP IDs) of z/OS Version 2 Release 1 are listed in Appendix A, "Component IDs for Elements in z/OS V2.1.0" on page 307.

4.0 Program and service level information

This section identifies the program and service levels of z/OS V2.1.0. The **program level** refers to the APAR fixes incorporated into the products. The **service level** refers to the PTFs incorporated.

The recommended CBPDO installation procedure will APPLY all service that has been through the z/OS Version 2 Release 1 integration test (SOURCEID ZOSV2R1 for z/OS V2.1.0) for which a report has been produced (these reports come out quarterly), all HIPERs and all PTFs that fix PE PTFs. On a release boundary, the z/OS Version 2 Release 1 integration test system's service level is brought up to the designated PUT level of the ServerPac for that release. RSU (Recommended Service Upgrade) service is applied on top of the PUT service (again to the designated ServerPac levels). Finally, corrective service is applied as needed to the integration test system. The ZOSV2Rn SOURCEID identifies all this service.

Note that the service level of each FMID that is listed in this Program Directory only shows service that has been integrated into the FMID, not what has been integrated into ServerPac nor what would be installed with CBPDO. The service level that has been integration tested is documented in the quarterly *z/OS Parallel Sysplex Test Report*.

4.1 Program level information

APAR fixes against the root products (last previous level prior to being included in z/OS Version 2 Release 1) or prior levels of z/OS V2.1.0 elements that have been incorporated into this release are listed in Appendix B, "APARs Incorporated into Elements of z/OS V2.1.0" on page 319.

4.2 Service level information

Figure 4 lists the service level of each FMID. The SMCyyww and PUTyymm levels identify the APAR service cutoff levels which have been incorporated into the FMIDs.

- SMCyyww identifies the service level in terms of CBPDO cycles, where yy is the year and ww is the CBPDO week. For example, 0842 is the forty-second CBPDO week in 2008.
- PUTyymm identifies the monthly service level in terms of ESO cycles (formerly PUTs), where yy is the year and mm is the ending month of the ESO cycle. For example, 0809 is service through September 2008.

If the z/OS Version 2 Release 1 elements are installed with the instructions and samples provided in this Program Directory, they will include service that has been integration tested as well as the HIPERs and PE fixes up to the time z/OS Version 2 Release 1 was ordered. Therefore, the service level of the FMIDs after you have installed z/OS V2.1.0 will be higher than what is listed and will depend on when it was ordered.

Figure 4 (Page 1 of 4). FMIDs and Service Levels

Element / Feature	FMIDs and Service Levels
BCP	<ul style="list-style-type: none"> • HBB7790 (SMC1309 / PUT1302) • JBB779C (SMC1309 / PUT1302) • JBB779J (SMC1309 / PUT1302) • HUN7790 (SMC1309 / PUT1302) • JUN779J (SMC1309 / PUT1302) • HPV7790 (SMC1309 / PUT1302) • HPM7790 (SMC1310 / PUT1302) • HIO1104 (SMC9020 / PUT9002)
BDT	<ul style="list-style-type: none"> • HBD6602 (SMC9615 / PUT9603) • JBD6201 (SMC9615 / PUT9603) • JBD6202 (SMC9615 / PUT9603)
BookManager/Build	<ul style="list-style-type: none"> • HBKP300 (SMC9620 / PUT9605) • JBKP310 (SMC9536 / PUT9509) • JBKP311 (SMC9536 / PUT9509) • JBKP312 (SMC9536 / PUT9509) • JBKP313 (SMC9536 / PUT9509) • JBKP314 (SMC9536 / PUT9509) • JBKP315 (SMC9536 / PUT9509)
BookManager READ	<ul style="list-style-type: none"> • HBKM300 (SMC9642 / PUT9610) • JBKM310 (SMC9537 / PUT9509) • JBKM311 (SMC9537 / PUT9509) • JBKM312 (SMC9642 / PUT9610) • JBKM313 (SMC9537 / PUT9509) • JBKM314 (SMC9537 / PUT9509) • JBKM315 (SMC9537 / PUT9509) • JBKM316 (SMC9642 / PUT9610) • JBKM317 (SMC9537 / PUT9509) • JBKM318 (SMC9537 / PUT9509)
Common Information Model (CIM)	<ul style="list-style-type: none"> • HPG7790 (SMC1309 / PUT1302)
XL C/C++	<ul style="list-style-type: none"> • HLB7790 (SMC1309 / PUT1302) • JLB779J (SMC1309 / PUT1302) • H24P111 • J24P112
Communications Server	<ul style="list-style-type: none"> • IP <ul style="list-style-type: none"> – HIP6210 (SMC1310 / PUT1302) – JIP621X (SMC1310 / PUT1302) – JIP621K (SMC1310 / PUT1302) • SNA <ul style="list-style-type: none"> – HVT6210 (SMC1310 / PUT1302)

Figure 4 (Page 2 of 4). FMIDs and Service Levels

Element / Feature	FMIDs and Service Levels
Cryptographic Services	<ul style="list-style-type: none"> • Cryptographic Services ICSF <ul style="list-style-type: none"> – HCR77A0 (SMC1233 / PUT1207) • Open Cryptographic Services Facility <ul style="list-style-type: none"> – HCRY740 (SMC0711 / PUT0703) • Cryptographic Services PKI Services <ul style="list-style-type: none"> – HKY7790 (SMC1309 / PUT1302) • System SSL <ul style="list-style-type: none"> – HCPT410 (SMC1311 / PUT1302) – JCPT41J (SMC1311 / PUT1302)
DFSMS	<ul style="list-style-type: none"> • HDZ2210 (SMC1310 / PUT1302) • JDZ221K (SMC1310 / PUT1302)
DFSORT	<ul style="list-style-type: none"> • HSM1L00 (SMC1310 / PUT1302)
Distributed File Service	<ul style="list-style-type: none"> • Distributed File Service <ul style="list-style-type: none"> – H0H2410 (SMC1311 / PUT1302) – J0H241J (SMC1311 / PUT1302) • z/OS File System <ul style="list-style-type: none"> – HZFS410 (SMC1311 / PUT1302) – JZFS41J (SMC1311 / PUT1302)
EREP	<ul style="list-style-type: none"> • EER3500 (SMC0504 / PUT0501)
ESCON Director Support	<ul style="list-style-type: none"> • HSWF100
FFST	<ul style="list-style-type: none"> • HFST101
GDDM	<ul style="list-style-type: none"> • HGD3200 (SMC9606 / PUT9601) • JGD3219 (SMC9606 / PUT9601) • JGD3220 (SMC9606 / PUT9601) • JGD3221 (SMC9606 / PUT9601) • JGD3222 (SMC9606 / PUT9601) • JGD3223 (SMC9606 / PUT9601) • JGD3224 (SMC9606 / PUT9601) • JGD3225 (SMC9606 / PUT9601) • JGD3226 (SMC9606 / PUT9601) • JGD3227 (SMC9606 / PUT9601) • JGD3228 (SMC9606 / PUT9601) • JGD3229 (SMC9606 / PUT9601) • JGD3230 (SMC9606 / PUT9601) • JGD3231 (SMC9606 / PUT9601) • JGD3232 (SMC9606 / PUT9601)
GDDM PGF	<ul style="list-style-type: none"> • HGD3201 (SMC9606 / PUT9601)
HCD	<ul style="list-style-type: none"> • HCS7790 (SMC1309 / PUT1302) • JCS779J (SMC1309 / PUT1302)
HCM	<ul style="list-style-type: none"> • HCM1E10 (SMC1309 / PUT1302)
HLASM	<ul style="list-style-type: none"> • HMQ4160 (SMC0814 / PUT0803)

Figure 4 (Page 3 of 4). FMIDs and Service Levels

Element / Feature	FMIDs and Service Levels
HLASM Toolkit	<ul style="list-style-type: none"> • JMQ416A (SMC0814 / PUT0803)
IBM HTTP Server	<ul style="list-style-type: none"> • HIMW530 (SMC0017 / PUT0004) • JIMW53B (SMC0017 / PUT0004) • JIMW531 (SMC0017 / PUT0004)
IBM TDS	<ul style="list-style-type: none"> • HRSL410 (SMC1311 / PUT1302) • JRSL41J (SMC1311 / PUT1302)
ICKDSF	<ul style="list-style-type: none"> • EDU1H01 (ICKDSF) (SMC0241 / PUT0209) • FDU1H07 (ISMF Base) (SMC0241 / PUT0209) • FDU1H08 (ISMF Eng) (SMC0241 / PUT0209) • FDU1H09 (ISMF Jpn) (SMC0241 / PUT0209)
Infoprint Server	<ul style="list-style-type: none"> • IP PrintWay basic mode <ul style="list-style-type: none"> – HMOS705 (SMC0117 / PUT0104) – JMOS7J5 (SMC0117 / PUT0104) • NetSpool <ul style="list-style-type: none"> – HNET790 (SMC1306 / PUT1301) – JNET79J (SMC1306 / PUT1301) • Print Interface <ul style="list-style-type: none"> – HOPI790 (SMC1310 / PUT1302) – JOPI79J (SMC1310 / PUT1302)
Integrated Security Services	<ul style="list-style-type: none"> • Enterprise Identity Mapping <ul style="list-style-type: none"> – HIT7750 (SMC0811 / PUT0802) • Network Authentication Service <ul style="list-style-type: none"> – HSWK410 (SMC1311 / PUT1302) – JSWK41J (SMC1311 / PUT1302) • Open Cryptographic Enhanced Plug-ins <ul style="list-style-type: none"> – HRO7740 (SMC0710 / PUT0702)
ISPF	<ul style="list-style-type: none"> • HIF7N02 (SMC1309 / PUT1302) • JIF7N11 (SMC1309 / PUT1302) • JIF7N14 (SMC1309 / PUT1302) • JIF7N15 (SMC1309 / PUT1302) • JIF7N16 (SMC1309 / PUT1302)
JES2	<ul style="list-style-type: none"> • HJE7790 (SMC1309 / PUT1302) • JJE779J (SMC1309 / PUT1302)
JES3	<ul style="list-style-type: none"> • HJS7790 (SMC1309 / PUT1302)
Language Environment	<ul style="list-style-type: none"> • HLE7790 (SMC1309 / PUT1302) • JLE779J (SMC1309 / PUT1302)
Library Server	<ul style="list-style-type: none"> • HBKQ400 (SMC1311 / PUT1302)
Metal C Runtime Library	<ul style="list-style-type: none"> • HSD7780 (SMC1108 / PUT1102)
MICR/OCR 2.2.0	<ul style="list-style-type: none"> • EMI2220
Network File System	<ul style="list-style-type: none"> • HDZ221N (SMC1310 / PUT1302) • JDZ221J (SMC1310 / PUT1302)

Figure 4 (Page 4 of 4). FMIDs and Service Levels

Element / Feature	FMIDs and Service Levels
OSA Support Facility	<ul style="list-style-type: none"> • H0GI400 (SMC0305 / PUT0301)
Alternate Library for REXX	<ul style="list-style-type: none"> • HWJ9143 (SMC0330 / PUT0306) • JWJ9144 (SMC0330 / PUT0306)
RMF	<ul style="list-style-type: none"> • HRM7790 (SMC1309 / PUT1302) • JRM779J (SMC1309 / PUT1302)
Runtime Library Extensions	<ul style="list-style-type: none"> • HTV7790 (SMC1309 / PUT1302) • JTV779J (SMC1309 / PUT1302)
SDSF	<ul style="list-style-type: none"> • HQX7790 (SMC1310 / PUT1302) • JQX779J (SMC1310 / PUT1302) • JJE779S (SMC1310 / PUT1302)
Security Server	<ul style="list-style-type: none"> • RACF <ul style="list-style-type: none"> – HRF7790 (SMC1310 / PUT1302) – JRF779J (SMC1310 / PUT1302)
SMP/E	<ul style="list-style-type: none"> • HMP1J00 (SMC1111 / PUT1103) • JMP1J11 (SMC1111 / PUT1103) • HBCND0B (SMC0117 / PUT0104) • HBCNC00 (initial release) • JBCND1B (SMC0117 / PUT0104)
TIOC	<ul style="list-style-type: none"> • ETI1106
TSO/E	<ul style="list-style-type: none"> • HTE7790 (SMC1310 / PUT1302) • JTE779E (SMC1310 / PUT1302) • JTE779G (SMC1310 / PUT1302) • JTE779J (SMC1310 / PUT1302) • JTE779C (SMC1310 / PUT1302)
z/OS Security Level 3	<ul style="list-style-type: none"> • IBM TDS Security Level 3 <ul style="list-style-type: none"> – JRSL411 (SMC1311 / PUT1302) • OCSF Security Level 3 <ul style="list-style-type: none"> – JCRY741 (SMC0714 / PUT0703) • Network Authentication Service Security Level 3 <ul style="list-style-type: none"> – JSWK411 (SMC1311 / PUT1302) • System SSL Security Level 3 <ul style="list-style-type: none"> – JCPT411 (SMC1311 / PUT1302)
z/OS UNIX System Services	<ul style="list-style-type: none"> • Application Services <ul style="list-style-type: none"> – HOT7790 (SMC1309 / PUT1302) – JOT779J (SMC1309 / PUT1302) – JOT779C (SMC1309 / PUT1302)
3270 PC File Transfer Program	<ul style="list-style-type: none"> • HFX1112

The SMP/E installation logic for elements in z/OS V2.1.0 is contained in the SMPMCS file on the installation tape. These files are loaded to the SMPPTS data set when an SMP/E RECEIVE is done for

z/OS V2.1.0. You may browse or print the installation logic files using TSO/E, ISPF, or IEBGENER (or IEBTPCH).

See the *MVS CBPDO Memo to Users Extension* for detailed information on the service level of the unintegrated service provided on the tape. If you received this product as part of a CBPDO, PTFs not incorporated into this release are provided on the tape.

5.0 Installation requirements and considerations

The following section describes the DASD storage requirements considerations. For information about driving system and target system requirements, see *z/OS Planning for Installation*.

5.1 Driving System Requirements

For details on the driving system requirements of z/OS V2.1.0, see *z/OS Planning for Installation*.

5.2 Target System Requirements

For details on the target system requirements of z/OS V2.1.0, see *z/OS Planning for Installation*.

5.3 FMIDs Deleted

Installing z/OS V2.1.0 will result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++ VER statement in the product's SMPMCS.

The SMP/E Modification Control Statements (SMPMCS) for z/OS V2.1.0 are contained in the SMPMCS file on the installation tape. The SMPMCS for each FMID in the product will be loaded to the SMPPTS data set, with a member name matching the FMID, when the FMID is SMP/E RECEIVED. You may browse or print these members using TSO/E, ISPF, or IEBGENER (or IEBPTPCH). As of z/OS V1.11.0, the IBM Virtualization Engine Enterprise Workload Manager for z/OS V1.1.0 and V1.2.0 (FMIDs HVE1110 and HVE1210) are deleted with the installation of Wave 1 BCP FMID HBB7760.

5.3.1 SMP/E JCLIN

The JCLIN for z/OS V2.1.0 is contained in the RELFILES on the installation tape. These files will be loaded to disk by SMP/E when the product is SMP/E RECEIVED. You may browse or print these files using TSO/E, ISPF, or IEBGENER (or IEBPTPCH).

To find out which RELFILE contains the JCLIN, consult the SMPMCS logic.

5.4 DASD Storage Requirements

z/OS V2.1.0 libraries can reside on all supported DASD types.

The space requirements shown in Appendix C, "DASD Storage Requirements Tables" on page 343 are for:

- All z/OS Version 2 Release 1 base elements

- All optional features that can coexist
- All corresponding national language FMIDs

Data sets for national language FMIDs not ordered may be empty or require less space than documented. These data sets are identified by "N" in the notes column of the data set size tables.

5.4.1 Total DASD Storage Requirements

The total space required for all the target data sets listed in Figure 89 on page 349, when allocated at the recommended block sizes, is:

- 11051 cylinders on a 3390 device

The total space required for all the distribution data sets listed in Figure 90 on page 371, when allocated at the recommended block sizes, is:

- 17960 cylinders on a 3390 device

As of z/OS V1.7.0, the ROOT file system may be type HFS or zFS. The total space required on a 3390 device for the ROOT HFS file system and the ROOT zFS file system is listed below.

The space required for the root file system shown below does not include the space required the z/OS Fonts Collection element since it is recommended that the element be installed in a separate file system.

HFS 3300 cylinders primary and 330 cylinders secondary
zFS 3319 cylinders primary and 330 cylinders secondary

As of z/OS V2.1.0, z/OS Font Collection is a new element that installs into the file system. The total space required for the root file system shown above does not include the space required to install element z/OS Font Collection. When z/OS Font Collection FMIDs HFNT110 and HFNT11J are installed, the approximate amount of space required in the file system is 2048 cylinders on a 3390 DASD.

Due to the amount of space required in the file system when installing the z/OS Font Collection element, it is recommended that a separate file system be allocated, mounted, and used for the installation of the element. Sample jobs FNTHFSAL and FNTZFSAL are provided by the element to allocate and mount a separate file system, either HFS or zFS.

If you plan to install z/OS Font Collection in a separate file system, rather than the root file system, run the sample job to allocate a separate file system and mount it before installing z/OS Font Collection.

As of z/OS V1.7.0, the /etc file system may be HFS or zFS. The total space required for the /etc HFS file system and the /etc zFS file system is:

- 50 cylinders primary; 10 cylinders secondary on a 3390 device

For the CIM element, a separate file system, either HFS or zFS, is created and mounted at mountpoint /var/wbem.

The total space required on a 3390 device for each type is listed below.

zFS 94 cylinders primary; 10 cylinders secondary

See *z/OS Common Information Model User's Guide*, for more information about creating and mounting a file system at `/var/wbem`.

For Predictive Failure analysis, a separate file system, either HFS or zFS, is created and mounted at mountpoint the `/var/pfa`. The total space required on a 3390 device is listed below.

zFS 300 cylinders primary; 50 cylinders secondary

HFS 300 cylinders primary; 50 cylinders secondary

See *z/OS Problem Management* for more information about creating and mounting a file system at `/var/pfa`

Note: The HFS or zFS sizes listed in this section are applicable to z/OS V2.1.0 only (that is, the FMIDs documented in this Program Directory). If you plan to install additional products into the ROOT file system of z/OS V2.1.0, you will need to add their space requirements of HFS or zFS into the above sizes.

The total space required for all the SMP/E data sets listed in Figure 84 on page 344 is:

- 639 cylinders on a 3390 device

The total space required for all the SMPTLIB data sets is:

- 17186 cylinders on a 3390 device

SMPTLIB Considerations

** The size of the SMPTLIB data set reflects the total space requirements for all FMIDs (changed and unchanged elements) for z/OS V2.1.0.

For information about space requirements and block sizes, see *z/OS Planning for Installation*.

6.0 Preparing the installation path

The following steps are required to prepare your system for the installation of the z/OS V2.1.0 CBPDO. Detailed instructions for each step are provided in the indicated sections.

Figure 5. Checklist for Preparing the Installation Path

Check Box	Section, Step Description	Your Notes
<input type="checkbox"/>	6.2, "Step 1: Separating File System Data Sets for z/OS V2.1.0"	
<input type="checkbox"/>	6.3, "Step 2: Cloning File System Data Sets" on page 34	
<input type="checkbox"/>	6.4, "Step 3: Back Up Your clone system" on page 35	
<input type="checkbox"/>	6.5, "Step 4: Decide which FMIDs to install" on page 35	
<input type="checkbox"/>	6.6, "Step 5: Review Library Restructure/Renaming Notes" on page 45	
<input type="checkbox"/>	6.7, "Step 6: Review general installation notes" on page 45	

6.1 Overview for the clone of your system

The following sections describe the procedures that need to be completed to create a clone of your system. Before you clone your system, make sure your file system data sets are separated. Use these steps to separate the file system data sets and clone your system.

6.2 Step 1: Separating File System Data Sets for z/OS V2.1.0

It is required that your file system contains separate file system data sets for /etc, /var, /tmp and /dev directories on the system from which you are migrating. If the file system is contained within one data set, separate file system data sets must be created and the contents moved to the new file system data sets. If this is not done, the BPXISMKD job will fail with a return code of 12.

The BPXISMKD job converts the /var, /tmp, and /dev directories into symbolic links which allows the root file system to be shared in a sysplex environment. These changes (creating separate file system data sets and running the BPXISMKD job), must be done whether you plan to share the root file system in a sysplex or not. For more information on sharing the root file system in a sysplex or how the root file system works in a non-sysplex environment, refer to *z/OS UNIX System Services Planning*.

As of z/OS V1.7.0, the root file system along with the file systems mounted at directories /etc, /var, /tmp and /dev might be HFS or zFS file systems.

6.3 Step 2: Cloning File System Data Sets

Make a **clone**, which is a separate IPLable copy, of your running system. The clone must include copies of all system libraries that SMP/E updates, including the file system data sets, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB data sets.

Note: The order in which the waves and ripples are executed in the following pages assume a cloned system is being used. If a cloned system is not being used, the order of the ripples in Wave 1 will have to be changed. See 6.5.2, "Installation ripple exceptions" on page 37 for more details.

The clone becomes your target system. The system on which the installation jobs are processed is your driving system. All of the changes made to the system during your installation will be made against the clone system, not the driving system. Refer to *z/OS Planning for Installation* for instructions on how to clone a system.

Note: Ensure the following tasks are completed before proceeding:

- The entire set of file system data sets are cloned. See 5.4.1, "Total DASD Storage Requirements" on page 30 for the new size of the root file system in this release.
- The DDDEF entries in the cloned SMP/E CSI have been updated to reference the proper file system paths for the cloned file system for your target system installation.

6.3.1 Using High Level Assembler, Program Management Binder, and SMP/E for Subsequent z/OS V2.1.0 Installs

You must use the current release level of High Level Assembler, Program Management Binder, and SMP/E which are shipped with z/OS V2.1.0 to install z/OS V2.1.0 Wave 1 and Wave 2 elements. Therefore, you must first install SMP/E, the Program Management Binder, and High Level Assembler as part of Wave 0.

SMP/E resides in the target system's MIGLIB library. High Level Assembler resides in the target system's SASMMOD1 library. Program Management Binder resides in the target system's MIGLIB library as well as other libraries. The Program Management Binder does still require SCEERUN for execution. If SCEERUN is not in your LINKLST or LPALST on the driving system, you must add the appropriate STEPLIB DD statement to any JCL and procedures (for example, SMP/E proc).

Note: Be sure the target system's MIGLIB and SASMMOD1 libraries are APF-authorized. For information on authorizing the libraries, see *z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN*.

If you choose not to STEPLIB to the target system's MIGLIB or SASMMOD1, you must:

- Install the current level of High Level Assembler, the Program Management Binder and SMP/E which are shipped in z/OS V2.1.0 on your target system.
- Make two clones of that target system. One is to be used as your new driving system. The other is to be used as your target system.

6.4 Step 3: Back Up Your clone system

After testing your clone system to ensure that it IPLs, back up your clone system to tape or DASD. **Make sure you have a backup of your clone system.**

Also consider making a backup:

- After the APPLY step succeeds in each wave.
- After the ACCEPT step succeeds in each wave.
- After a successful IPL.
- At later stages in converting your system (after completing significant parts of the work and before starting new parts of the work).

6.5 Step 4: Decide which FMIDs to install

The elements of z/OS Version 2 Release 1 are integrated into a single package with compatible service levels. Therefore, IBM expects that customers will migrate all elements of z/OS Version 2 Release 1 at the same time. As of z/OS V2R1, the staging of lower JES2, JES3 and SDSF levels with z/OS V2R1 is not supported.

Note that you must install, with few exceptions, the entire z/OS product. For more details on the exceptions, see *z/OS Planning for Installation*, section "Choosing the z/OS base and optional features".

The elements that need to be installed depend on the elements that are already installed on the target system. If an element currently exists on the target system and it has not changed between the version on the target system and this new release, it is not necessary to install the element. If it is not on the target system or it has changed, the element must be installed.

The CBPDO installation of z/OS Version 2 Release 1 should occur in separate stages, which are called **waves**. There are three waves, each one consisting of multiple SMP/E steps that are documented in this Program Directory.

- Wave 0, during which elements that must be available on the driving system for the subsequent installation of Wave 1 and Wave 2 elements are installed.
- Wave 1, during which the core set of z/OS elements such as BCP, Language Environment, Communications Server IP Services and SNA Services, DFSMS, z/OS UNIX System Services, ISPF, and TSO/E are installed. Some of these core set elements are required to install other FMIDs.
- Wave 2, during which the z/OS V2.1.0 level of the JES2, SDSF, and JES3 elements are installed.

OS/390 V1.3.0 expanded on the wave concept and further broke down the installation of all OS/390 V1.3.0 elements into *ripples*. Ripples take into consideration natural installation separation points, such as element requisites and dependencies for SMP/E CALLLIBs. Some ripples are a subset of a wave and some are an entire wave. In z/OS V1.11.0, a new ripple 1AL was introduced for National Language FMIDs. The waves and their corresponding ripples are:

- Wave 0 (entire ripple)

- Wave 1
 - Wave 1A
 - Wave 1AL
 - Wave 1B
 - Wave 1C
 - Wave 1D
 - Wave 1E
 - Wave 1F
 - Wave 1G
- Wave 2 (entire ripple)

The ripples give an overall installation scenario that includes every element in order to expedite the CBPDO installation path. Therefore, **the ripples must be processed in the order specified, with all FMIDs in a ripple installed.**

Refer to 6.5.3, “Elements in each Wave, Ripple, and FMIDSET” on page 37 to find out which elements are contained in each ripple and the last release in which an element was changed.

Note: Wave 2 is independent of Wave 1. Wave 2 can be combined with Wave 1; however, Wave 2 cannot occur before Wave 1.

6.5.1 Understanding SMP/E zone requirements

IBM recommends that you install all of z/OS Version 2 Release 1 (all base elements and all optional features) into one SMP/E target zone and one SMP/E distribution zone with the following exceptions:

- Language Environment must not be installed into a target or distribution zone that contains the stand-alone products VS COBOL II or OS/VS COBOL. Language Environment contains element names that are used in VS COBOL II and OS/VS COBOL. Attempting to install into the same SMP/E zone renders both Language Environment and the COBOL products unusable.

However, you can install Language Environment into the same target and distribution zones as any of the following products:

- IBM C/370 Library Version 2
- OS PL/I Library Version 1
- OS PL/I Library Version 2
- VS FORTRAN

Do not attempt to install Language Environment into the same data sets as any of the following products. Language Environment contains parts and aliases. Attempting to install into the same data sets renders both Language Environment and these products unusable.

- IBM C/370 Library Version 1
- IBM C/370 Library Version 2
- OS PL/I Library Version 1
- OS PL/I Library Version 2
- OS/VS COBOL
- VS COBOL II
- VS FORTRAN

- In OS/390 Release 8, the OSA-1 function was no longer supported in OS/390 and is still not supported in z/OS. (Likewise, the OSA-1 feature, which is in OSA/SF V1, is not in OSA/SF V2).

Stand-alone products that install into z/OS Version 2 Release 1 load modules (or install into libraries that can not be concatenated, such as SYS1.NUCLEUS) should also be kept in the same zones as z/OS.

IBM requires that you install all the elements into the same target zone except the following: JES2, JES3, and SDSF.

6.5.2 Installation ripple exceptions

Before you install Wave 0, Wave 1, and Wave 2 elements, you must ensure that the “cloned” file system data sets are available on your driving system. Because some of the Wave 0 elements, such as SMP/E and Program Management Binder, and some of the Wave 1 elements contain SMP/E VER DELETE statements for the prior levels that include FMIDs which are installed in the file system, installation of these elements attempts to access the root file system to DELETE the prior FMIDs if they were installed. Because FMIDs that are installed in the cloned file system will be deleted by SMP/E ++VER DELETE processing during Wave 0, Wave 1 and Wave 2 installation, you must ensure that the cloned file system is available (the z/OS UNIX kernel active in full function mode and the file systems mounted) for SMP/E processing during Wave 0, Wave 1, and Wave 2. There are no additional requirements for Wave 2; see *z/OS Planning for Installation* for details.

6.5.2.1 Installing into empty SMP/E zones

As of z/OS Version 1 Release 3, it is no longer possible to install into empty or partially empty SMP/E zones. That is, you are required to install z/OS V2.1.0 CBPDO into zones which contain the full release of z/OS from which you are migrating. This requirement is due to the sharing of load modules between waves, the need to have SMP/E find those load modules in Wave 0, and the dependencies on the driving system requirements which determine the wave order.

6.5.3 Elements in each Wave, Ripple, and FMIDSET

You must install the latest level of SMP/E, HLASM, and Program Management Binder in Wave 0 before you install all the other waves and ripples. This way, you can make sure that the latest level of SMP/E, HLASM, and Program Management Binder is used during the installation of the remaining waves and ripples.

Figure 6 on page 38 through Figure 15 on page 44 contain the elements to be installed during each wave and ripple of the z/OS Version 2 Release 1 installation. You should create an FMIDSET for each ripple containing the elements listed in the corresponding table.

You will receive sample JCL in the data set member RIMLIB(FMIDSET) that creates FMIDSETs for the installation of z/OS V2.1.0. FMIDSET(WAVE0, WAVE1A, WAVE1AL, WAVE1B,...WAVE2) are set up for all elements for the specific ripple.

For the FMIDSETs (WAVE0, WAVE1A, WAVE1AL, WAVE1B,...WAVE2) created in Step 1 of the sample FMIDSET job, edit the ripple FMIDSETs to remove any FMIDs you may already have on your system.

By default, language features and Communications Server Security Level 3 and z/OS Security Level 3 (both of which are optional unpriced features), are commented-out in Step 1. Therefore, if you ordered a language, Communications Server Security Level 3, or z/OS Security Level 3, you must uncomment their respective entries from Step 1 of the sample FMIDSET job.

For the FMIDSETs created in Step 2 of the sample FMIDSET job, you will also need to uncomment any languages you have ordered. This ensures that any service for the languages is installed. Similarly, if you ordered the z/OS Security Level 3 or Communications Server Security Level 3 features, you also must uncomment those entries to install service for those features.

FMIDSET(ZV21W1A, ZV21W1AL, ZV21W1B,...ZV21W2) are set up to include all elements (new, changed, and unchanged). These FMIDSETs will be used for applying and accepting service as documented later in this program directory. Edit these FMIDSETs to uncomment the languages you ordered and comment out the FMIDs for features that you did not order. Successful execution of the FMIDSET sample job will produce a condition code of zero.

To determine which elements you need to install, refer to Figure 6 through Figure 15 on page 44 and check the **Level** column for the release in which an element was last changed.

- If the column begins with OS/390, that element changed in an OS/390 release.
- If the column begins with OS/390 but also has a version, release and modification in parentheses, that element changed in an OS/390 release but is non-exclusive. The level of the equivalent stand-alone product is in parenthesis. If you already have these FMIDs installed, you do **not** need to reinstall them; they should be removed from the FMIDSETs WAVE0, WAVE1A, through WAVE2 in the FMIDSET job.
- If the column begins with z/OS, that element changed in a z/OS release.
- If the column does NOT begin with OS/390 or z/OS, that element has not changed in OS/390 (all OS/390 releases have the same level) or z/OS, and it is the same level as the equivalent stand-alone product. The level of the equivalent stand-alone product is in the Level column. If you already have these FMIDs installed, you do NOT need to reinstall them (they should be removed from the FMIDSETs WAVE0, WAVE1A, through WAVE2 in the FMIDSET job).

The FMIDs listed in the Figure 6 through Figure 15 on page 44 are for the elements documented in this program directory. To present a full z/OS Version 2 Release 1 view of the ripples, every element is listed.

6.5.3.1 Elements in Wave 0

As Figure 6 shows, FMIDSET Wave 0 contains the z/OS V2.1.0 elements that must be installed on the target system so they can be used for subsequent installations of Wave 1 and Wave 2 elements. This includes SMP/E, HLASM, and Program Management Binder.

<i>Figure 6. Elements in FMIDSET Wave 0</i>		
Element	FMID(s)	Level
SMP/E	HMP1J00 JMP1J11 (Japanese)	z/OS V1.13.0 (V3R6)
HLASM	HMQ4160	z/OS V1.10.0 (V1.6)
Program Management Binder	HPM7790	z/OS V2.1.0

6.5.3.2 Elements in Wave 1A

FMIDSET Wave 1A contains the elements that use SMP/E CALLLIB; these are summarized in Figure 7. FMIDSET Wave 1A also contains elements UNICODE, IBM Tivoli Directory Server for z/OS, and TIOC.

<i>Figure 7. Elements in FMIDSET Wave 1A</i>		
Element	FMID(s)	Level
BCP	HBB7790 HUN7790 (Support for Unicode)	z/OS V2.1.0
Note: BCP includes z/OS UNIX System Services Kernel, IBM Health Checker, and IBM Generic Tracker.		
Communications Server IP Services	HIP6210 JIP621X (XWindows X11R4)	z/OS V2.1.0
Note: The Communications Server HFS FMID has been merged into the Communications Server IP Services FMID in z/OS V1R10 and later releases. The Communications Server IP Services FMID contains elements that are installed into the file system.		
Communications Server SNA Services	HVT6210	z/OS V2.1.0
Cryptographic Services	HCR77A0 (ICSF) HCPT410 (System SSL)	z/OS V2.1.0
IBM Tivoli Directory Server (IBM TDS)	HRSL410	z/OS V2.1.0
Integrated Security Services	HSWK410 (Network Authentication Service Base)	z/OS V2.1.0
ISPF	HIF7N02	z/OS V2.1.0
Language Environment	HLE7790	z/OS V2.1.0
Metal C Runtime Library	HSD7780	z/OS V1.13.0
TIOC	ETI1106	MVS 3.8 Base

6.5.3.3 Elements in Wave 1AL

Figure 8 on page 40 lists the elements that are installed as part of Wave 1AL. FMIDSET WAVE1AL includes the language FMIDs for Wave 1A elements, along with the Communications Server Security Level 3 FMID.

<i>Figure 8. Elements in FMIDSET Wave 1AL</i>		
Element	FMID(s)	Level
BCP	JBB779C (Simplified Chinese) JBB779J (Japanese) JUN779J (Unicode JPN)	z/OS V2.1.0
Communications Server	JIP621K (Security Level 3)	z/OS V2.1.0
Note: FMID JIP621K is export restricted.		
Cryptographic Services	JCPT41J (System SSL Japanese)	z/OS V2.1.0
IBM Tivoli Directory Server (IBM TDS)	JRSL41J (Japanese)	z/OS V2.1.0
Integrated Security Services	JSWK41J (Japanese)	z/OS V2.1.0
ISPF	JIF7N11 (Swiss German) JIF7N14 (Japanese) JIF7N15 (German) JIF7N16 (Upper Case English)	z/OS V2.1.0
Language Environment	JLE779J (Japanese)	z/OS V2.1.0

6.5.3.4 Elements in Wave 1B

FMIDSET Wave 1B, summarized in Figure 9, includes FMIDs of DFSMS, HCD, IOCP, and z/OS UNIX System Services.

<i>Figure 9. Elements in FMIDSET Wave 1B</i>		
Element	FMID(s)	Level
DFSMS	HDZ2210 JDZ221K (Japanese)	z/OS V2.1.0
HCD	HCS7790 (Base and English) JCS779J (Japanese)	z/OS V2.1.0
BCP	HIO1104 (IOCP)	MVS V3
Note: The REWORK date for IOCP was changed in MVS/ESA SP 5.2.2 (to 1995093) to modify the COPYRIGHT statement. Because the code is exactly the same, it should not be reinstalled if you already have HIO1104 installed.		
z/OS UNIX System Services	HOT7790 (Application Services) JOT779C (Chinese) JOT779J (Japanese)	z/OS V2.1.0

6.5.3.5 Elements in Wave 1C

Figure 10 on page 41 summarizes FMIDSET Wave 1C, which contains the following elements: BookManager/Build, BookManager READ, EREP, ESCON, FFST, GDDM, ICKDSF, MICR/OCR, 3270 PC File Transfer Program, and TSO/E.

<i>Figure 10 (Page 1 of 2). Elements in FMIDSET Wave 1C</i>		
Element	FMID(s)	Level
BookManager/Build	HBKP300 JBKP310 (English) JBKP311 (French) JBKP312 (German) JBKP313 (Spanish) JBKP314 (Brazilian Portuguese) JBKP315 (Canadian French)	OS/390 R1
BookManager READ	HBKM300 JBKM310 (English) JBKM311 (Dutch) JBKM312 (French) JBKM313 (German) JBKM314 (Spanish) JBKM315 (Italian) JBKM316 (Brazilian Portuguese) JBKM317 (Canadian French) JBKM318 (Danish)	OS/390 R1 (V1R3)
EREP	EER3500	V3R5
ESCON Director	HSWF100	MVS/ESA V5
FFST	HFST101	OS/390 R2 (V1R2)
GDDM	HGD3200 JGD3219 (English) JGD3220 (Brazilian) JGD3221 (Simplified Chinese) JGD3222 (Danish) JGD3223 (French) JGD3224 (German) JGD3225 (Korean) JGD3226 (Italian) JGD3227 (Japanese) JGD3228 (Norwegian) JGD3229 (Canadian French) JGD3230 (Spanish) JGD3231 (Taiwan Chinese) JGD3232 (Swedish)	OS/390 R2 (V3R2)
GDDM-PGF	HGD3201	OS/390 R2 (V2R1.3)

Figure 10 (Page 2 of 2). Elements in FMIDSET Wave 1C

Element	FMID(s)	Level
ICKDSF (V1R17)	EDU1H01 FDU1H07 (ISMF Base) FDU1H08 (ISMF English Panels) FDU1H09 (ISMF Japanese Panels)	z990 Compatibility Support
MICR/OCR	EMI2220	MVS/XA level
TSO/E	HTE7790 JTE779G (German) JTE779C (Simplified Chinese) JTE779E (Information Center Facility and English) JTE779J (Japanese)	z/OS V2.1.0
Note: The English feature of TSO/E is required if you install a language feature.		
3270 PC File Transfer Program	HFX1112	OS/390 R2 (V1R1.1)

6.5.3.6 Elements in Wave 1D

Figure 11 summarizes FMIDSET Wave 1D, which contains the following elements: Cryptographic Services, Integrated Security Services, Security Server (RACF), Alternate Library for REXX, and z/OS Security Level 3.

Figure 11. Elements in FMIDSET Wave 1D

Element	FMID(s)	Level
Cryptographic Services	HCRY740 (Open Cryptographic Services Facility Base) HKY7790 (PKI Services)	z/OS V1.9.0 z/OS V2.1.0
Integrated Security Services	HRO7740 (Open Cryptographic Enhanced Plug-ins) HIT7750 (Enterprise Identity Mapping)	z/OS V1.9.0 z/OS V1.10.0
Security Server (RACF)	HRF7790 JRF779J (Japanese)	z/OS V2.1.0
Alternate Library for REXX	HWJ9143 JWJ9144 (Japanese)	z/OS V1.9.0
z/OS Security Level 3	JCRY741 (OCSF Security Level 3) JCPT411 (System SSL Security Level 3) JSWK411 (Network Authentication Service Security Level 3) JRSL411 (IBM TDS Security Level 3)	z/OS V1.9.0 z/OS V2.1.0 z/OS V2.1.0 z/OS V2.1.0
Note: FMIDs JCRY741, JCPT411, JSWK411, and JRSL411 are export restricted.		

6.5.3.7 Elements in Wave 1E

As Figure 12 shows, FMIDSET Wave 1E contains BCP - Capacity Provisioning, XL C/C++, Common Information Model (CIM), Runtime Library Extensions, and RMF.

Figure 12. Elements in FMIDSET Wave 1E

Element	FMID(s)	Level
BCP - Capacity Provisioning	HPV7790	z/OS V2.1.0
XL C/C++	H24P111 (Host Performance Analyzer) J24P112 (Japanese Messages) HLB7790 (XL C/C++ Base) JLB779J (XL C/C++ Japanese)	OS/390 2.4 z/OS V2.1.0
Common Information Model (CIM)	HPG7790	z/OS V2.1.0
RMF	HRM7790 JRM779J (Japanese)	z/OS V2.1.0
Runtime Library Extensions	HTV7790 JTV779J (Japanese)	z/OS V2.1.0

6.5.3.8 Elements in Wave 1F

FMIDSET Wave 1F contains BDT, DFSORT, HCM, HLASM Toolkit, OSA/SF, and SMP/E Planning and Migration Assistant. Figure 13 summarizes the contents of this wave.

Figure 13. Elements in FMIDSET Wave 1F

Element	FMID(s)	Level
BDT	HBD6602 JBD6201 (File to File) JBD6202 (SNA NJE)	OS/390 R2
DFSORT	HSM1L00	z/OS V2.1.0
HCM	HCM1E10	z/OS V2.1.0
HLASM Toolkit	JMQ416A	z/OS V1.10.0 (V1.6)
OSA/SF	H0GI400	z990 Compatibility Support
Note: As of z/OS V1.5.0, OSA/SF is an exclusive element.		
SMP/E	HBCND0B (Planning and Migration Assistant) JBCND1B (Japanese) HBCNC00 (Software Information Base)	z/OS V1.2.0 OS/390 R7

6.5.3.9 Elements in Wave 1G

As Figure 14 shows, FMIDSET Wave 1G contains Distributed File Service, which includes zFS, and IBM HTTP Server, Inprint Server, Library Server, Network File System, and z/OS Font Collection.

Figure 14. Elements in FMIDSET Wave 1G

Element	FMID(s)	Level
Distributed File Service	H0H2410 J0H241J (Japanese)	z/OS V2.1.0
z/OS File System	HZFS410 JZFS41J (Japanese)	z/OS V2.1.0
<p>Note: If you install z/OS V2.1.0 on a z/OS V1.12.0 or later target system, you must install the Distributed File Service element (H0H2410, HZFS410, and, optionally J0H241J and JZFS41J) in the same SMP/E installation step. Failure to do so might result in the "NOT SEL" messages in the SMP/E output from the zFS element; this can result in improper installation of the zFS element.</p>		
IBM HTTP Server	HIMW530 JIMW53B (Japanese) JIMW531 (NA Secure)	OS/390 R10
Infoprint Server	HOP1790 (Print Interface Base) JOP179J (Japanese) HNET790 (NetSpool Base) JNET79J (Japanese) HMOS705 (IP PrintWay Base) JMOS7J5 (Japanese)	z/OS V2.1.0 z/OS V1R2
Library Server	HBKQ400	z/OS V2.1.0
Network File System	HDZ221N JDZ221J (Japanese)	z/OS V2.1.0
z/OS Font Collection	HFNT110 HFNT11J (Chinese, Japanese, Korean)	z/OS V2.1.0

6.5.3.10 Elements in Wave 2

Wave 2 contains the JES and SDSF elements, which are listed in Figure 15.

Figure 15 (Page 1 of 2). Elements in FMIDSET Wave 2

Element	FMID(s)	Level
JES2	HJE7790 JJE779J (Japanese)	z/OS V2.1.0
JES3	HJS7790	z/OS V2.1.0

Figure 15 (Page 2 of 2). Elements in FMIDSET Wave 2

Element	FMID(s)	Level
SDSF	HQX7790 JQX779J (Japanese) JJE779S (JES2 Support)	z/OS V2.1.0
Note: <ol style="list-style-type: none">1. To assemble SDSF, JES2 is required.2. If you are installing z/OS V2.1.0 on a z/OS V1.12.0 or higher target system, be sure to install the SDSF element and the JES2 element in the same SMP/E installation step because z/OS V2.1.0 SDSF only assembles with z/OS V2.1.0 JES2.3. Starting from z/OS V1.10.0, the SDSF element can be used with either the JES2 or JES3 element. For releases earlier than z/OS V1.10.0, the SDSF element can only be used with the JES2 element.		

6.6 Step 5: Review Library Restructure/Renaming Notes

Some elements have restructured the libraries in previous releases. You should determine if these restructures will affect your environment. Refer to *z/OS Migration* for a list of all the deleted data sets and paths, and new data sets and paths. Refer to this book for information on what libraries and paths are changed for a particular z/OS release.

If you are installing an element, and at least one of the following is true:

- The middle-level qualifier of the data sets has been removed.
- You wish to change the high-level qualifier of an existing library.
- The RECFM of a data set has changed.

IBM recommends that you do the following:

1. Perform the dummy function delete of the element.
2. Delete the old libraries.
3. Allocate new libraries using the sample jobs provided.
4. Update the DDDEFs using the sample jobs provided.
5. Follow the rest of the instructions in the appropriate installation chapters.

6.7 Step 6: Review general installation notes

This section describes the general information and messages that you receive during APPLY CHECK, APPLY, ACCEPT CHECK, and ACCEPT processing of the z/OS Version 2 Release 1 elements.

For the DDDEF sample jobs being provided, if the DDDEFs have never been defined, you can use either the REP or ADD parameter. The REP parameter replaces the CSI entry if it exists or adds it if it does not

exist. If, however, the DDDEFs have already been defined and need to be replaced, you must use the REP parameter. If you use the ADD parameter to attempt to replace an existing entry, the job will fail.

If the target and distribution data sets that correspond to the DDDEFs will be cataloged, the UNIT and VOLUME parameters can be deleted from the DDDEF sample jobs.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, the following should **not** be bypassed on the APPLY and ACCEPT CHECK: ID, IFREQ, PRE, and REQ. This is because the SMP/E root cause analysis only identifies the cause of **ERRORS** and not **WARNINGS**.

Enhanced HOLDDATA introduced ERROR HOLDS against FMIDs for HIPER APARS. Prior to installing, you should ensure you have the latest Enhanced HOLDDATA, which is available at the following URL:

<http://www-947.ibm.com/systems/support/z/zos/>

The FMID(s) should be installed regardless of the status of unresolved HIPERs; however, the software should not be deployed until the unresolved HIPERs have been analyzed to determine applicability.

There are two methods to complete an FMID installation where ++HOLDS for HIPERs exist for the FMID(s) being installed:

1. To ensure that all critical service is installed with the FMID(s), add the SOURCEIDs of PRP, and HIPER to the APPLY command. There maybe PE or HIPER APARS that do not have resolving PTFs available yet. You need to analyze the symptom flags to determine if you want to BYPASS the specific ERROR HOLDS and continue the FMID installation.

This method requires more initial research, but will provide resolution for all HIPERs that have fixes available and are not in a PE chain. There may still be unresolved PEs or HIPERs which will require the use of BYPASS.

2. To install the FMID(s) as it would have been installed prior to Enhanced HOLDDATA, you can add a BYPASS(HOLDCLASS(HIPER)) operand to the APPLY command. This will allow the FMID to be installed even though there are HIPER ERROR HOLDS against it. Note that not all ERROR HOLDS were bypassed; only the HIPER ERROR HOLDS. After the FMID(s) are installed, the SMP/E REPORT ERRSYSMODS command should be run to identify any missing HIPER maintenance.

The sample APPLY jobs shown throughout this program directory include BYPASS(HOLDCLASS(HIPER)) on the APPLY command to bypass the HIPER ERROR HOLDS.

This method is the quicker of the two, but requires subsequent review of the REPORT ERRSYSMODS to investigate any HIPERs.

If you bypass any HOLDS during the installation of the FMID(s) because fixing PTFs were not yet available you can use the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink to be notified when the fixing PTF is available.

GROUPEXTEND indicates that all requisite SYSMODs are to be applied and accepted. The requisite SYSMODs may be applicable to other functions. In the SMP/E examples throughout this program directory, GROUPEXTEND will not include APARS or USERMODS. If you want it to, then remove the keywords NOAPARS and NOUSERMODS.

During an APPLY/ACCEPT CHECK and APPLY/ACCEPT, SMP/E Element Status can appear as APPLIED/ACCEPTED or NOT SEL in the 'Element Summary Report'.

- When Element Status indicates APPLIED/ACCEPTED with NOT SEL, the NOT SEL status can be ignored.
- Any Element Status showing ONLY a NOT SEL should be investigated.
- **Notes on APPLY CHECK and APPLY processing**

If USERMODs are regressed, you will see the following message, which is acceptable:

```
GIM44502W CHANGES FOR THE FOLLOWING USERMODS WILL BE LOST  
BECAUSE THE ASSOCIATED FUNCTION SYSMOD HAS BEEN DELETED
```

Depending on what your USERMOD does during APPLY CHECK processing, you may want to SMP/E RESTORE your USERMODs before installing the function sysmod and then APPLY them afterwards, or perform an SMP/E APPLY concurrently with the function sysmod.

If the optional dummy function delete was not performed, normal SMP/E APPLY processing of the z/OS V2.1.0 FMIDs will delete the previous releases. However, the total installation time will be decreased if you run the optional dummy delete job. If you do not run the dummy delete job, then several load modules will be link-edited multiple times. The first link-edit will remove the previous release and can produce the following program binder messages, which can be ignored:

```
IEW2230S IEW2454W IEW2470E IEW2471E IEW2480W IEW2612E  
IEW2648E IEW2650I IEW2677S
```

For those elements using SMP/E CALLLIBs, warning messages are issued when the load modules are link-edited. For example, the following warning messages are acceptable:

```
IEW2454W SYMBOL xxxxxxxx UNRESOLVED. NO AUTOCALL(NCAL) SPECIFIED.
```

```
IEW2480W EXTERNAL SYMBOL xxxxxxxx OF TYPE LD WAS ALREADY DEFINED  
AS A SYMBOL OF TYPE LD IN SECTION csectname.
```

```
IEW2482W THE ORIGINAL DEFINITION WAS IN A MODULE IDENTIFIED BY  
DDNAME SMPnnnnn. THE DUPLICATE DEFINITION IS IN SECTION xxxxxxxx  
IN A MODULE IDENTIFIED BY DDNAME SMPnnnnn.
```

```
IEW2609W 5104 SECTION xxxxxxxx USABILITY ATTRIBUTE OF  
NON-REUSABLE CONFLICTS WITH REQUESTED USABILITY OF REENTRANT.
```

During APPLY CHECK and APPLY processing, the following message may be issued if BYPASS was specified (*aaaaaaa* is the sysmod ID). This message, and the resulting return code of 4, is acceptable.

```
GIM42001W THE FOLLOWING CONDITIONS FOR SYSMOD aaaaaaa  
WERE NOT SATISFIED, BUT WERE IGNORED BECAUSE THE BYPASS  
OPERAND WAS SPECIFIED. PROCESSING CONTINUES.
```

Note: You must investigate and resolve any “requisites” or “holds” that were not satisfied before continuing with the install.

During APPLY CHECK and APPLY processing for some elements, such as BCP, message GIM69138W will appear in the SMP/E output when a load module does not exist in a library and the install logic of an FMID contains a ++DELETE statement for a load module:

```
GIM69138W LMOD xxxxxxxx WAS NOT DELETED FROM LIBRARY yyyyyy BY
SYSMOD sssssss BECAUSE xxxxxxxx DOES NOT EXIST IN LIBRARY yyyyyy.
```

In the preceding message, xxxxxxxx is the load module name, yyyyyy is the library name, and sssssss is the SYSMOD name.

- **Notes on ACCEPT CHECK and ACCEPT processing**

IBM recommends that you set the ACCJCLIN indicator in the DLIB zone. This causes all inline JCLIN to be saved in the distribution zone at ACCEPT time. For more information about the ACCJCLIN indicator, see the description of inline JCLIN in the ACCEPT command in *SMP/E for z/OS Commands*.

Any requisite service identified by the ACCEPT CHECK should be RECEIVED and APPLIED before the next step.

During SMP/E ACCEPT processing, load modules are installed into the distribution libraries. During the link-edits into these distribution libraries, message IEW0461 or IEW2454W may be issued several times. These messages are acceptable because the distribution libraries are not executable and the unresolved external references will not affect the executable system libraries.

During ACCEPT CHECK and ACCEPT processing, the following message may be issued if BYPASS was specified (aaaaaaa is the sysmod ID). This message, and the resulting return code of 4, is acceptable.

```
GIM42001W THE FOLLOWING CONDITIONS FOR SYSMOD aaaaaaa
WERE NOT SATISFIED, BUT WERE IGNORED BECAUSE THE BYPASS
OPERAND WAS SPECIFIED. PROCESSING CONTINUES.
```

Note: You must investigate and resolve any “requisites” or “holds” that were not satisfied before continuing with the install.

- REPORT CALLLIBs is not required to be run after the installation is finished. Because the CALLable services are upwardly compatible, there is no need to re-link.
- The sample jobs are shown using REGION=0M. A region value equal to 0K or 0M gives the job all the storage available below and above 16 megabytes. Be aware that this can affect the performance of other jobs running in the system. If you do not choose to run with a region size of 0M, refer to *SMP/E for z/OS Reference* for more information on how to determine region sizes.
- TIME=NOLIMIT is specified on the samples because the jobs take a long time to execute.

6.7.1 SMP/E CALLLIBs processing

z/OS V2.1.0 uses the CALLLIBS function that is provided in SMP/E to resolve external references during installation. Before z/OS V2.1.0 is installed, ensure that DDDEFs exist for the following libraries:

```
SYS1.CSSLIB
CEE.SCEELKED
CEE.SCEESPC
CICS.SDFHLOAD
CSF.SCSFMOD1
```

EUVF.SEUVFLIB
CEE.SCEELKEX
CEE.SCEECPP
TCPIP.SEZACMTX
CEE.SCEE OBJ
CEE.SCEEBND2
SYS1.SFOMOBJ
CEE.SCEELIB

6.7.1.1 Use the FIXCAT HOLDDATA by running the UPGRADE command

Starting from z/OS V1.10.0., FIXCAT, a new type of HOLDDATA, is included in the CBPDO. The FIXCAT HOLDDATA can be used by SMP/E to associate PTFs with specific categories of fixes and to assign SOURCEIDs to the PTFs that can be used for selection. These categories and SOURCEIDs, which are further described in the sample jobs in this Program Directory, can be used during the APPLY and ACCEPT steps for Wave 0, 1 and 2 FMIDs.

To use these fix categories, run the SMP/E UPGRADE command for the global zone to enable SMP/E to receive the FIXCAT ++HOLD statements if the UPGRADE command was not previously run.

Because z/OS V1.12.0 or z/OS V1.13.0 is the driving system and these releases include SMP/E V3.5 and higher level of SMP/E, the UPGRADE command should have been run previously, therefore, you do not need to run the UPGRADE command again.

When SMP/E V3.5 in z/OS V1R10 or later receives the FIXCAT ++HOLD statements, it makes changes to the SMPCSI data set in the global zone that are incompatible with prior SMP/E releases. With the UPGRADE command, you can make the trade-off between fully using the new SMP/E functions and preserving the compatibility of your SMPCSI data set with prior SMP/E releases. SMP/E will not receive the FIXCAT ++HOLD statements and make incompatible changes to the global zone until you run the UPGRADE command. By running the UPGRADE command for a particular zone, you authorize SMP/E to receive the FIXCAT ++HOLD statements and to make incompatible changes to that zone. See Figure 16 for an example of the UPGRADE command.

```
//UPGJOB JOB <job parameter>  
//STEP1 EXEC PGM=GIMSMP  
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR  
//SMPCNTL DD *  
    SET BOUNDARY(GLOBAL).  
    UPGRADE.  
/*
```

Figure 16. An Example of the UPGRADE Command

7.0 Installation instructions for Wave 0 FMIDs

This chapter describes how to install the Wave 0 elements in z/OS V2.1.0.

- For instructions on installing all of the FMIDs in Wave 1, including the FMIDs that are installed into the file system, see 8.0, “Installation instructions for Wave 1 and Wave 2 FMIDs” on page 71.
- For instructions about installing JES2, JES3, and SDSF, see 8.0, “Installation instructions for Wave 1 and Wave 2 FMIDs” on page 71.

z/OS is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. For details on SMP/E, refer to the appropriate SMP/E books.

Note: This chapter uses sample JCL to illustrate installation steps. You can also use the SMP/E dialogs instead of JCL.

The following steps are required to install the Wave 0 FMIDs. Instructions for each step are provided on the indicated pages.

<i>Figure 17. Checklist for Wave 0 Installation</i>			
Check Box	Activity	Section, Step Description	Your Notes
<input type="checkbox"/>	RECEIVE	7.1, “Step 1: RECEIVE the Wave 0 elements” on page 52	
<input type="checkbox"/>	Prepare	7.2, “Step 2: Prepare to install Wave 0” on page 54	
<input type="checkbox"/>	Run Optional Delete Jobs	7.2.1, “Run optional delete jobs for Wave 0 elements” on page 54	
<input type="checkbox"/>	Allocate Libraries	7.2.2, “Allocate Target and Distribution Libraries for Wave 0 elements” on page 56	
<input type="checkbox"/>	HFS or zFS Directories	7.2.3, “Create File System Directories for Wave 0” on page 57	
<input type="checkbox"/>	Define DDDEFs	7.2.4, “Define DDDEFs for Wave 0 elements” on page 57	
<input type="checkbox"/>	APPLYs	7.3, “Step 3: APPLY Wave 0” on page 58	
		7.3.1, “Create a cross-zone set” on page 58	
		7.3.2.1, “Do an SMP/E APPLY CHECK for Wave 0 FMIDs and service” on page 61	
		7.3.2.2, “Do an SMP/E APPLY for Wave 0 FMIDs and service” on page 62	
<input type="checkbox"/>	Customize Wave 0	7.4, “Step 4: Wave 0 customization” on page 64	

7.1 Step 1: RECEIVE the Wave 0 elements

You must use the current level of SMP/E, which is included with z/OS V2.1.0 to install z/OS V2.1.0 Wave 1 and Wave 2 elements. Therefore, you must receive the Wave 0 FMIDs by only using the SELECT and FORFMID operands to limit SMP/E processing at this time. After you install the Wave 0 FMIDs, you can use SMP/E to update the Global zone to improve RECEIVE processing (see note 5 on page 69) and receive the FMIDs and service for the rest of z/OS elements (see 8.1.5, “RECEIVE the rest of the CBPDO” on page 83). See *SMP/E for z/OS Commands* for more information about the changes to SMP/E RECEIVE processing.

7.1.1 RECEIVE Wave 0 FMIDs and service

Select which z/OS Version 2 Release 1 Wave 0 FMIDs to RECEIVE by removing the FMIDs that have previously been RECEIVED or that have not been ordered from the sample RECEIVE job shown in Figure 18 on page 53.

Required Updates

1. Update the *job parameters*.
2. Replace the CSI name on the SMPCSI DD statement with your CSI name.
3. Replace vvvvvv on the SMPPTFIN and SMPHOLD DD statement with the correct VOLSER.

```

//RECWAVE0 JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPPTFIN DD DSN=SMPMCS,
//          UNIT=(TAPE,,DEFER),
//          VOL=SER=vvvvvvv,
//          LABEL=(5,SL),
//          DISP=(SHR,KEEP)
//SMPHOLD DD DSN=HOLDDATA,
//          UNIT=(TAPE,,DEFER),
//          VOL=SER=vvvvvvv,
//          LABEL=(3,SL),
//          DISP=(SHR,KEEP)
//SMPCTL DD *
SET BOUNDARY(GLOBAL).
RECEIVE SELECT (
    HMP1J00, /* see NOTE 1 below */
    JMP1J11, /* see NOTE 2 below */
    HMQ4160, /* see NOTE 1 below */
    HPM7790 /* see NOTE 1 below */
)
SYSMODS
HOLDDATA
FORFMID (
    HMP1J00,
    JMP1J11, /* see NOTE 2 below */
    HMQ4160,
    HPM7790
).

/*

```

Figure 18. SMP/E RECEIVE (All Wave 0 FMIDs and Service for z/OS)

Notes:

1. If High Level Assembler (HLASM), SMP/E, or Program Management Binder has been previously installed, remove FMID HMQ4160, HMP1J00, or HPM7790 from the SELECT parameter.
2. If the Japanese feature is not ordered, remove FMID JMP1J11 from the SELECT and FORFMID parameters.

Successful receive processing returns a condition code of 0.

7.2 Step 2: Prepare to install Wave 0

This step describes the preparation work required before doing the APPLY of Wave 0.

Required Planning Tasks Check List

- Before installing Wave 0, complete the planning tasks for choosing the software installation method - using CBPDO, preparing the driving system for CBPDO, and preparing the target system which are described in *z/OS Planning for Installation*.
- Clone your system, as described in 6.1, “Overview for the clone of your system” on page 33.
- Check the PSP buckets, as described in 3.2, “Preventive Service Planning (PSP)” on page 17.
- Ensure that your system meets the requirements for hardware, software, and coexistence considerations described in *z/OS Planning for Installation*.
- Install the required driving system software listed in *z/OS Planning for Installation* for Wave 0. If you do not have a system that meets these requirements, do one of the following:
 - Consider using a ServerPac.
 - Consider using a SystemPac.
 - Upgrade your existing system.
 - Obtain a Customized Offerings Driver (5751-COD).

To install Wave 0, you must install from a user ID that has a UID of 0 or has read access to the BPX.SUPERUSER resource in the RACF FACILITY class. This user ID must have read access to FACILITY class resources BPX.FILEATTR.APF, BPX.FILEATTR.PROGCTL, and BPX.FILEATTR.SHARELIB. Alternatively, you could use a generic profile for these resources, such as BPX.FILEATTR.*.

7.2.1 Run optional delete jobs for Wave 0 elements

Before installing Wave 0 elements, you may consider dummy function deleting prior levels of elements to decrease installation runtime. You can create a dummy function delete job by using the sample job shown in Figure 19 on page 55 to delete the elements. To run this job, you must make the following updates to the sample:

1. Update the *job parameters*.
2. Change `zosv2r1.global.csi` name to your CSI name on the SMPCSI DD statement.
3. Change `#fmid1` to the prior level of the element's base FMID.
4. Change `#fmid2` to the prior level of the element's feature FMID. If there is no feature FMID for the element, then remove `#fmid2`. If there is more than one feature FMID, then you will have to add the additional FMIDs to this list.
5. Change `#tzone` to your TARGET ZONE name.
6. Change `#dzone` to your DLIB ZONE name.


```

//DELETE JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//SMPCSI DD DISP=SHR,DSN=zosv2r1.global.csi
//SMPHOLD DD DUMMY
//SMPCNTL DD *
  SET BDY(GLOBAL) OPTIONS(ZOSOPT).
  RECEIVE S(DM0FMID).
/*
//SMPPTFIN DD *
++FUNCTION (DM0FMID) REWORK(2011091).
++VER(Z038)
  DELETE(#fmid1,#fmid2).
/*
//STEP2 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT,COND=(4,LT)
//SMPCSI DD DISP=SHR,DSN=zosv2r1.global.csi
//SMPCNTL DD *
  SET BDY(#tzone) OPTIONS(ZOSOPT).
  APPLY S(DM0FMID) REDO.
/*
//STEP3 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT,COND=(4,LT)
//SMPCSI DD DISP=SHR,DSN=zosv2r1.global.csi
//SMPCNTL DD *
  SET BDY(#dzone) OPTIONS(ZOSOPT).
  ACCEPT S(DM0FMID) REDO.
/*
//STEP4 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT,COND=(4,LT)
//SMPCSI DD DISP=SHR,DSN=zosv2r1.global.csi
//SMPCNTL DD *
  SET BDY(#tzone) .
  UCLIN .
  DEL SYSMOD(#fmid1) .
  DEL SYSMOD(#fmid2) .
  DEL SYSMOD(DM0FMID) .
  ENDUCL .
  SET BDY(#dzone) .
  UCLIN .
  DEL SYSMOD(#fmid1) .
  DEL SYSMOD(#fmid2) .
  DEL SYSMOD(DM0FMID) .
  ENDUCL .
  SET BDY(GLOBAL).
  REJECT HOLDDATA NOFMID      /* Reject SYSMODs, HOLDDATA */
  DELETEDFMID                /* for the deleted functions.*/
  (DM0FMID #fmid1 #fmid2).

```

Figure 19. Sample Dummy Delete Job

7.2.2 Allocate Target and Distribution Libraries for Wave 0 elements

Since it is expected that you are installing on a clone of your system, as stated in 6.1, “Overview for the clone of your system” on page 33, many data sets should already exist. Verify that your target and distribution libraries contain enough space, as described in Appendix C, “DASD Storage Requirements Tables” on page 343. Sample jobs to allocate the target and distribution libraries for some elements have been provided. See Appendix C, “DASD Storage Requirements Tables” on page 343 for information on new libraries introduced in this release.

Copy the sample jobs to a work data set and customize them if you need to perform these tasks.

The samples specify the storage requirements using average block lengths. BLKSIZE=0 indicates that system-determined block sizes are being used. For example, the sizes might look like this:

```
SPACE=(8800,(135,27,6)),
DCB=(RECFM=FB,LRECL=80,BLKSIZE=0).
```

Do not confuse the SPACE=8800 (average block length) parameter with the BLKSIZE=0 (block size) parameter. If you would like to change the block size to something other than the system-determined block size, you can change the BLKSIZE parameter. Do not change the SPACE parameter. You can either use the storage allocations that are provided, or convert them to cylinder or track allocations.

If these elements have already been installed, the JCL for the jobs needs to be modified to remove or comment out the DD statements for the pre-existing libraries, or the job will fail. For more information on modifying JCL, see *z/OS MVS JCL Reference*.

Run these jobs after the elements have been RECEIVED.

After the jobs are submitted, you should get a condition code of 0. Check the allocation/deallocation messages to be certain the data sets were allocated and cataloged properly.

Figure 20 lists the locations of the sample jobs. Be sure to read the note following the table before running the sample jobs. The following fields are represented in this table:

Job Name Indicates the name of the job that is to be run.
Job Type Indicates the type of job that is to be run.
Description Contains the element name for which the job is to be run.
RELFILE Identifies the location of the sample job.

Figure 20 (Page 1 of 2). Wave 0 Allocate Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
ASMWALOC	ALLOCATE	HLASM	'prefix.HMQ4160.F1'
GIMALLC	ALLOCATE	SMP/E	'prefix.HMP1J00.F1'

Figure 20 (Page 2 of 2). Wave 0 Allocate Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
IEWISALC	ALLOCATE	Program Management Binder	'prefix.HPM7790.F1'

Note: 'prefix' is the high-level qualifier specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.

7.2.3 Create File System Directories for Wave 0

You need to create the file system directories for Wave 0 elements before installing the Wave 0 FMIDs, if the directories do not exist. These directories are created by running the sample jobs listed in Figure 21. It is assumed that you have cloned the entire set of file system data sets, as described in 6.3, “Step 2: Cloning File System Data Sets” on page 34, and that the clone is your target system. The cloned file system data sets for the target system must be mounted to the driving system before running the sample job listed below.

The following fields are represented in this table:

Job Name	Indicates the name of the job that is to be run.
Job Type	Indicates the type of job that is to be run.
Description	Contains the element name for which the job is to be run.
RELFILE	Identifies the location of the sample job.

Figure 21. Wave 0 Define Directories Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
GIMISMKD	MKDIR	SMP/E	'prefix.HMP1J00.F1'

Note:

1. The 'prefix' is the high-level qualifier value specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.
2. Be careful when modifying the samples because path names are case sensitive.
3. After the above job is run, the expected return code is 0.

7.2.4 Define DDDEFs for Wave 0 elements

Verify that your target and distribution libraries have the DDDEF entries listed in Figure 89 on page 349 and Figure 90 on page 371 for z/OS V2.1.0. Sample jobs to define DDDEF entries for wave 0 elements have been provided.

If the DDDEF entries for the Wave 0 elements do not exist in the SMP/E CSI, copy the sample jobs to a work data set and customize them. DDDEFs must be defined in the target and distribution zones. For instructions on customizing the sample jobs see the comments in the sample jobs.

Run the jobs after the elements have been RECEIVED.

If any of the DDDEF entries already exist, you will get a non-zero condition code. Check the output to see what caused the non-zero condition code.

Figure 22 lists the locations of the sample jobs. Be sure to read the notes following the table before running the sample jobs. The following fields are represented in this table:

Job Name Contains the name of the sample job to be run.
Job Type Indicates the type of job that is to be run.
Description Contains the element name for which the job is to be run.
RELFILE Identifies the location of the sample job.

Figure 22. Wave 0 DDDEF Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
ASMWDDEF	DDDEF	HLASM	'prefix.HMQ4160.F1'
GIMDDDEF	DDDEF	SMP/E	'prefix.HMP1J00.F1'
IEWISDDD	DDDEF	Program Management Binder	'prefix.HPM7790.F1'

Note: 'prefix' is the high-level qualifier value specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.

7.3 Step 3: APPLY Wave 0

This section describes step 3 of wave 0.

7.3.1 Create a cross-zone set

There are different methods that can be used for cross-zone processing. A zone group can be defined and added to the install jobs or the XZGROUP operand can be used. XZGROUP(value) contains a list of ZONESETs or zones that are used to establish the zone group. Each value in the list must be a valid ZONESET or zone name. XZGROUP(value) would be added to the install jobs instead of adding the XZREQCHK operand to one or more ZONESETs.

In OS/390 Release 3, SMP/E introduced the operand, XZREQ, which provides a method for a user to more easily install cross-zone requisites. SMP/E identifies the cross-zone requisites needed in the set-to zone by reading CIFREQ data in the secondary zones of the zone group in effect for the current APPLY/ACCEPT commands. Any CIFREQ data that is for FMIDs installed or being installed in the set-to zone that are not yet in the set-to zone causes the required SYSMODs to become candidates for installation. If the FORFMID operand is also used, the FMID specified on the CIFREQ must match one of the FMIDs specified on the FORFMID operand for the SYSMOD to become a candidate.

By adding the XZREQ operand, the CIFREQ SYSMODs are installed automatically into the set-to zone. However, XZREQ does not install the CIFREQs in the other cross-dependent zones. An APPLY XZREQ needs to be performed against the other zones to synchronize service.

Note: If SYSMODs being installed into the set-to zone have requirements against the other cross-zones, that service must be APPLY'd to those zones before installation can be completed into the set-to zone.

For more information on this operand, refer to *SMP/E for z/OS Commands*. See Figure 23 on page 60 for an example of how to set up the ZONEINDEX, ZONESET, and XZREQCHK for use during the APPLY/ACCEPT; see Figure 33 on page 107 for an example of the APPLY using the XZREQ operand.

Required Updates

1. Update the *job parameters*.
2. Replace the CSI name on the SMPCSI DD statement with your CSI name.
3. Update cross dependency zones and CSI names.

Successful processing returns a condition code of 0.

```

//ZINDEX  JOB (job parameters)
//SMPE    EXEC PGM=GIMSMP
//SYSPRINT DD SYSOUT=*
//SMPCSI  DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BDY(GLOBAL) .
  UCLIN .
  ADD GLOBALZONE ZONEINDEX(
    (jes2tgt,jes2.target.csi,TARGET)
    (jes3tgt,jes3.target.csi,TARGET)
    (pptgt,pgmprod.target.csi,TARGET)
    (db2tgt,db2.target.csi,TARGET)
    (imstgt,ims.target.csi,TARGET)
    (cicstgt,cics.target.csi, TARGET)
    (jes2dlb,jes2.dlib.csi,DLIB)
    (jes3dlb,jes3.dlib.csi,DLIB)
    (ppdlb,pgmprod.dlib.csi,DLIB)
    (cicsdlb,cics.dlib.csi,DLIB)
    (db2dlb,db2.dlib.csi,DLIB)
    (imsdlb,ims.dlib.csi,DLIB)) .
  ADD ZONESET(XZONE)
  ZONE(jes2tgt,
    jes3tgt,
    pptgt,
    cicstgt,
    db2tgt,
    imstgt,
    jes2dlb,
    jes3dlb,
    ppdlb,
    cicsdlb,
    db2dlb,
    imsdlib)
  XZREQCHK(YES) .
ENDUCL.
/*

```

Figure 23. Sample Job to Add XZREQCHK(YES) to a ZONESET Entry

7.3.2 Select which z/OS Version 2 Release 1 Wave 0 FMIDs to install

Select which z/OS Version 2 Release 1 Wave 0 FMIDs to install by removing the FMIDs that have been previously installed or that have not been ordered from the sample APPLY CHECK job shown in Figure 24 on page 61.

7.3.2.1 Do an SMP/E APPLY CHECK for Wave 0 FMIDs and service

Run an APPLY CHECK to identify any requisite service and additional holds (for example, HOLDSYS(DOC)) that may need to be resolved before APPLY processing. Resolve any holds and RECEIVE any requisite service identified by the APPLY CHECK before proceeding to the next step.

See Figure 24 on page 61 for a sample APPLY CHECK of all FMIDs and service for Wave 0.

```
//CHECK JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(targetzone) .
  APPLY CHECK XZREQ
    FORFMID(HMP1J00,
            JMP1J11,          /* see Note 2 below */
            HMQ4160,
            HPM7790)
    SELECT(HMP1J00,
           JMP1J11,          /* see Note 2 below */
           HMQ4160,          /* see Note 1 below */
           HPM7790)
    GROUPEXTEND(NOAPARS,NOUSERMODS)
    SOURCEID(ZOSV2R1,RSU*)   /* See Note 4 below */
    FIXCAT(IBM.ProductInstall-RequiredService)
                                /* See Note 4 below */
    BYPASS(HOLDSYSTEM,
           HOLDUSER,HOLDCLASS(UCLREL,ERREL,HIPER)) .
/*
```

Figure 24. SMP/E APPLY CHECK (All Wave 0 FMIDs and Service for z/OS Version 2 Release 1)

Notes:

1. If High Level Assembler (HLASM) was previously installed, remove FMID HMQ4160 from the SELECT parameter.
2. If the Japanese feature is not ordered, remove FMID JMP1J11 from the SELECT and FORFMID parameters.
3. HLASM Toolkit is included in Wave 1 elements in this program directory. If you plan to use HLASM Toolkit before you do the APPLY for Wave 1 FMIDs, install FMID JMQ416A during Wave 0 by adding FMID JMQ416A to the FORFMID and SELECT operands in the APPLY CHECK job for Wave 0 FMIDs. To install FMID JMQ416A during Wave 0, you must also run the SMP/E RECEIVE command against FMID JMQ416A before running the APPLY CHECK job for Wave 0 FMIDs.
4. If you are not running SMP/E V3.5 or higher, or did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the APPLY. Therefore, you must add the HIPER value to the SOURCEID operand, such as:
SOURCEID(ZOSV2R1,RSU*,HIPER).

Required Updates

1. Update the *job parameters*.
2. Replace the CSI name on the SMPCSI DD statement with your CSI name.
3. Update *targetzone* to your target zone name.
4. The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON THE APPLY  
COMMAND BUT SINCE NO ZONES WERE APPLICABLE FOR CROSS-ZONE  
REQUISITE CHECKING, THE XZREQ OPERAND WILL BE IGNORED.
```

```
GIM20501I APPLY PROCESSING IS COMPLETE. THE HIGHEST RETURN  
CODE WAS 04.
```

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDS before putting your system into production.

If you do not BYPASS(HOLDCLASS(HIPER)), the FMIDs may not be installed if any of the HIPER maintenance is unavailable.

Any messages other than those stated in 6.7, "Step 6: Review general installation notes" on page 45, and in the following section, need to be investigated.

Successful APPLY CHECK processing returns a condition code of 0 or 4.

7.3.2.1.1 Messages expected during Binder APPLY CHECK: During the APPLY CHECK of the Binder, the following messages may be received and are acceptable if they are the only reasons for the condition code 4.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD  
HPM7790 BECAUSE IT IS NOT IN THE target ZONE.
```

In the message text, xxxxxxxx will be one of the following LMODs:

```
AKJLKL01 AMBLIST HEWLD HEWLKED IEWBFDAT IEWBIND  
IEWBLINK IEWBXEP IEWTPORT
```

7.3.2.2 Do an SMP/E APPLY for Wave 0 FMIDs and service

Be certain that all the exception conditions have been satisfied before adding a BYPASS(HOLDSYSTEM) during the SMP/E APPLY step. See Figure 25 on page 63 for a sample APPLY of all FMIDs and service for Wave 0.


```

//APPLY JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(targetzone).
  APPLY XZREQ
    FORFMID(HMP1J00,
             JMP1J11,          /* see NOTE 2 below */
             HMQ4160,
             HPM7790)
    SELECT(HMP1J00,          /* see NOTE 2 below */
           JMP1J11,
           HMQ4160,          /* see NOTE 1 below */
           HPM7790)
  GROUPEXTEND(NOAPARS,NOUSERMODS)
  SOURCEID(ZOSV2R1,RSU*)
  FIXCAT(IBM.ProductInstall-RequiredService)
  BYPASS(HOLDSYSTEM,
         HOLDUSER,HOLDCLASS(UCLREL,ERREL,HIPER)) .
/*

```

Figure 25. SMP/E APPLY (All Wave 0 FMIDs and Service for z/OS Version 2 Release 1)

Required Updates

1. Update the *job parameters*.
2. Replace the CSI name on the SMPCSI DD statement with your CSI name.
3. Update *targetzone* to your target zone name.
4. The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```

GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON THE APPLY
COMMAND BUT SINCE NO ZONES WERE APPLICABLE FOR CROSS-ZONE
REQUISITE CHECKING, THE XZREQ OPERAND WILL BE IGNORED.

```

```

GIM20501I APPLY PROCESSING IS COMPLETE. THE HIGHEST RETURN
CODE WAS 04.

```

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDs before putting your system into production.

If you do not BYPASS(HOLDCLASS(HIPER)), the FMIDs may not be installed if any of the HIPER maintenance is unavailable.

Notes:

1. If High Level Assembler (HLASM) was previously installed, remove FMID HMQ4160 from the SELECT parameter.
2. If SMP/E FMIDs HMP1J00 and JMP1J11 were previously installed, remove the FMIDs from the SELECT operand before running the job.
3. If the Japanese feature is not ordered, remove FMID JMP1J11 from the SELECT and FORFMID parameters.
4. HLASM Toolkit is included in Wave 1 elements in this program directory. If you plan to use HLASM Toolkit before you do the APPLY for Wave 1 FMIDs and you have included FMID JMQ416A in the APPLY CHECK job for Wave 0 FMIDs, you must add FMID JMQ416A to the FORFMID and SELECT operands in the APPLY job for Wave 0 FMIDs.

Any messages other than those stated in 6.7, “Step 6: Review general installation notes” on page 45, and in the following section, need to be investigated.

Successful APPLY processing returns a condition code of 0 or 4.

After the APPLY of Wave 0, proceed with the customization of Wave 0.

7.3.2.2.1 Additional messages expected during Wave 0 APPLY

This section describes additional messages you may receive during the Wave 0 APPLY.

7.3.2.2.1.1 Messages expected during Binder APPLY: During the APPLY of the Binder, the following messages may be received and are acceptable if they are the only reasons for the condition code 4.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD  
HPM7790 BECAUSE IT IS NOT IN THE target ZONE.
```

In the message text, xxxxxxxx will be one of the following LMODs. If these are the only cause of the condition code 4, it is acceptable.

```
AKJLKL01 AMBLIST HEWLD HEWLKED IEWBFDAT IEWBIND  
IEWBLINK IEWBXEP IEWTPORT
```

7.4 Step 4: Wave 0 customization

This step describes the actions to be performed for customizing the Wave 0 elements.

7.4.1 High Level Assembler

Refer to *HLASM Installation and Customization Guide* for more information and instructions on High Level Assembler customization.

You can customize any of the following items for High Level Assembler:

- Customize user exits.
- Change default OPTIONS and DDNAMEs.
- Place High Level Assembler into Link Pack Area.
- Create Alias to help Assembler H migration.

7.4.2 SMP/E customization

The following sections describe the steps needed to customize the installation of SMP/E.

7.4.2.1 Update SMP/E Entries

The SYSLIB concatenation for APPLY processing for the rest of z/OS Version 2 Release 1 should begin with your SMPMTS, MACLIB, and MODGEN data sets. If you have other products installed, you can include other data sets later in the SYSLIB concatenation. Refer to the following list for the complete SYSLIB concatenation in the target zone for z/OS V2.1.0.

Target zone SYSLIB concatenation

- SMPMTS
- MACLIB
- MODGEN
- SISTMAC1 (for Communications Server SNA Services)
- SEPWMAC1 (for FFST)
- SICEUSER (for DFSORT)
- SISFMAC (for SDSF)
- SASMMAC1 (for High Level Assembler)
- SASMSAM1 (for High Level Assembler)
- SCEEMAC (for Language Environment)
- SEZACMAC (for Communications Server IP Services)

You will need to add the JES libraries to your concatenation.

- For JES2 systems at the z/OS level, you should add SHASMAC.
- For JES3 systems at the z/OS level, you should add SIATMAC.

Distribution zone SYSLIB concatenation

The SYSLIB concatenation for ACCEPT processing must begin with your AMACLIB and AMODGEN data sets. If you have other products installed, you can include other data sets later in the SYSLIB concatenation. See the following list for the complete SYSLIB concatenation in the distribution zone for

z/OS V2.1.0. The AISFSRC library is no longer part of the SYSLIB concatenation in z/OS V1.9.0 and later releases.

1. AMACLIB
2. AMODGEN
3. AISTMAC1 (for Communications Server SNA Services)
4. AEPWSRC1 (for FFST)
5. AICEUSER (for DFSORT)
6. AISFMAC (for SDSF)
7. AASMMAC1 (for High Level Assembler)
8. ACEESRC1 (for Language Environment)
9. AIGZSRC1 (for Language Environment)
10. AAFHSRC1 (for Language Environment)
11. AEDCSRC6 (for Language Environment)
12. AEZAMAC1 (for Communications Server IP Services)
13. AEZAMAC2 (for Communications Server IP Services)
14. AEZAMAC3 (for Communications Server IP Services)
15. ATSOMAC

You will need to add the JES libraries to your concatenation.

- For JES2 systems at the z/OS level, you should add AHASMAC.
- For JES3 systems at the z/OS level, you should add AIATMAC.

OPTIONS and UTILITY entries

The OPTIONS and UTILITY entries in your global zone must be set correctly. Choose among the following:

- Define new entries as shown in Figure 26 on page 68.
- Update existing entries.
- Use an existing entry with the same values shown.

The following entries must be defined to SMP/E. The following values are not the default values, so ensure that they are being used. For the other utility entries, the defaults are acceptable. Verify that defaults are being used by the utilities that are not listed.

- A UTILITY entry for binder.

Make sure that the program HEWLH096 (or another entry name that invokes the binder) is specified with appropriate parameters and has a maximum acceptable condition code of 04. HEWLH096 points to the Program Management Binder.

Notes:

1. The utility entry **must** point to the binder, HEWLH096.
 2. The maximum acceptable link edit return code is 4 for z/OS V2.1.0.
 3. Do not make the RC=4 unless all products in the zone have a maximum return code of 4.
- An OPTIONS entry that identifies the UTILITY entries to be used.

Make sure that you include ASM and LKED subentries.

Figure 26 on page 68 shows a sample job adding the OPTIONS entry named ZOSOPT. ZOSOPT replaces OS390OPT, MVSXAOPT and ESAOPT, which were described in prior OS/390 and MVS releases. You should verify that this change is made in any RECOVERY, CLEANUP, or GENERAL OPTIONS entries. You can use either this job or the SMP/E administration dialog.

All sample SMP/E jobs shown in this program directory or supplied in refiles on the tapes assume that all data sets required for SMP/E processing are defined in DDDEFs in the appropriate zones. Refer to *SMP/E for z/OS Commands* for information on which data sets are required for each SMP/E command and how to define them in DDDEFs. Sample jobs are supplied to define DDDEFs for many of the target and distribution data sets for this product.

```

//OPTIONS JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//          DD DSN=ASM.SASMMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(GLOBAL) .
  UCLIN .
  ADD UTILITY(HEWLH096)
    NAME(HEWLH096)
    PARM(LET,NCAL,XREF) /* see note 1 */
    PRINT(SYSPRINT) /* see note 2 */
    RC(4) .
  ADD UTILITY(ASMA90)
    NAME(ASMA90)
    PARM(GOFF,LIST(133),DECK,NOOBJECT,OPTABLE(UNI))
    PRINT(ASMPRINT) /* See note 10 */
    RC(0) . /* See note 11 */ /* See note 3 */
  ADD UTILITY(COPY)
    NAME(IEBCOPY)
    PARM(WORK=2M) /* see note 12 */
    PRINT(SYSPRINT)
    RC(0) .
  ADD OPTIONS(ZOSOPT) /* see note 4 */
    ASM(ASMA90)
    LKED(HEWLH096)
    COPY(COPY) /* see note 13 */
    DSSPACE(6200,1500,2600)
    RECZGRP( /* see note 5 */
      jes2d1b,
      jes3d1b,
      ppd1b,
      cicsd1b,
      db2d1b,
      imsd1b)
    MSGFILTER(YES) /* see note 6 */
    MSGWIDTH(80) /* see note 7 */
    RETRYDDN(ALL) . /* see notes 8 and 9 */
  ENDUCL .
/*

```

Figure 26. Updating Entries in the Global Zone

Successful return code of this job is 0. If any of the above utilities or options already exist, then you will receive a return code of 4 which is acceptable.

Required Updates

1. Update the *job parameters*.
2. Update the v2r1vol1 with the volume serial number for the MIGLIB and SASMMOD1 libraries that are the targets of the Wave 0 installation. This will allow you to access the z/OS V2.1.0 level of the Wave 0 elements using the STEPLIB DD statements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.

Notes:

1. IBM recommends LET,NCAL,XREF parameters for the Binder, although these are not default values. When you use the binder, use the defaults and do not specify the SIZE parameter.

When the Program Management Binder stores a program object (PO) in a PDSE, the lowest program management (PM) format that will support the request is used by default. Earlier levels of the binder and program loader do not support new PM formats. For example, PO4 format program objects can only be executed or rebound on z/OS 1.3.0 or later. They can be copied on lower-level systems.

The COMPAT option should be specified if you need to ensure that a program object can be loaded and executed on a specific lower level of the operating system or if you wish to explicitly request functionality that is available only in a later program object version than the default. The COMPAT option is specified as COMPAT=MIN (the default), or COMPAT=CURRENT or COMPAT=xxx, where xxx is the PM level corresponding to the lowest level system on which the program object can be loaded or the latest PO level. For information on valid values for the Compat option, see *z/OS MVS Program Management: User's Guide and Reference* and *z/OS MVS Program Management: Advanced Facilities*.

2. To exploit the multitasking capability of SMP/E, ensure the ddname that is to contain output from the link edit utility is defined in a DDDEF entry which points to a SYSOUT class. SMP/E's default ddname for utility output is SYSPRINT, but it can be changed using the PRINT subentry of the LKED UTILITY entry.
3. z/OS V2.1.0 expects a return code of 0 for all assemblies when the default parameters are used. If you modify the parameters, you may affect the maximum return code you receive for assemblies.
4. Do not specify PEMAX, but allow SMP/E to use its default value.
5. The improved RECEIVE processing of SMP/E prevents SMP/E from receiving a PTF if that PTF has already been accepted and purged from the global zone and SMPPTS data set. To do this, you need to tell SMP/E what zones to check when determining if a PTF has already been accepted.

During RECEIVE processing, with all of the distribution zones specified in the RECEIVE Zone Group subentry, SMP/E will check each of the zones specified first before receiving a PTF. If that PTF is accepted in any of the specified zones, the PTF will not be received again. The zones may be specified in two ways:

- The RECEIVE Zone Group (RECZGRP) and RECEIVE Exclude Zone Group (RECEXZGRP) subentries in an OPTIONS entry
- Using the ZONEGROUP operand on the RECEIVE command.

The OPTIONS subentries allow you to set a policy and specify the list of zones once. This list is then used for all future RECEIVE processing whenever the OPTIONS entry is active.

6. MSGFILTER(YES) indicates the SMP/E messages written to SMPOUT should be filtered during APPLY, ACCEPT, and RESTORE processing. When SMP/E filters the messages, most non-critical informational messages are not written to SMPOUT. The result is less output to read through if you have to investigate an SMP/E operation. MSGFILTER(NO) is the default.
7. MSGWIDTH(80) will format SMP/E messages to an 80 character width. MSGWIDTH(120) is the default and will format the messages to a 120 character width.
8. You may specify RETRYDDN(ALL) to compress out-of-space libraries and to retry processing after an x37 abend. If you use this option, ensure that you are not pointing to production data sets.
9. SMP/E compacts the SYSMOD (PTF) data within the SMPPTS data set to reduce its size. COMPACT(YES) is the default. If you do not want compaction, add COMPACT(NO) to the OPTIONS entry.
10. The ASMA90 DECK and NOOBJECT options must always be specified. For JES2 modules in FMID HJE7790 to assemble correctly, options GOFF and LIST(133) are required. For SDSF modules in FMID JJE779S to assemble correctly, option OPTABLE(UNI) is required; OPTABLE(ESA) is not sufficient.
11. Because the ASMA90 option LIST(133) is specified, you must complete either one of the following steps:
 - Specify a unique output file for the assembler using the print operand "PRINT(ASMPRINT)" and create a DDDEF in your target and DLIB zones for ASMPRINT specifying SYSOUT; for example
ADD DDDEF(ASMPRINT) SYSOUT(*).
 - Or, add the following JCL DD card to the APPLY jobs:

```
//SYSPRINT DD SYSOUT=*,LRECL=133,RECFM=FBA
```
12. In the global zone options, the utility entry for IEBCOPY must have the parameter WORK=2M specified. If the parameter is not specified, the SMP/E RECEIVE step will fail for some z/OS V2.1 FMIDs.
13. COPY(COPY) indicates that SMP/E will use the utility IEBCOPY.

For more information on SMP/E customization, see *SMP/E for z/OS Reference*.

8.0 Installation instructions for Wave 1 and Wave 2 FMIDs

This chapter describes how to install the Wave 1 elements in z/OS V2.1.0, including the elements which are installed into the file system. Instructions about installing JES2, JES3, and SDSF, are included in this chapter.

In z/OS V2.1.0, the CBPDO driving system requirements are as follows:

- For the Wave 1 and Wave 2 elements installation, the driving system must be z/OS V1.12.0 or later, with z/OS UNIX active in full function mode.
- For the Wave 1 and Wave 2 elements installation, the BCP Program Management Binder, SMP/E, and the High Level Assembler from Wave 0 must be available on the driving system.
- If you plan to install z/OS V2.1.0 into zFS file systems, make sure that zFS is configured and active on the driving system.

This release of z/OS V2.1.0 is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. For details on SMP/E, refer to the appropriate SMP/E books.

Notes:

1. To complete the tasks in Wave 1, the following is required:
 - a. UID(0) or READ access to the BPX.SUPERUSER resource in the FACILITY class
 - b. READ access to the BPX.FILEATTR.APF, BPX.FILEATTR.PROGCTL, and BPX.FILEATTR.SHARELIB resources in the FACILITY class (for example by giving READ access to the BPX.FILEATTR.* generic profile in the FACILITY class).
 - c. The following user ID and group IDs need to be defined in your security database:

Group IDs: uucpg, TTY

User IDs: uucp
2. This chapter uses sample JCL to illustrate installation steps. You can copy these examples or use the SMP/E dialogs to generate the JCL and SMP/E control statements needed to complete the installation.

Figure 27 lists the required steps to install the Wave 1 and Wave 2 FMIDs. Instructions for each step are provided on the indicated sections.

<i>Figure 27 (Page 1 of 5). Checklist for Wave 1 and Wave 2 Installation</i>			
Check Box	Activity	Section, Step Description	Your Notes
<input type="checkbox"/>	Prepare	8.1, "Step 1: Prepare to install Wave 1" on page 75	
		8.1.1, "Set up User and Group IDs Required for Installation" on page 76	

Figure 27 (Page 2 of 5). Checklist for Wave 1 and Wave 2 Installation

Check Box	Activity	Section, Step Description	Your Notes
		8.1.3, "Driving system with an active root file system" on page 80	
		8.1.4, "Rename user-defined security label beginning with 'SYS' if it exists" on page 82	
<input type="checkbox"/>	Receive the rest of the CBPDO	8.1.5, "RECEIVE the rest of the CBPDO" on page 83	
<input type="checkbox"/>	Run Required and Optional Delete Jobs	8.1.6, "Run required and optional Delete Jobs" on page 83	
<input type="checkbox"/>	Allocate Libraries	8.1.7, "Allocate target and distribution libraries for Wave 1 elements" on page 87	
<input type="checkbox"/>	HFS or zFS Directories	8.1.8, "Create file system directories" on page 92	
<input type="checkbox"/>	Define DDDEFs	8.1.9, "Define DDDEFs for Wave 1 Elements" on page 95	
<input type="checkbox"/>		8.1.10.1, "Migration actions" on page 100	
<input type="checkbox"/>	APPLY	8.2, "Step 2: APPLY Wave 1" on page 101	
<input type="checkbox"/>	FMIDs to Install	8.2.1, "Select which z/OS Wave 1 FMIDs to install" on page 101	
<input type="checkbox"/>	Apply Check Wave 1	8.2.2, "Do an SMP/E APPLY CHECK for Wave 1 FMIDs and service" on page 101	
<input type="checkbox"/>	Apply Wave 1	8.2.2.9, "Do an SMP/E APPLY for Wave 1 FMIDs and Service" on page 106	
<input type="checkbox"/>	Prepare	8.3.1, " Prepare to install Wave 2" on page 121	
<input type="checkbox"/>	Run the Optional Delete Jobs	8.3.2, "Run the Optional Delete Jobs for Wave 2" on page 122	
<input type="checkbox"/>	Allocate Libraries	8.3.3, "Allocate Target and Distribution Libraries for Wave 2 Elements" on page 124	
<input type="checkbox"/>	Set up File System Directories	8.3.4, "Set up File System Directories for Wave 2" on page 124	
<input type="checkbox"/>	Define DDDEFs	8.3.5, "Define DDDEFs for Wave 2 Elements" on page 125	

Figure 27 (Page 3 of 5). Checklist for Wave 1 and Wave 2 Installation

Check Box	Activity	Section, Step Description	Your Notes
<input type="checkbox"/>	Set High Level Assembler Options	8.3.6, "Set High Level Assembler Option for SDSF" on page 126	
<input type="checkbox"/>		8.3.7, "Set High Level Assembler Option for JES2" on page 126	
<input type="checkbox"/>	Apply Check Wave 2	8.3.8.1, "Do an SMP/E APPLY CHECK for Wave 2" on page 126	
<input type="checkbox"/>	Apply Wave 2	8.3.8.2, "Do an SMP/E APPLY for Wave 2" on page 129	
<input type="checkbox"/>	Post-APPLY	8.4, "Step 4: Do Post-APPLY work for Wave 1 and wave 2" on page 131	
	CNLDEFCL CNLCOMP	8.4.1.1, "Compile MMS Data Sets" on page 132	
	EZAIMSCZ	8.4.1.2, "Run Post-APPLY for Communications Server IP Services" on page 133	
	EOYUNLD EOXUNLD	8.4.3.1, "Copy online books and dictionaries" on page 134	
	EOYPLINK EOXPLINK	8.4.3.2, "Run Post-APPLY Link-Edit for BookManager/Build and BookManager READ" on page 134	
		8.4.3.3, "Update font library with BookManager READ Fonts" on page 135	
	EPW12011	8.4.3.4, "Run Post-APPLY Link-Edit for FFST" on page 136	
	ICQPOST1 ICQPOST2	8.4.3.5, "Run Post-APPLY for TSO/E Information Center Facility (when appropriate)" on page 136	
	IKYCVSAM	8.4.4.1, "Run Cryptographic Services PKI Services job" on page 136	
	CLNCRSZ	8.4.9.1, "Run SMP/E REPORT CROSSZONE (Target Zone)" on page 138	
<input type="checkbox"/>	Customize	8.5, "Step 5: Customize Wave 1 and Wave 2" on page 138	
	DFSMSdss Actions	8.5.1.2, "Complete DFSMSdss actions" on page 138	
	IPL Text	8.5.1.3, "Write new IPL TEXT" on page 139	
	IODF	8.5.1.4, "Create and update your IODF" on page 139	

Figure 27 (Page 4 of 5). Checklist for Wave 1 and Wave 2 Installation

Check Box	Activity	Section, Step Description	Your Notes
	PARMLIB	8.5.2, "PARMLIB member considerations" on page 140	
	PROCLIB	8.5.3, "PROCLIB member considerations" on page 156	
	ISPF Setup	8.5.4, "z/OS Version 2 Release 1 ISPF setup considerations" on page 161	
	Element Customize	8.5.5, "Element customization" on page 170	
		8.5.5.1, "RACF security considerations" on page 171	
		8.5.5.2, "z/OS UNIX System Services customization considerations" on page 171	
		8.5.5.3, "Customization considerations for Wave 1A" on page 172	
		8.5.5.4, "Customization considerations for Wave 1B" on page 175	
		8.5.5.5, "Customization considerations for Wave 1C" on page 183	
		8.5.5.6, "Customization considerations for Wave 1D" on page 190	
		8.5.5.7, "Customization considerations for Wave 1E" on page 193	
		8.5.5.8, "Customization considerations for Wave 1F" on page 194	
		8.5.5.9, "Customization considerations for Wave 1G" on page 199	
		8.5.5.10, " Customization for Wave 2" on page 233	
<input type="checkbox"/>	Verify Installation	8.6, "Step 6: Verify installation of Wave 0, Wave 1 and Wave 2" on page 234	
	IPL	8.6.1, "IPL the z/OS system" on page 235	
	IVPs	8.6.2, "Verify installation of z/OS Version 2 Release 1 Wave 0, Wave 1 and Wave 2 FMIDs" on page 237	
		8.6.2.1, "IVP jobs for Wave 0" on page 241	
		8.6.3, "IVP jobs for Wave 1A" on page 244	
		8.6.4, "IVP jobs for Wave 1B" on page 244	
		8.6.5, "IVP jobs for Wave 1C" on page 266	
		8.6.6, "IVP jobs for Wave 1D" on page 276	

Figure 27 (Page 5 of 5). Checklist for Wave 1 and Wave 2 Installation

Check Box	Activity	Section, Step Description	Your Notes
		8.6.7, "IVP jobs for Wave 1E" on page 277	
		8.6.8, "IVP jobs for Wave 1F" on page 279	
		8.6.9, "IVP jobs for Wave 1G" on page 284	
		8.6.10.1, "Run the installation verification procedure for SDSF" on page 287	
<input type="checkbox"/>	ACCEPT	8.7, "Step 7: ACCEPT Wave 0, Wave 1 and Wave 2" on page 288	
		8.7.2, "Do an SMP/E ACCEPT CHECK for Wave 0 and Wave 1 FMIDs and Service" on page 288	
		8.7.3, "Do an SMP/E ACCEPT for Wave 0 and Wave 1 FMIDs and service" on page 294	
<input type="checkbox"/>	CLEAN UP	8.8, "Step 8: Clean up after Wave 1 and Wave 2" on page 304	

8.1 Step 1: Prepare to install Wave 1

This step describes the preparation work required before doing the APPLY. All examples follow the recommended installation sequence of installing the first wave ripples, comprised of the z/OS Version 2 Release 1 FMIDs that are installed into the file system, as well as the z/OS Version 2 Release 1 FMIDs that are not installed into the file system. Service for all other FMIDs that were installed will be upgraded in the same APPLY step using SOURCEID names.

Required Planning Tasks Checklist

- Before installing z/OS Version 2 Release 1 Wave 1 FMIDs, complete the following planning tasks for choosing the software installation method; these are described in *z/OS Planning for Installation*:
 - Using CBPDO
 - Preparing the driving system for CBPDO
 - Preparing the target system
- Clone your system, as described in 6.1, “Overview for the clone of your system” on page 33.
- Check the PSP buckets, as described in 3.2, “Preventive Service Planning (PSP)” on page 17.
- To install Wave 1, the OMVS address space **must be active in full function mode** on the driving system. For driving system first wave requirements, see *z/OS Planning for Installation*.
- To install Wave 1, you must install from a user ID that has a UID of 0 or has read access to the BPX.SUPERUSER resource in the RACF FACILITY class. This user ID must have a home directory of ('/'), a program name of ('/bin/sh'), and needs read access to FACILITY class resources BPX.FILEATTR.APF, BPX.FILEATTR.PROGCTL, and BPX.FILEATTR.SHARELIB (or BPX.FILEATTR.* if you choose to use a generic profile for these resources).

In addition, the installation of this product requires that certain user and group IDs be defined in your security database. They are Group IDs: TTY and UUCPG and user ID: UUCP. For details, see 8.1.1, “Set up User and Group IDs Required for Installation” on page 76 and the following:

 - *z/OS UNIX System Services Planning*
 - *z/OS Security Server RACF Security Administrator's Guide*
 - *z/OS Security Server RACF Command Language Reference*
- Ensure that your system meets the requirements for hardware, software, and coexistence considerations described in *z/OS Planning for Installation*.
- Install the required driving system software listed in *z/OS Planning for Installation*. If you do not have a system that meets these requirements, do one of the following:
 - Consider using a ServerPac.
 - Upgrade your existing system.
 - Obtain a Customized Offerings Driver (5751-COD).

8.1.1 Set up User and Group IDs Required for Installation

To install Wave 1, you must install from a user ID that equals 0 or has read access to the BPX.SUPERUSER resource in the RACF facility class. This user ID must have a home directory of ('/'), a program name of ('/bin/sh'), and needs read access to facility class resources BPX.FILEATTR.APF, BPX.FILEATTR.SHARELIB, and BPX.FILEATTR.PROGCTL (or BPX.FILEATTR.* if you choose to use a generic name for these resources).

In addition, the installation of this product also requires that certain user ID and group IDs be defined in your security database. They are:

Group IDs: UUCPG, TTY

User IDs: UUCP

Note that these user and group IDs were first introduced as part of product customization in OS/390 release 4. **As of z/OS V1.4.0, they are required for the installation of the product.**

We highly recommend that you define them as uppercase IDs for ease of use and manageability.

On most UNIX systems, you use lowercase IDs. With z/OS UNIX, typically, you use uppercase user IDs and group names in your security database. However, if these names conflict with your current naming conventions in your security database at your installation, you can use lowercase, mixed case or alternate names by creating and activating a User ID alias table. This table will associate alias names with uppercase z/OS user ID and group names. Use of this table does degrade performance slightly. The more names that you define, the greater the performance degradation. Hence, installations are encouraged to continue using uppercase-only user IDs and group names in their security databases.

The GID and UID values assigned to these IDs cannot be used by any other ID. They must be unique.

Assigning the same GID to multiple groups is not recommended. If you assign the same GID to multiple groups, control at an individual group level is lost, because the GID is used in z/OS UNIX security checks. RACF groups that have the same GID assignment are treated as a single group during the z/OS UNIX security checks, thus allowing the sharing of resources between groups possibly unintentionally.

Likewise, assigning the same UID to multiple user IDs is also not recommended. The sharing of UIDs allows each user access to all of the resources associated with the other users of that shared UID. The shared access includes not only z/OS UNIX resources such as files, but also includes the possibility that one user could access z/OS resources of the other user that are normally considered to be outside the scope of z/OS UNIX.

The required user ID and group names must then be duplicated in all of your security databases including the same UID and GID values in the OMVS segment.

This will ease the transporting of file system data sets from test systems to production systems. For example, the group name 'TTY' on System 1 **must** have the same GID value on System 2 and System 3.

The following sections describe how to define these IDs to RACF. (If you are using an equivalent security product, refer to that product's documentation.) All the RACF commands are issued by a TSO/E user ID with RACF SPECIAL authority. Three procedures are described:

- If you use uppercase group and user IDs
- If you use mixed-case group and user IDs
- If you have problems using names UUCP, UUCPG and TTY

If you use uppercase group and user IDs:

RACF users can use the sample BPXISEC1 in SAMPLIB or the following commands.

1. Define the TTY group, where 2 is an example of a unique group ID on your system.

```
ADDGROUP TTY OMVS(GID(2))
```

Do not connect users to this group. This is the same group that is specified on the TTYGROUP statement in the BPXPRMxx PARMLIB member on your target system.

2. Define the UUCPG group, where 8765 is an example of a unique group ID on your system.

```
ADDGROUP UUCPG OMVS(GID(8765))
```

3. Define the UUCP user ID, where 123456 is an example of a unique account number and 396 is an example of a unique z/OS UNIX UID; do not use UID(0).

```
ADDUSER UUCP DFLTGRP(UUCPG) PASSWORD(XXXXXXXX)
TSO(ACCTNUM(123456) PROC(TSOPROC) SIZE(5000)) OMVS(UID(396)
HOME('/usr/spool/UUCPpublic') PROGRAM('/bin/sh'))
```

Again, note that your security database images MUST be synchronized. This means that the user ID and group names need to have the same unique UID and GID values on all of your driving, test, and production system images.

If synchronizing your databases is not possible for these entries at this time, you will need to continue to run the FOMISCHO job against each of your systems after the installation of this product. However, this is not the recommended method and should be avoided.

If you use mixed-case group and user IDs:

If you need to use mixed-case or lowercase group and user names on your system and the groups (UUCPG, TTY) and user (UUCP) do not conflict with existing names, you can follow the steps for uppercase IDs listed previously.

It is not necessary to add the lowercase or mixed-case names to your alias table, mapping them to uppercase. Using the alias table impacts performance and increases systems management and complexity. When lowercase or mixed-case names are not found in the alias table, or there is no table active, they are folded to uppercase.

If you have problems using names UUCP, UUCPG and TTY:

If names such as UUCP, UUCPG, and TTY are not allowed on your system (or if they conflict with existing names), the following are the RACF commands to define the group and user IDs:

1. To define a group ID instead of 'TTY' group, issue the following command, where 2 is an example of a unique group ID on your system, and XTTY is replaced by a 1-to 8-character group ID of your choice.

```
ADDGROUP XTTY OMVS(GID(2))
```


Do not connect users to this group. This would be the same group name to be specified in the TTYGROUP statement in the BPXPRMxx PARMLIB member on your target system.

2. To define a group, instead of 'UUCPG' group, issue the following, where 8765 is an example of a unique group ID on your system, and XXUUCPG is replaced by a 1-to 8-character group name of your choice.

```
ADDGROUP XXUUCPG OMVS(GID(8765))
```

3. To define a UUCP user ID, issue the following, where 396 is an example of a unique z/OS UNIX UID (do not use an UID of 0) and XXUUCP is replaced by a user ID of your choice.

```
ADDUSER XXUUCP DFLTGRP(XXUUCPG) PASSWORD(XXXXXXXX)
TSO(ACCTNUM(123456) PROC(TSOPROC) SIZE(5000)) OMVS(UID(396)
HOME '/usr/spool/UUCPpublic') PROGRAM('/bin/sh'))
```

This is a normal user ID that owns all the UUCP files and directories. You should use this user ID when editing configuration files or performing other administrative tasks.

4. Set up a User ID alias table.

Note that using the alias table causes poorer performance and increases systems management costs and complexity.

If you do not have a user ID alias table defined, you will need to create one. This must be done first on your driving system and then on any system image using this product. The recommended pathname of the user ID alias table is /etc/tablename. This fits in with the IBM strategy to place all customized data in the /etc directory. This table is specified by the USERIDALIASTABLE keyword in the BPXPRMxx PARMLIB member.

The user ID name alias table must be protected from update by non-privileged users; therefore, only users with superuser authority should be given update access to it. All users should be given read access to the file.

Your user ID alias table will need to contain your MVS chosen names and the associated required names.

In the User ID alias table, your chosen MVS user ID and group names must be located in columns 1-8 and the associated aliases must be located on the same line in columns 10-17.

- groups
 XTTY TTY
 XXUUCPG UUCPG
- user IDs
 XXUUCP UUCP

5. Activate the user ID alias table.

If you are already using the user ID alias table, new database queries will yield the new alias if the user ID performing the query has read/execute access to the userid/group name alias table. The table is checked every 15 minutes and refreshed if it has been changed. If a change needs to be activated sooner, you can use the SETOMVS or SET OMVS command.

If you are not already using the user ID alias table, you can use the SET OMVS operator command to activate it now (/etc/tablename is the name of your user ID alias table).

```
SET OMVS USERIDALIASTABLE=/etc/tablename
```

You can also use the SETOMVS operator command. See *z/OS MVS System Commands* for a complete description of the SET OMVS and SETOMVS commands.

6. Update your BPXPRMxx PARMLIB member specifying the USERIDALIASTABLE to make this change permanent for your next IPL.
7. Perform these tasks on all of your driving, test, and production system images.

Again, note that these required user ID and group names should be synchronized in all of your security databases including the same UID and GID values in the OMVS segment. This will certainly ease the transporting of file system data sets from test systems to production systems.

If synchronizing your databases is not possible for these entries at this time, you will need to continue to run the FOMISCHO job against each of your systems after the installation of this product. However, this is not the recommended method and should be avoided.

For more details, see the following:

- *z/OS UNIX System Services Planning.*
- *z/OS MVS System Commands.*
- *z/OS Security Server RACF Security Administrator's Guide.*
- *z/OS Security Server RACF Command Language Reference.*

8.1.2 Root file system size changes in z/OS V2.1.0

Refer to 5.4.1, "Total DASD Storage Requirements" on page 30 for the total space required for the root file system. You can also refer to the sample job BPXISHFS provided in prefix.HBB7790.F6 for the allocation of the root file system. Refer to the sample job BPXISZFS provided in prefix.HBB7790.F6 for the allocation of the root zFS if you plan to use a root zFS.

If you plan to install z/OS Font Collection element in a separate file system, refer to the sample jobs provided in FMID HFNT110 for the space requirements. If you plan to install z/OS Font Collection in the root file system, you must increase the space specified for the root file system in the BPXISZFS or BPXISHFS job to allow for the installation of z/OS Font Collection in the root file system.

8.1.3 Driving system with an active root file system

TO INSTALL WAVE 1, YOU MUST HAVE OMVS ACTIVE IN FULL FUNCTION MODE on your driving system (have a root file system) and complete the following activities:

1. Update the target system's BPXPRMxx PARMLIB member with the following statements:

```
ROOT  FILESYSTEM('root_FS_data_set')
      TYPE(xxx)  MODE(RDWR)
```

```
MOUNT FILESYSTEM('etc_FS_data_set')
      MOUNTPOINT('/etc')
      TYPE(xxx)  MODE(RDWR)
```

Update 'root_FS_data_set' and 'etc_FS_data_set' with the names of your root file system and /etc file system into which you will install z/OS V2.1.0. If you plan to install z/OS V2.1.0 in a root zFS data set and zFS data set mounted at the /etc directory, specify TYPE(ZFS) on the root and mount statements shown above.

The z/OS Font Collection element may be installed in the root file system or installed in a separate file system mounted at the appropriate mountpoint. If you plan to install the z/OS Font Collection, you may decide to allocate and mount a separate file system for z/OS Font Collection due to the amount of space required in the file system. If you plan to install z/OS Font Collection in a separate file system, ensure that the BPXPRMxx PARMLIB member is updated to add a mount statement for the file system in which z/OS Font Collection is being installed.

If you plan to install z/OS V2.1.0 into HFS file systems, specify TYPE(HFS) on the root and mount statements shown above.

2. Ensure that your target root file system data set has been increased prior to installing Wave 1 elements. Refer to 5.4.1, "Total DASD Storage Requirements" on page 30 for the total space required for the root file system.

If you plan to install the z/OS Font Collection element in a separate file system, not the root file system, ensure that the separate file system has been allocated and mounted at the appropriate mountpoint on the driving system before installing z/OS Font Collection in Wave 1G.

3. If you have /etc and /var as symbolic links, run BPXISSETD to convert the /etc and /var symbolic links to directories (see 8.6.1.2, "BPXISSETS and BPXISSETD" on page 235). Ensure your target system's /etc file system data set is mounted on the driving system. You may choose to have /var mounted on your driving system.
4. Install and customize the z/OS V2.1.0 Wave 1 and Wave 2 elements.
5. Run BPXISSETS to convert the /etc and /var directories to a symbolic link (see 8.6.1.2, "BPXISSETS and BPXISSETD" on page 235).
6. IPL the target system using the BPXPRMxx parmlib tailored in step 1. z/OS UNIX will come up automatically with the Wave 1 root file system and /etc file system. If you install z/OS V2.1.0 into zFS file systems, ensure you have activated zFS on the target system before you IPL with the zFS file systems. For information on zFS considerations, see *z/OS Distributed File Service zFS Administration*.
7. Run the Wave 1 and Wave 2 IVPs.

8.1.4 Rename user-defined security label beginning with 'SYS' if it exists

Do not have any user-defined security labels that begin with 'SYS'. If you do, you must first rename it and then update every profile that uses this security label to specify the new user defined security label name.

Note: SYSHIGH, SYSLOW, SYSNONE, and SYSMULTI are special RACF-generated security labels that are not to be renamed.

8.1.4.1 Distributed File Service installation considerations

The Distributed File Service is a base element of z/OS which provides different types of file or print services:

1. SMB File/Print Serving Support

The SMB file/print serving support provides distributed file/print service for Windows workstations. More information about SMB support can be found in *z/OS Distributed File Service SMB Administration*.

2. z/OS File System (zFS) Support

zFS is a z/OS UNIX file system that can be used in addition to HFS and other file system types. zFS file systems can be mounted for local access by z/OS UNIX applications or from Windows workstations using the SMB file serving support. More information about zFS support can be found in *z/OS Distributed File Service zFS Administration*.

The Distributed File Service requires a z/OS UNIX environment. Client and server communications require a Transmission Control Protocol/Internet Protocol (TCP/IP) such as Communications Server IP Services. A security facility, such as RACF, is also required.

If you plan to use the SMB password encryption support and want to exploit the hardware encryption capability available through the Integrated Cryptographic Service Facility (ICSF) with the Cryptographic Coprocessor Feature, be sure to follow the instructions in 8.5.5.6.1, "Cryptographic Services OCSF customization considerations" on page 190.

If you plan to use the SMB print serving capabilities for shared printers, you must also install and configure Infoprint Server or an equivalent product. Infoprint Server supplies DLL resident routines used by the DFS server to route SMB print requests to JES queues for subsequent processing by InfoPrint Server. See 8.5.5.9.3, "Infoprint Server Customization Considerations" on page 229 for more information on Infoprint Server.

8.1.5 RECEIVE the rest of the CBPDO

RECEIVE FMIDs and service for other z/OS Version 2 Release 1 elements (excluding the Wave 0 elements since they have already been received). To do this, run the RCVPDO job and specify EXCLUDE(HMP1J00, JMP1J11, HMQ4160, HPM7790). For more information, refer to *MVS CBPDO Memo to User Extension* included with the CBPDO.

The CBPDO contains all non-integrated PTFs for every z/OS Version 2 Release 1 FMID. (Cumulative service is included in CBPDO orders, so there is no separate cumulative service tape.) As a result, maintenance may be delivered that is already APPLyed and ACCEPTed. If you did not add the ZOSOPT option, as shown in Figure 26 on page 68, a mass RECEIVE will re-RECEIVE this service and will require a large SMPPTS data set. You must actually USE the option in order to avoid re-RECEIVING the service. In addition, the OS/390 R5 or later level of SMP/E will compact the data within the SMPPTS during RECEIVE processing, thus saving space.

8.1.6 Run required and optional Delete Jobs

Special Notes for All Delete Jobs

IBM requires running the delete jobs according to the ripple order, not deleting all changing elements at once. For example, if you are installing Wave 1A, delete only the Wave 1A elements and continue with the APPLY of these elements. Once the Wave 1A installation is complete continue with the installation of the Wave 1B elements. For the ripple order, see 6.5.3, “Elements in each Wave, Ripple, and FMIDSET” on page 37. **Failure to follow these install procedures will result in APPLY errors in Waves 1A and 1B (BCP and DFSMS elements).**

Note: The following sections describing the delete jobs are in alphabetical order, **NOT** ripple order.

If elements are withdrawn and there are no superseding functions, normal SMP/E APPLY/ACCEPT processing will not delete the obsolete elements. In this case, you must run a delete job to remove them. A sample job, CLNOS390, is provided in FMID HBB7790 to delete the withdrawn elements from z/OS; see 8.1.6.1, “Run the required Delete Job to remove obsolete elements” on page 84 for more information.

Normal SMP/E APPLY/ACCEPT processing of SMP/E base functions, such as BCP, deletes the previous releases (if the optional “dummy” function delete was not performed). However, there are times when running the optional delete job is recommended. Run the optional delete job in order to:

- Decrease the installation running time for some elements.
- Decrease the amount of storage required by SMP/E for APPLY and ACCEPT processing. If your install fails for storage reasons, and you have not run the optional delete job for the elements in the wave or ripples, you should run the optional delete job to reduce SMP/E’s storage requirements.
- Delete the prior levels of an element if the current FMID does not delete them during the installation.
- Simplify the installation if the new FMID requires a library restructure. Refer to *z/OS Migration, GA32-0889* for further information on library restructuring.

8.1.6.1 Run the required Delete Job to remove obsolete elements

Sample JCL and instructions are provided in member CLNOS390 of SMPTLIB, 'prefix.HBB7790.F6' to remove the withdrawn elements that are not part of z/OS Version 2 Release 1, except for z/OS UNIX System Services Integrated Call Level Interface (ICLI). These obsolete elements are listed in Figure 28 on page 84.

Note: Elements have been withdrawn in z/OS V1R13. As such, you must run the sample job CLNOS390 to remove the obsolete elements if you are migrating from a z/OS release prior to z/OS V1R13. As of z/OS V2.1, z/OS UNIX System Services Integrated Call Level Interface (ICLI) FMID HSAP360 has been withdrawn, however, sample job CLNOS390 does not remove FMID HSAP360. You must create a dummy function delete job to SMP/E receive, apply and accept a function to delete FMID HSAP360. You can model the job after the sample job in Figure 19 on page 55. After FMID HSAP360 has been deleted by SMP/E processing, ensure that the associated libraries, DDDEFs and paths are removed. See *z/OS Migration* for the obsolete libraries, DDDEFs and paths.

Figure 28 (Page 1 of 2). Withdrawn Elements in OS/390 and z/OS

Element Name	Withdrawn In
C/C++ Database Access Class Library Utility	OS/390 Release 4
SOMobjects Service Classes	OS/390 Release 4
SystemView	OS/390 Release 7
Application Enabling Technology	OS/390 Release 8
RMF Performance Monitoring Common Functions	OS/390 Release 10
Softcopy Print	OS/390 Release 10
VisualLift RTE	OS/390 Release 10
WebSphere Application Server	OS/390 Release 10
SOMobjects ADE	z/OS Release 2
SOMobjects Runtime Library	z/OS Release 2
Tivoli Framework Endpoint	z/OS Release 2
LAN Server	z/OS Release 2
LANRES	z/OS Release 4
C/C++ Base with Debug Tool	z/OS Release 5
XL C/C++ Open Class Library Source	z/OS Release 5
IBM License Manager	z/OS Release 5
DCE Application Support	z/OS Release 6
Encina Toolkit Executive	z/OS Release 6
Text Search	z/OS Release 6
OS/390 V2R10 C/C++ Compiler	z/OS Release 7
Managed System Infrastructure for Operations	z/OS Release 8

Figure 28 (Page 2 of 2). Withdrawn Elements in OS/390 and z/OS

Element Name	Withdrawn In
Integrated Security Services Firewall Technologies	z/OS Release 8
Managed System Infrastructure for Setup (msys for Setup)	z/OS Release 12
DCE Base Services	z/OS Release 13
Integrated Security Services DCE	z/OS Release 13
z/OS UNIX System Services Connection Manager	z/OS Release 13
z/OS UNIX System Services Process Manager	z/OS Release 13
z/OS UNIX System Services Integrated Call Level Interface (ICLI)	z/OS Version 2 Release 1

8.1.6.1.1 Important Information to the Installer: The msys for Setup element is withdrawn as of z/OS V1.12.0 and is not included in the product. Sample job CLNOS390 contains a sample delete SYSMOD, DELZOSA, to remove the msys for Setup FMIDs. When sample job CLNOS390 is run, SYSMOD DELZOSA will delete the obsolete FMIDs for msys for Setup.

As of z/OS V1.13.0, the following elements have been withdrawn; these elements will be deleted by step DELZOSB in the CLNOS390 job:

- DCE Base Services
- Integrated Security Services DCE
- z/OS UNIX System Services Connection Manager
- z/OS UNIX System Services Process Manager

To run the job, perform the following functions:

- Copy the sample job from member CLNOS390 of the SMPTLIB, 'prefix.HBB7790.F6'. The SMPTLIB is created during RECEIVE processing. Its high-level qualifier (prefix) is the value specified as the DSPREFIX in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.
- Run the sample job after modifying it to meet your system's requirements.
- During the RECEIVE of DELZOSn, you will receive the message GIM39701W SYSMOD DELZOSn HAS NO ELEMENTS., where DELZOSn is the dummy function delete sysmods. This is acceptable.

After completing the dummy function delete and installing z/OS V2.1.0, you must do the following:

- Remove the unused DDDEFs by running a UCLIN job.
- Run a cleanup job to remove the unused data sets.
- Remove obsolete paths from the file system.

See *z/OS Migration* for more information on the obsolete data sets and the paths.

8.1.6.2 Run the optional Delete Job for BCP before Wave 1A

Sample JCL that can be used to delete BCP functions is provided in member CLNDELFN of the SMPTLIB, 'prefix.HBB7790.F6'. This sample JCL contains a dummy function, DM1FMID, that can be used to delete functions replaced by the z/OS V2.1.0 level of BCP. This will delete prior levels of the BCP (including National Language features), as well as the z/OS UNIX Kernel. During processing, the functions deleted by DM1FMID (and all dependent functions) are removed from the target and distribution zones.

The sample job does not include previous versions of all exclusive z/OS Version 2 Release 1 elements. Previous versions of exclusive z/OS elements are deleted when their z/OS levels are applied.

To run the job:

1. Copy the delete job from member CLNDELFN of the SMPTLIB, 'prefix.HBB7790.F6'. The SMPTLIB is created during RECEIVE processing. Its high-level qualifier (prefix) is the value specified as the DSPREFIX in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.
2. Run the sample job after modifying it to meet your system's requirements. The REDO option is specified in the sample job in case you have run a version of this job to delete a prior level of BCP.
3. During the RECEIVE of DM1FMID, you will receive the message "GIM39701W SYSMOD DM1FMID HAS NO ELEMENTS." This is acceptable.
4. During the APPLY of DM1FMID, you will receive these messages from SMP/E and the binder:

```
GIM23903 GIM50601 IEW2400I IEW2648E IEW2677S IEW2230S  
IEW2454W IEW2470E IEW2650I
```

These messages are expected when applying this dummy function, which leaves modules in a non-executable condition. These messages can be ignored because APPLYing the BCP function will rebuild the modules properly.

Successful processing of DM1FMID returns a condition code of 4.

8.1.6.3 Run the optional Delete Job for DFSMS after Wave 1A but before Wave 1B

Sample JCL that can be used to delete DFSMS functions is provided in member DFPCLNUP of the SMPTLIB, 'prefix.HDZ2210.F1'. This sample JCL contains a dummy function, DEL4SMS, that can be used to delete functions replaced by the current level of DFSMS. This will delete prior levels of the DFSMS (including National Language features). During SMP/E processing, the functions deleted by DEL4SMS (and all dependent functions) are removed from the target and distribution zones. Note that if you plan to run the sample job to delete DFSMS, ensure that the job is run after Wave 1A. Otherwise, errors will occur during Wave 1A APPLY processing because BCP and DFSMS elements share some load modules.

To run the job:

1. Copy the delete job from member DFPCLNUP of the SMPTLIB, 'prefix.HDZ2210.F1'. The SMPTLIB is created during RECEIVE processing. Its high-level qualifier (prefix) is the value specified as the DSPREFIX in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.

2. Run the sample job after modifying it to meet your system's requirements.
3. During the RECEIVE of DEL4SMS, you will receive the message GIM39701W SYSMOD DEL4SMS HAS NO ELEMENTS. This is acceptable.

Successful processing of DEL4SMS returns a condition code of 4.

8.1.6.4 Run the optional Delete Job for other elements

Before installing FMIDs associated with a ripple you might consider dummy function deleting prior levels of elements to decrease installation runtime. You can create a dummy function delete job that is modeled after Figure 19 on page 55 to delete other elements. For example, if you are renaming any libraries without changing the DDDEF name, you should perform the optional delete job.

8.1.7 Allocate target and distribution libraries for Wave 1 elements

Since it is expected that you are installing on a clone of your system, as stated in 6.1, "Overview for the clone of your system" on page 33, many data sets should already exist. Verify your target and distribution libraries contain enough space as described in Appendix C, "DASD Storage Requirements Tables" on page 343. If needed, sample jobs to allocate the target and distribution libraries for some elements have been provided.

You can access the sample installation jobs by performing an SMP/E RECEIVE and then copying the jobs from the refiles to a work data set for editing and submission. See Figure 29 on page 88 Wave 1 Allocate Sample Installation Jobs to find the appropriate refile data sets.

Copy the sample jobs to a work data set and customize them.

The samples specify the storage requirements using average block lengths. BLKSIZE=0 indicates that system-determined block sizes are being used. For example, the sizes might look like this:

```
SPACE=(8800,(135,27,6)),  
DCB=(RECFM=FB,LRECL=80,BLKSIZE=0).
```

Do not confuse the SPACE=8800 (average block length) parameter with the BLKSIZE=0 (block size) parameter. If you would like to change the block size to something other than the system-determined block size, you can change the BLKSIZE parameter. Do not change the SPACE parameter. You can use the storage allocations as they are, or convert them to cylinder or track allocations.

If these elements have been installed previously, the JCL for the jobs needs to be modified to remove or comment out the DD statements for the pre-existing libraries, or the job will fail. See Appendix C, "DASD Storage Requirements Tables" on page 343 for information on new libraries introduced in this release.

For specific instructions to customize, see the comments in the sample jobs. See *z/OS MVS JCL Reference* for more information on modifying JCL.

Run these jobs after the elements have been RECEIVED.

After the jobs are submitted, you should get a condition code of 0. Check the allocation/deallocation messages to be certain the data sets were allocated and cataloged properly.

Figure 29 lists the locations of the sample jobs. Be sure to read all of the notes following the table before running the sample jobs. The table is in alphabetical order based on the **Description** column. The following fields are represented in this table:

- Job Name** It contains the name of the sample job to be run.
- Job Type** This field indicates the type of job that is to be run.
- Description** It contains the element name for which the job is to be run.
- RELFILE** This field identifies the location of the sample job.

<i>Figure 29 (Page 1 of 3). Wave 1 Allocate Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
BPXISALC	ALLOCATE	BCP (Selected BCP component libraries only)	'prefix.HBB7790.F6'
Note: See note 4 on page 91 and 12 on page 91.			
CUNJUALC	ALLOCATE	BCP Base-Support for Unicode	'prefix.HUN7790.F1'
Note: See note 14 on page 92.			
BDTJALC	ALLOCATE	BDT	'prefix.HBD6602.F1'
EOYALLC2	ALLOCATE	BookManager/Build	'prefix.HBKP300.F7'
Note: See note 5 on page 91.			
EOYALLC2	ALLOCATE	BookManager READ	'prefix.HBKM300.F4'
Note: See note 5 on page 91.			
CCNJALOC	ALLOCATE	XL C/C++	'prefix.HLB7790.F1'
CTVJALL	ALLOCATE	C/C++ Host Performance Analyzer	'prefix.H24P111.F1'
CFZALLOC	ALLOCATE	Common Information Model (CIM)	'prefix.HPG7790.F1'
EZACSALC	ALLOCATE	Communications Server	'prefix.HIP6210.F1'
Note: The former ISTCSALC allocate job for Communications Server SNA Services has been merged into Communications Server IP Services allocate job, EZACSALC.			
CSFALLOC	ALLOCATE	Cryptographic Services ICSF	'prefix.HCR77A0.F1'
Note: See note 6 on page 91.			
CDSISALC	ALLOCATE	Cryptographic Services OCSF	'prefix.HCRY740.F1'

Figure 29 (Page 2 of 3). Wave 1 Allocate Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
GSKISALC	ALLOCATE	Cryptographic Services System SSL	'prefix.HCPT410.F1'
IKYALLOC	ALLOCATE	Cryptographic Services PKI Services	'prefix.HKY7790.F1'
DFPALLOC	ALLOCATE	DFSMS	'prefix.HDZ2210.F1'
DGTALLOC	ALLOCATE	DFSMS Japanese	'prefix.JDZ221K.F2'
Note: See note 8 on page 91.			
ICEALLOC	ALLOCATE	DFSORT	'prefix.HSM1L00.F1'
IOEISALC	ALLOCATE	Distributed File Service	'prefix.H0H2410.F1'
EPW12003	ALLOCATE	FFST	'prefix.HFST101.F4'
IEFGDDMA	ALLOCATE	GDDM (includes GDDM-PGF)	'prefix.HBB7790.F6'
CBDSALLC	ALLOCATE	HCD	'prefix.HCS7790.F2'
EEQHCALC	ALLOCATE	HCM	'prefix.HCM1E10.F1'
ASMWTALC	ALLOCATE	HLASM Toolkit	'prefix.JMQ416A.F1'
IMWJALLO	ALLOCATE	IBM HTTP Server	'prefix.HIMW530.F1'
ICKALLOC	ALLOCATE	ICKDSF	'prefix.EDU1H01.F3'
Note: See note 10 on page 91.			
AOPALLOC	ALLOCATE	Infoprint Server	'prefix.HOPI790.F1'
ICKALLKG	ALLOCATE	ICKDSF Japanese Panels	'prefix.FDU1H09.F2'
ITYALLOC	ALLOCATE	Integrated Security Services Enterprise Identity Mapping	'prefix.HIT7750.F3'
GLDISALC	ALLOCATE	IBM Tivoli Directory Server for z/OS Base	'prefix.HRSL410.F1'
EUVFSALC	ALLOCATE	Integrated Security Services Network Authentication Service	'prefix.HSWK410.F1'
ISPALLOC	ALLOCATE	ISPF Base, Client Server, SCLM & English	'prefix.HIF7N02.F2'
ISPALDEU	ALLOCATE	ISPF German	'prefix.JIF7N15.F1'
ISPALJPN	ALLOCATE	ISPF Japanese	'prefix.JIF7N14.F1'
ISPALDES	ALLOCATE	ISPF Swiss German	'prefix.JIF7N11.F1'
ISPALENP	ALLOCATE	ISPF Upper Case English	'prefix.JIF7N16.F1'

Figure 29 (Page 3 of 3). Wave 1 Allocate Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
CEEISALC	ALLOCATE	Language Environment	'prefix.HLE7790.F1'
Note: Language Environment also uses libraries allocated by BPXISALC. Be sure to execute BPXISALC before attempting the install of Language Environment.			
EPH00ALC	ALLOCATE	Library Server	'prefix.HBKQ400.F1'
CCRALLOC	ALLOCATE	Metal C Runtime Library	'prefix.HSD7780.F4'
IOAALLOC	ALLOCATE	OSA Support Facility	'prefix.H0GI400.F1'
Note: See note 7 on page 91.			
GFSALLOC	ALLOCATE	Network File System	'prefix.HDZ221N.F1'
EAGKALC	ALLOCATE	Alternate Library for REXX	'prefix.HWJ9143.F1'
ERB00ALC	ALLOCATE	RMF (Base and Japanese)	'prefix.HRM7790.F3'
CLB3JALL	ALLOCATE	Runtime Library Extensions	'prefix.HTV7790.F1'
IRRALLOC	ALLOCATE	Security Server RACF	'prefix.HRF7790.F1'
IKJBALL	ALLOCATE	TSO/E	'prefix.HTE7790.F2'
FNTALLOC	ALLOCATE	z/OS Font Collection	'prefix.HFNT110.F1'

Notes:

1. The 'prefix' is the high-level qualifier specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.
2. For all elements shown in Figure 29 on page 88, if you specify a volume for any data set in the allocate job, you must also specify the same volume in the corresponding DDDEF entry in the DDDEF job (see Figure 31 on page 96).
3. The following Wave 1 elements are documented in this Program Directory but do not supply sample allocate jobs:

- Most BCP components and BCP Japanese feature
- Communications Server SNA Services
- Communications Server Security Level 3
- Communications Server X11R4 XWindows
- EREP
- ESCON Director Support
- HCD Japanese
- IBM Tivoli Directory Server for z/OS Japanese
- Integrated Security Services OCEP
- IOCP
- MICR/OCR
- Runtime Library Extensions
- TIOC
- z/OS File System

z/OS File System Japanese
z/OS Security Level 3
3270 PC File Transfer Program

4. For BCP, if BCP Japanese and/or Simplified Chinese FMIDs are ordered, ensure that TSO/E Japanese and/or Simplified Chinese libraries are allocated by running IKJBALL and that BCP National Language features installed into the shared libraries with TSO/E National Language features.
5. For BookManager/Build and BookManager READ, most of the data sets required for installation are allocated by EOYALLC2.

Change "=SYS1" to the appropriate high-level qualifier ("SYS1" is the default) on the exec steps if you choose not to use the default. If you change the high-level qualifier, be sure to include the equal sign ("=") at the beginning of the high level qualifier. If you choose to use a middle level qualifier, you should change "=SYS1" to "=SYS1.MLQ", where MLQ is the appropriate middle-level qualifier.

For BookManager READ, PTF UQ99324 creates both EPHALOC1, an allocate job which defines the datasets, and EPHDDDF, a DDDEF job which defines DDDEFs, to support the DBCS Print Utility.

6. The Cryptographic Services ICSF libraries contain parts and aliases which provide for successful link edit of Cryptographic Services ICSF load modules for customers who do not have CICS installed. Since these libraries contain aliases provided by CICS, customers who install both Cryptographic Services ICSF and CICS should install the products into separate target and distribution data sets.
7. OSA/SF ships parts and aliases which provide for successful link edit of the element load modules for customers who do not have NetView and/or TCP/IP installed. Since the OSA/SF data sets contain aliases provided by NetView and/or TCP/IP customers who install OSA/SF and NetView and/or TCP/IP should ensure the data sets from OSA/SF do not consolidate with NetView and/or TCP/IP data sets.
8. Special Note for DFSMS Japanese
DFSMS Japanese and ICKDSF Japanese both share library DGTPKLB. If you ordered both of these, be sure to execute ICKALLKG before attempting to install DFSMS Japanese. Appendix C, "DASD Storage Requirements Tables" on page 343 describes the space requirements for DGTPKLB.
9. The following element languages do not supply sample allocate jobs. Their allocation statements are in the base FMID jobs, and need to be uncommented to become active.
 - Distributed File Service Japanese
 - Infoprint Server Japanese
 - IBM HTTP Server Japanese
 - TSO/E German, Japanese, and Simplified Chinese

10. Sample job, ICKALLOC, incorrectly allocates sys1.linklib and sys1.samplib. These data sets already exist.
11. Starting from z/OS V1.10.0, the APPLY for the ISPF element installs load modules into the SYS1.LINKLIB library.
12. Prior to z/OS V1.11.0, the z/OS UNIX System Services Application Services libraries had been allocated by sample job FOMISALC. As of z/OS V1.11.0, these libraries are merged in sample job BPXISALC.

13. Starting from z/OS V2.1.0, the APPLY for the ISPF element installs program objects into the SYS1.SIEALNKE library.
14. As of z/OS V2.1, the sizes of the SCUNTBL and ACUNTBL libraries required for installing the Unicode element have significantly increased since the previous z/OS release. Before installing the Unicode element, review the amount of space required for the SCUNTBL data set in the "Storage required for target libraries for z/OS V2.1" table and ACUNTBL data set in the "Storage required for distribution libraries for z/OS V2.1.0" in the appendix. Run the sample job CUNJUALC to re-allocate the SCUNTBL and ACUNTBL data sets before installing Unicode if necessary; the job has been updated to increase the sizes of the SCUNTBL and ACUNTBL data sets as of z/OS V2.1.
15. The Library Server element, FMID HBKQ400, introduced new libraries AEPHPLIB and AEPHTAB as of z/OS V2.1. You must run sample job EPH00ALC to allocate the new libraries before installing Library Server.

8.1.8 Create file system directories

At this time, you need to create the file system directories that are required to install the Wave 1 elements if the directories do not already exist in the target file system. For the files that install into the file system, the target libraries are directories. These directories are created by running the sample jobs listed in Figure 30. For new directories introduced in the current release, see C.6, "File System for z/OS V2.1.0" on page 391. These jobs may also create or delete symbolic links in some cases. Ensure that you run the BPXISMKD job before running the rest of the sample jobs. It is important that you refer to 6.2, "Step 1: Separating File System Data Sets for z/OS V2.1.0" on page 33 prior to running the BPXISMKD job.

Note: It is assumed that you have cloned the entire set of file system data sets as described in 6.3, "Step 2: Cloning File System Data Sets" on page 34 and that the clone is your target system. Before running the mkdir jobs, ensure the cloned file system data sets mounted on the /tmp and /dev directories are unmounted. After unmounting, verify these directories are empty. Also, ensure that the clone of /etc is mounted, so that necessary /etc changes can be made by the mkdir jobs. If /etc and /var are symbolic links, run BPXISETD to convert them back to a directory to mount them (see 8.6.1.2, "BPXISETS and BPXISETD" on page 235).

The table is in alphabetical order based on the **Description** column. The following fields are represented in this table:

Job Name It contains the name of the sample job to be run.
Job Type This field indicates the type of job that is to be run.
Description It contains the element name for which the job is to be run.
RELFILE This field identifies the location of the sample job.

<i>Figure 30 (Page 1 of 2). Wave 1 Define Directories Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
CPOISMKD	MKDIR	BCP - Capacity Provisioning	'prefix.HPV7790.F1'
CCNISMKD	MKDIR	XL C/C++	'prefix.HLB7790.F1'

Figure 30 (Page 2 of 2). Wave 1 Define Directories Sample Installation Jobs

Job Name	Job Type	Description	RELFIL
CFZISMKD	MKDIR	Common Information Model (CIM)	'prefix.HPG7790.F1'
EZAISMKD	MKDIR	Communications Server IP	'prefix.HIP6210.F1'
CSFISMKD	MKDIR	Cryptographic Services ICSF	'prefix.HCR77A0.F1'
CDSISMKD	MKDIR	Cryptographic Services OCSF	'prefix.HCRY740.F1'
GSKISMKD	MKDIR	Cryptographic Services System SSL	'prefix.HCPT410.F1'
IKYISMKD	MKDIR	Cryptographic Services PKI Services	'prefix.HKY7790.F1'
CBDISMKD	MKDIR	HCD	'prefix.HCS7790.F2'
DFPISMKD	MKDIR	DFSMS HFS	'prefix.HDZ2210.F1'
IOEISMKD	MKDIR	Distributed File Service	'prefix.H0H2410.F1'
IMWISMKD	MKDIR	IBM HTTP Server	'prefix.HIMW530.F1'
AOPISMKD	MKDIR	Infoprint Server	'prefix.HOPI790.F1'
GLDISMKD	MKDIR	IBM Tivoli Directory Server for z/OS Base	'prefix.HRSL410.F1'
EUVFSMKD	MKDIR	Integrated Security Services Network Authentication Service	'prefix.HSWK410.F1'
ITYISMKD	MKDIR	Integrated Security Services Enterprise Identity Mapping	'prefix.HIT7750.F3'
ISPISMKD	MKDIR	ISPF	'prefix.HIF7N02.F2'
CEEISMKD	MKDIR	Language Environment	'prefix.HLE7790.F1'
EPHISMKD	MKDIR	Library Server	'prefix.HBKQ400.F1'
GFSISMKD	MKDIR	Network File System	'prefix.HDZ221N.F1'
ERBISMKD	MKDIR	RMF	'prefix.HRM7790.F3'
CLBISMKD	MKDIR	Runtime Library Extensions	'prefix.HTV7790.F1'
FNTISMKD	MKDIR	z/OS Font Collection	'prefix.HFNT110.F1'
BPXISMKD	MKDIR	z/OS UNIX System Services	'prefix.HBB7790.F6'

Notes:

1. The 'prefix' is the high-level qualifier value specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.
2. Be careful when modifying the samples because path names are case sensitive.
3. After the jobs are submitted, you will get a return code of 0. Check the held output to ensure the directories and symbolic links were created properly.

Return values, such as RC, RETVAL, ERRNO, and ERRNOJR, are documented in *z/OS UNIX System Services Messages and Codes*.

If any of the jobs end with RC=0 but get the following message, it is acceptable. These messages are produced while deleting symlinks known to be obsolete, usually during migration from a previous release.

```
Deleted obsolete symlink {symlinkname}
                        {sympath1}
```

If any of the jobs end with RC=0 or RC=4 but get any of the following messages, it is acceptable. These messages are produced while deleting symlinks known to be obsolete, usually during migration from a previous release.

```
Unlink not performed {symlinkname}
Symlink exists, but does not name the obsolete path.
existing link:  {sympath1}
obsolete link: {sympath2}
```

```
Unlink not performed.
Linkname {symlinkname} exists,
        but does not have the obsolete path
existing path: {sympath1}
obsolete path: {sympath2}
```

```
Verified that the following symlinks
do not point to paths known to be obsolete.
No action take.
Linkname {symlinkname}
existing path: {sympath1}
obsolete path: {sympath2}
```

If you recognize the existing path as one that was modified manually, then the symlink should be deleted manually before attempting to SMP/E APPLY the product. ("Modified Manually" refers to actions outside the documented install process; it does not refer to normal configuration/customization tasks.)

If you do not recognize the existing pathname, then it is probably already correct; the message can be ignored. Closer examination of the symlink is only necessary if the APPLY fails with the following message:

```
LINK-EDIT PROCESSING FOR SYSMOD {} FAILED
IEW2820E DF30 EXISTING SYMBOLIC LINK
  { symlinkname }
DOES NOT MATCH SYMPATH.
```

If any of the jobs end with RC=12, due to the following message, this indicates a symlink an element expected was not created.

```
The symlink defined by {pathname}
already exists, but names a different file.
```

This can be caused by:

- modification of the symlink by the customer, or
- replacement of the symlink by a file or directory by the customer.

Check for documented migration actions, and clean up any customer modified symlinks before resubmitting the job. If the symlink or file is for customer modified data, verify the accuracy of the modified symlink against the shipped one. Often the shipped symlink points to a default file in a read-only `usr/lpp/` directory, while the customer modified one will not.

4. z/OS File System and z/OS File System Japanese use directories created by Distributed File System (DFS), and does not supply a MKDIR job.
5. Integrated Security Services OCEP (HRO7740), which is setup by Cryptographic Services OCSF, does not supply a MKDIR job.
6. Dependent FMIDs that are installed into the file system and not listed in Figure 30 on page 92 use directories created by their base FMIDs.
7. If you plan to install z/OS Font Collection in a separate file system, allocate and mount the file system to the driving system before running the sample job FNTISMKD to define the directories. Sample job FNTZFSAL is provided to allocate a zFS and sample job FNTHFSAL is provided to allocate an HFS for z/OS Font Collection. The jobs reside in 'prefix.HFNT110.F1' after SMP/E RECEIVE processing is complete. Refer to the sample jobs for information on allocating and mounting a file system for z/OS Font Collection.
8. The Library Server element introduced new file system paths as of z/OS V2.1. You must run sample job EPHISMKD to create the new paths before installing Library Server.

8.1.9 Define DDDEFs for Wave 1 Elements

Verify your target and distribution libraries have the DDDEF entries listed in Figure 89 on page 349 and Figure 90 on page 371 for z/OS V2.1.0. Sample jobs to define DDDEF entries for most elements have been provided.

Some of the elements in Wave 1 share DDDEFs. See the notes following Figure 31 on page 96 for information about elements that share DDDEFs.

Copy the sample jobs to a work data set and customize them. DDDEFs must be defined in the target and distribution zones. For specific instructions to customize, see the comments in the sample jobs.

Run the jobs after the elements have been RECEIVED.

If any of the DDDEF entries already exist, you will get a non-zero condition code. Check the output to see what caused the non-zero condition code.

Figure 31 on page 96 lists the locations of the sample jobs. Be sure to read all the notes following the table before running the sample jobs.

In the sample allocate jobs, you may notice only one variable for the distribution volume. If you want to add more variables, you may do so.

Figure 31 on page 96 lists entries in alphabetical order, based on the **Description** column. The following fields are represented.

Job Name It contains the name of the sample job to be run.
Job Type This field indicates the type of job that is to be run.
Description It contains the element name for which the job is to be run.
RELFILE This field contains the location of the sample job.

<i>Figure 31 (Page 1 of 3). Wave 1 DDDEF Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
BPXISDDD	DDDEF	BCP (Selected BCP component libraries only)	'prefix.HBB7790.F6'
Note: See notes 8 on page 99 and 19 on page 100.			
CUNJUDDF	DDDEF	BCP Base-Support for Unicode	'prefix.HUN7790.F1'
CPODDDEF	DDDEF	BCP - Capacity Provisioning	'prefix.HPV7790.F1'
BDTJDDDF	DDDEF	BDT	'prefix.HBD6602.F1'
EOYDDDEF	DDDEF	BookManager/Build	'prefix.HBKP300.F7'
EOXDDDEF	DDDEF	BookManager READ	'prefix.HBKM300.F4'
CCNJDDDF	DDDEF	XL C/C++	'prefix.HLB7790.F1'
CTVJDDDF	DDDEF	C/C++ Host Performance Analyzer	'prefix.H24P111.F1'
CFZDDDEF	DDDEF	Common Information Model (CIM)	'prefix.HPG7790.F1'
EZACSDDF	DDDEF	Communications Server	'prefix.HIP6210.F1'
Note: See note 15 on page 99.			
CSFDDDEF	DDDEF	Cryptographic Services ICSF	'prefix.HCR77A0.F1'
Note: See note 9 on page 99.			
IKYDDDEF	DDDEF	Cryptographic Services PKI Services	'prefix.HKY7790.F1'
CDSISDDD	DDDEF	Cryptographic Services OCSF	'prefix.HCRY740.F1'
GSKISDDD	DDDEF	Cryptographic Services System SSL	'prefix.HCPT410.F1'
DFPDDDEF	DDDEF	DFSMS	'prefix.HDZ2210.F1'
DGTDDDEF	DDDEF	DFSMS Japanese	'prefix.JDZ221K.F2'
Note: See note 11 on page 99.			
ICEDDDEF	DDDEF	DFSORT	'prefix.HSM1L00.F1'
IOEISDDD	DDDEF	Distributed File Service	'prefix.H0H2410.F1'

Figure 31 (Page 2 of 3). Wave 1 DDDEF Sample Installation Jobs

Job Name	Job Type	Description	RELFIL
EPW12004	DDDEF	FFST	'prefix.HFST101.F4'
IEFGDDMD	DDDEF	GDDM (includes GDDM-PGF)	'prefix.HBB7790.F6'
CBDSDDDF	DDDEF	HCD	'prefix.HCS7790.F2'
EEQHCCDF	DDDEF	HCM	'prefix.HCM1E10.F1'
ASMWTDDF	DDDEF	HLASM Toolkit	'prefix.JMQ416A.F1'
IMWJDDDF	DDDEF	IBM HTTP Server	'prefix.HIMW530.F1'
Note: See note 12 on page 99.			
ICKDDDEF	DDDEF	ICKDSF	'prefix.EDU1H01.F3'
AOPDDDEF	DDDEF	Infoprint Server	'prefix.HOPI790.F1'
ICKDDDKG	DDDEF	ISMF Japanese Panels	'prefix.FDU1H09.F2'
ITYDDDEF	DDDEF	Integrated Security Services Enterprise Identity Mapping	'prefix.HIT7750.F3'
GLDISDDD	DDDEF	IBM Tivoli Directory Server for z/OS Base	'prefix.HRSL410.F1'
EUVFSDDD	DDDEF	Integrated Security Services Network Authentication Service	'prefix.HSWK410.F1'
ISPDDDEF	DDDEF	ISPF Base	'prefix.HIF7N02.F2'
Note: See note 13 on page 99, 17 on page 100, and 18 on page 100.			
ISPDDDEU	DDDEF	ISPF German	'prefix.JIF7N15.F1'
ISPDDJPN	DDDEF	ISPF Japanese	'prefix.JIF7N14.F1'
ISPDDDES	DDDEF	ISPF Swiss German	'prefix.JIF7N11.F1'
ISPDDENP	DDDEF	ISPF Upper Case English	'prefix.JIF7N16.F1'
CEEISDDD	DDDEF	Language Environment	'prefix.HLE7790.F1'
Note: See note 14 on page 99			
EPH0DDDF	DDDEF	Library Server	'prefix.HBKQ400.F1'
CCRDDDEF	DDDEF	Metal C Runtime Library	'prefix.HSD7780.F4'
GFSDDDEF	DDDEF	Network File System	'prefix.HDZ221N.F1'
IOADDDEF	DDDEF	OSA Support Facility	'prefix.H0GI400.F1'
Note: See note 10 on page 99.			
EAGKDDEF	DDDEF	Alternate Library for REXX	'prefix.HWJ9143.F1'
ERB0DDDF	DDDEF	RMF (Base and Japanese)	'prefix.HRM7790.F3'
CLB3JDDF	DDDEF	Runtime Library Extensions	'prefix.HTV7790.F1'

Figure 31 (Page 3 of 3). Wave 1 DDDEF Sample Installation Jobs

Job Name	Job Type	Description	RELFIL
IRRDDDEF	DDDEF	Security Server RACF	'prefix.HRF7790.F1'
IKJBDDD	DDDEF	TSO/E	'prefix.HTE7790.F2'
FNTDDDEF	DDDEF	z/OS Font Collection	'prefix.HFNT110.F1'

Notes:

1. The 'prefix' is the high-level qualifier value specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.
2. Be careful when creating DDDEFs or modifying the samples because path names are case-sensitive.
3. DDDEFs for Runtime Library Extensions file system and Language Environment UNIX System Services HFS are defined during installation of the base FMIDs in Wave 1.
4. DDDEFs for z/OS File System and z/OS File System Japanese are defined during installation of the Distributed File System Base (DFS).
5. For all elements in the above table, if you specify a volume for any data set in the DDDEF job, you must also specify the same volume in the corresponding allocate entry in the allocate job (see Figure 29 on page 88).
6. The following Wave 1 elements that are documented in this program directory do not supply sample DDDEF jobs:
 - Most BCP components and BCP Japanese feature
 - Communications Server SNA Services
 - Communications Server Security Level 3
 - Communications Server X-Windows X11R4
 - EREP
 - ESCON Director Support
 - HCD Japanese
 - IBM HTTP Server Japanese
 - IOCP
 - MICR/OCR
 - TIOC
 - z/OS Security Level 3 OCSF Security Level 3
 - z/OS Security Level 3 System SSL Security Level 3
 - 3270 PC File Transfer Program
7. The following elements do not supply sample DDDEF jobs. Their DDDEFs are in the base FMID jobs and need to be uncommented to become active.
 - Distributed File Service Japanese
 - TSO/E Japanese
 - TSO/E German
 - TSO/E Simplified Chinese

8. If BCP Japanese and/or Simplified Chinese FMIDs are ordered, ensure that the DDDEFs of TSO/E Japanese and/or Simplified Chinese libraries are defined by running IKJBDDD since the BCP National Language features are installed into the shared libraries with TSO/E National Languages.
9. The Cryptographic Services ICSF libraries contain parts and aliases that provide for successful link edit of Cryptographic Services ICSF load modules for customers who do not have CICS installed. Since these libraries contain aliases provided by CICS, customers who install both Cryptographic Services ICSF and CICS should install the products into separate target and distribution data sets.
10. OSA/SF ships parts and aliases that provide for successful link edit of the element load modules for customers who do not have the subsystem installed. Since these data sets contain aliases provided by the subsystem, customers who install OSA/SF and the subsystem should ensure the data sets from OSA/SF do not consolidate with the subsystem data sets.
11. Special Note for DFSMS Japanese.

If DFSMS Japanese and ICKDSF Japanese are ordered, ensure that the DDDEFs of ICKDSF Japanese are defined by running ICKDDDKG so that the DFSMS Japanese feature can install into the shared libraries of ICKDSF Japanese.
12. For IBM HTTP Server, follow the instructions in this note for step DEFPATH, not the note in the prolog of the sample job.

Change the -PathPrefix- string to the appropriate high level directory name. If you are installing in the path as defined, change "-PathPrefix-" to "". If you are upgrading releases or installing maintenance, change "PathPrefix-" to "/Service" or a more meaningful name. Note that the replacement string is case sensitive.

Before running this step, verify that the changed path statements do not contain double slashes (such as //usr/lpp).
13. SMP/E apply processing for ISPF now uses CALLLIBS. This requires DDDEF entries to exist for the following data sets:
 - SYS1.CSSLIB
 - CEE.SCEELKED
 - TCPIP.SEZACMTX

It is assumed that these DDDEFs will already exist in the target zone. However, 'ADD DDDEF' statements are provided for these DDDEFs in the job ISPDDEF, commented out. If required uncomment these statements and edit appropriately before running ISPDDEF.
14. Language Environment also uses DDDEFs that sample job BPXISDDD creates. Be sure to run sample job BPXISDDD before you install Language Environment.
15. The former ISTCSDDF DDDEF job for Communications Server SNA Services has been merged into Communications Server IP Services DDDEF job, EZACSDDF.
16. In z/OS V1.8.0, element msys for Operations was withdrawn. DDDEF CNMLINK had been provided by the msys for Operations element. Although msys for Operations has been withdrawn from z/OS V1.8.0, and later releases, the installation of OSA/SF (FMID H0G1400) PTFs still requires DDDEF CNMLINK to be defined in the target zone. The DDDEF for CNMLINK must point to an empty data set when Tivoli NetView for OS/390 V1R4 (5697-B82) is not installed. (Part of Tivoli NetView for

OS/390 V1R4, as well as part of System Automation for z/OS V2R3, was included in msys for Operations.) Removing the DDDEF for CNMLINK will result in failures when installing OSA/SF PTFs.

17. Starting from z/OS V1.10.0, the ISPF element installs modules into the file system. Therefore, the sample job ISPDDDEF includes a DDDEF for the file system path.
18. Starting from z/OS V1.10.0, the APPLY for the ISPF element also installs load modules into the SYS1.LINKLIB library. A DDDEF is assumed to already exist for the SYS1.LINKLIB data set in the target zone. However, an 'ADD DDDEF' statement, which is commented out, is provided for this DDDEF in the job ISPDDDEF. If required, you can add a DDDEF into the target zone by uncommenting the 'ADD DDDEF' statement, editing it appropriately, and running the job ISPDDDEF.
19. The BPXISDDD sample job creates DDDEFs for z/OS UNIX System Services Application Services, as a result of the merge of job FOMISDDF in z/OS V1.11.0.
20. Starting from z/OS V2.1.0, the APPLY for the ISPF element also installs program objects into the SYS1.SIEALNKE library. A DDDEF is assumed to already exist for the SYS1.SIEALNKE and SYS1.AIEALNKE data set in the target zone. However, 'ADD DDDEF' statements, which are commented out, are provided for these DDDEFs in the job ISPDDDEF. If required, you can add these DDDEFs into the target zone by uncommenting the 'ADD DDDEF' statements, editing it appropriately, and running the job ISPDDDEF.
21. The Library Server element, FMID HBKQ400, introduced new DDDEFs as of z/OS V2.1. You must run sample job EPH00DDF to create the new DDDEFs before installing Library Server.

8.1.10 Pre-APPLY Actions

Before running APPLY of Wave 1, ensure that you have completed the required delete jobs documented in 8.1.6, "Run required and optional Delete Jobs" on page 83.

8.1.10.1 Migration actions

See *z/OS Migration* for more information about the required migration actions.

- Commands copied from CMDLIB to LPALIB

SMP/E will be unable to maintain and apply product and service updates to commands which you copy from CMDLIB to LPALIB, unless you first identify the residency change to SMP/E. Therefore, IBM does not recommend that you copy commands from CMDLIB to LPALIB. If your installation feels it is necessary to place commands into LPALIB to achieve better runtime performance and you have previously copied the commands from CMDLIB to LPALIB, you must do one of the following:

- Delete the old copies from LPALIB.
- Replace with the new version of the commands.

Because it is necessary to manually update LPALIB if you have copied your commands from CMDLIB to LPALIB, you may instead want to MLPA the commands, or add SYS1.CMDLIB to the LPA list rather than physically copying commands to LPALIB. If you choose to add CMDLIB to the LPA list, you must also add it to the APF list.

- Modified Modules and User Exits

Installation of z/OS V2.1.0 elements may replace modified modules or User Exits that you may have changed during prior installations of the elements. To ensure that you do not lose these modified modules or User Exits, you may wish to save a copy of them prior to doing the APPLY.

See *z/OS Migration* for information about the required migration actions.

8.2 Step 2: APPLY Wave 1

The current level of SMP/E, the BCP Program Management Binder, and the High Level Assembler, which are shipped with z/OS V2.1.0, must be installed first onto the target system. After these elements have been installed in Wave 0, be sure that the appropriate STEPLIB DD statements have been added to your install procedures. This is necessary because the level of SMP/E, BCP Program Management Binder, and the High Level Assembler, which are shipped with z/OS V2.1.0, will be used to install the elements in Wave 1. See 6.3.1, “Using High Level Assembler, Program Management Binder, and SMP/E for Subsequent z/OS V2.1.0 Installs” on page 34 for more information. If SMP/E dialogs will be used, the SMP/E libraries need to be concatenated when establishing the ISPF environment. See 8.5.4, “z/OS Version 2 Release 1 ISPF setup considerations” on page 161 to identify the appropriate DD statements and the SMP/E libraries that need to be concatenated.

8.2.1 Select which z/OS Wave 1 FMIDs to install

Select which z/OS Wave 1 FMIDs to install by choosing the appropriate FMIDSETs that were defined in 6.5.3, “Elements in each Wave, Ripple, and FMIDSET” on page 37. The sample SMP/E job in this chapter shows the FMIDSETs being installed one at a time. Each job will be repeated for each ripple by changing WAVE1*n* to WAVE1A, WAVE1AL, WAVE1B, WAVE1C, and so forth. If desired, multiple ripples can be combined, but they must be run in order.

8.2.2 Do an SMP/E APPLY CHECK for Wave 1 FMIDs and service

Before you proceed with the APPLY CHECK for Wave 1, you must complete all data set allocations, DDDEFs, and file system directories for all the Wave 1 elements. This step is necessary because some elements share data sets, file system paths, and DDDEFs.

Run an APPLY CHECK to identify any requisite service and additional holds (for example, HOLDSYS(DOC,EC)) that may need to be resolved before APPLY processing. Resolve any holds and RECEIVE any requisite service identified by the APPLY CHECK before the next step.

Figure 32 on page 102 shows a sample APPLY CHECK for the functions specified in the SELECT operand, plus received PTFs that are applicable only to the FMIDs listed in the FORFMID.

```

//CHECK JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vol1
//          DD DSN=ASM.SASMMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vol1
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(targetzone)
  OPTIONS(ZOSOPT) .
  UPGRADE.
  APPLY CHECK XZREQ
  FORFMID(ZV21W1n)
  SELECT(WAVE1n)
  GROUPEXTEND(NOAPARS,NOUSERMODS)
  SOURCEID(ZOSV2R1,RSU*)
  /* see Note 3 below */
  FIXCAT(IBM.ProductInstall-RequiredService)
  /* see Note 3 below */
  BYPASS(HOLDSYSTEM,HOLDUSER,
         HOLDCLASS(UCLREL,ERREL,HIPER)) .
/*

```

Figure 32. SMP/E APPLY CHECK (All FMIDs and Service for z/OS Wave 1)

Note: ZOSOPT is now the option name for z/OS.

Required Updates

1. Update the *job parameters*.
2. Update the v2r1vol1 with the volume serial number for the MIGLIB and SASMMOD1 libraries that are the targets of the Wave 0 installation. This will allow you to access the z/OS V2.1.0 level of the Wave 0 elements using the STEPLIB DD statements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.
4. Update targetzone to your target zone name.
5. Update WAVE1n so that n is A, AL, B, C, D, E, F, or G.
6. Update ZV21W1n so that n is A, AL, B, C, D, E, F, or G. This FMIDSET includes FMIDs for all elements within the specific ripple.
7. The XZREQ operand only needs to be specified when cross-zone processing is required.

Notes:

1. Adding the FMIDSET(ZV21W1n) in the FORFMID operand ensures the PTF service for all FMIDs (new, changed, and unchanged) will get applied at the same time as the ripple for the new FMIDs is installed.
2. The Program Management Binder requires SCEERUN for execution. If SCEERUN is not in your LINKLST or LPALST, you must add the appropriate STEPLIB DD statement to any JCL and procedures (for example, SMP/E proc) which invoke the binder for successful processing, such as conversion of LONGNAMEs to SHORTNAMEs.
3. If you did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the APPLY. In such a situation, you must add the HIPER value to the SOURCEID operand; for example, SOURCEID(ZOSV2R1,RSU*,HIPER).

Investigate any messages other than those in 6.7, "Step 6: Review general installation notes" on page 45 or those listed in the following sections.

Note: The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON THE APPLY
COMMAND BUT SINCE NO ZONES WERE APPLICABLE FOR CROSS-ZONE
REQUISITE CHECKING, THE XZREQ OPERAND WILL BE IGNORED.
```

```
GIM20501I APPLY PROCESSING IS COMPLETE. THE HIGHEST RETURN
CODE WAS 04.
```

8.2.2.1 Additional messages expected during Wave 1A APPLY CHECK

Successful APPLY CHECK processing of Wave 1A returns a condition code of 4.

8.2.2.1.1 Messages expected during BCP APPLY CHECK

The following messages may be seen and are acceptable during BCP APPLY CHECK processing. Successful APPLY CHECK processing returns a condition code of 4. Because of these messages, and the resulting condition code, SMP/E produces one of the following messages for every load module that was link-edited in the same utility invocation:

- GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HBB7790 BECAUSE IT IS NOT IN THE target ZONE, where xxxxxxxx will be one of the load modules:
AMDPRFMT ATBINPVT IEAIPL04 IEANUC11 IEFITJT IEFW21SD
IWMO2CMD
- GIM23913W LINK-EDIT PROCESSING FOR SYSMOD HBB7790 WAS SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss -- SEQUENCE NUMBER nnnnnn -- SYSPRINT FILE xxxxxxxx.
- GIM23903W LINK-EDIT PROCESSING FOR SYSMOD HBB7790 WAS SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss -- SEQUENCE NUMBER nnnnnn.

8.2.2.1.2 Messages expected during Communications Server IP Services APPLY CHECK

During the APPLY CHECK of Communications Server IP Services, the following messages are received and are acceptable. Successful APPLY CHECK processing returns a condition code of 4.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HIP6210  
BECAUSE IT IS NOT IN THE target ZONE.
```

In the message, xxxxxxxx will be one of the following modules:

```
EZAADMLR  EZAFTSRV  EZAPPRT  EZAPPSST  GXDEMO1  GXDEMO2  
GXDEMO3  GXDEMO4  GXDEMO4A  GXDEMO5  GXDEMO6
```

8.2.2.1.3 Messages expected during Cryptographic Services ICSF APPLY CHECK

During the APPLY CHECK of Cryptographic Services, ICSF, the following messages are received and are acceptable. In the message, xxxxxxxx will be one of the following modules:

```
CSFATWOT  CSFAVKID  CSFCVR1  CSFDSTAT
```

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HCR77A0  
BECAUSE IT IS NOT IN THE target ZONE
```

8.2.2.2 Additional messages expected during Wave 1AL APPLY CHECK

Successful APPLY CHECK processing of Wave 1AL returns a condition code of 0 or 4.

8.2.2.3 Additional messages expected during Wave 1B APPLY CHECK

Successful APPLY CHECK processing of Wave 1B returns a condition code of 4.

8.2.2.3.1 Messages expected during DFSMS APPLY CHECK

During the APPLY CHECK of DFSMS, the following message is received and is acceptable.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HDZ2210  
BECAUSE IT IS NOT IN THE target ZONE
```

In the message text, xxxxxxxx is one of the following modules:

```
ARCZCUC  ARCZDLC  ARCZPUT  EDGCXTRC  EMOVOL1  OMOVOL1
```

Successful APPLY CHECK processing returns a condition code of 4.

8.2.2.4 Additional messages expected during Wave 1C APPLY CHECK

Successful APPLY CHECK processing of Wave 1C returns a condition code of 4.

8.2.2.4.1 Messages expected during BookManager/Build APPLY CHECK

During the installation of BookManager/Build, if you installed BookManager READ first you will receive NOT SEL for the common parts; this indicates that BookManager READ retains ownership of the common parts and is acceptable. The common parts are:

EOYALLC EOYALLC2 EOYBOOK EOYBKIND EOYINDEX EOYINDX
EOYPARM EOY@PRIM EIJBPOR EIJCFRE EIJDANI EIJDUTC
EIJENGL EIJFREN EIJGERM EIJITAL EIJNORW EIJPORT
EIJSPAN EIJSWED EIJUKEN

Successful APPLY CHECK processing returns a condition code of 4.

8.2.2.4.2 Messages expected during EREP APPLY CHECK

You may receive the following messages:

GIM61903W ALIAS IFCC9221 WAS NOT DELETED BY SYSMOD EER3500
BECAUSE IT IS NOT IN THE target ZONE.

GIM61903W LMOD IFCILG04 WAS NOT DELETED BY SYSMOD EER3500
BECAUSE IT IS NOT IN THE target ZONE.

8.2.2.4.3 Messages expected during TSO/E APPLY CHECK

You might receive the following message, which is acceptable. In the message, xxxxxxxx will be one of the following load modules for SYSMOD HTE7790:

IGC0006A IKJEFT02 IKJEFT09 IKJEGDRP IRXAPPC TEST

GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HTE7790
BECAUSE IT IS NOT IN THE target ZONE.

You might receive the following message, which is acceptable. In the message, xxxxxxxx is the following aliases for SYSMOD HTE7790:

GENTRANS IKJEFLIA IKJEGCAL IKJEGDEL IKJEGDRP IKJEGFRE
IKJEGGET IKJEGLOD IKJEGRUN TSOENV

GIM61903W ALIAS xxxxxxxx WAS NOT DELETED BY SYSMOD
HTE7790 BECAUSE IT IS NOT IN THE target ZONE.

Successful APPLY CHECK processing returns a condition code of 4.

8.2.2.5 Additional messages expected during Wave 1D APPLY CHECK

Successful APPLY CHECK processing of Wave 1D returns a condition code of 0. However, if any of the warning messages shown in 6.7, “Step 6: Review general installation notes” on page 45 are received in the SMP/E output, then a return code of 4 is expected and is acceptable.

8.2.2.6 Additional messages expected during Wave 1E APPLY CHECK

Successful APPLY CHECK processing of Wave 1E returns a condition code of 0.

8.2.2.7 Additional messages expected during Wave 1F APPLY CHECK

Successful APPLY CHECK processing returns a condition code of 0.

8.2.2.8 Additional messages expected during Wave 1G APPLY CHECK

Successful APPLY CHECK processing of Wave 1G returns a condition code of 0 or 4.

8.2.2.8.1 Messages expected during Distributed File Service Apply Check

During the APPLY CHECK of Distributed File Service, you may receive the following message, where *yyyyyy* is either H0H2410 or HZFS410 and *xxxxxxx* is one of the following modules:

For H0H2410 IOECMINI, IOEGLUE

For HZFS410 IOEZM004, IOEZM006, IOEZM007

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD yyyyyy  
BECAUSE IT IS NOT IN THE target ZONE
```

These messages are acceptable if they are the only cause of the return code 4.

8.2.2.8.2 Messages expected during Network File System Apply Check

During the APPLY CHECK of Network File System, the following message might be received. This is acceptable if it is the only cause of the return code 4.

```
GIM61903W LMOD yyyyyyyy WAS NOT DELETED BY SYSMOD HDZ221N  
BECAUSE yyyyyyyy IS NOT IN THE target ZONE
```

In the message text, *yyyyyyyy* will be one of the following modules and *target* is the name of the target zone.

```
GFSAMAIN  GFSCMAIN  GFSATCPL  GFSATPNL  GFSATPRL  GFSAXOUT  
GFSAXPRT  GFSAXSRB  GFSAXTIN  GSAHFST  GSALEGT  GSAXEPL
```

8.2.2.9 Do an SMP/E APPLY for Wave 1 FMIDs and Service

If you have bypassed a HOLDSYSTEM for MSGSKEL, see 8.4.1.1, “Compile MMS Data Sets” on page 132, for information about how to compile the MVS Message Service skeleton files after a successful APPLY. Be certain that all the exception conditions have been satisfied before adding other conditions to the BYPASS(HOLDSYSTEM(MSGSKEL)) during the SMP/E APPLY step.: Figure 33 on page 107 shows a sample APPLY for the functions specified in the SELECT operand, plus received PTFs that are applicable only to the FMIDs listed in the FORFMID.

```

//APPLY JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vol1
//          DD DSN=ASM.SASMMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vol1
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(targetzone)
  OPTIONS(ZOSOPT) .
  APPLY XZREQ
  FORFMID(ZV21W1n)
  SELECT(WAVE1n)
  GROUPEXTEND(NOAPARS,NOUSERMODS)
  SOURCEID(ZOSV2R1,RSU*)
  /* see Note 2 below */
  FIXCAT(IBM.ProductInstall-RequiredService)
  /* see Note 2 below */
  BYPASS(HOLDSYSTEM,HOLDUSER,
         HOLDCLASS(UCLREL,ERREL,HIPER))
  COMPRESS(ALL) .
/*

```

Figure 33. SMP/E APPLY (All FMIDs and Service for z/OS Version 2 Release 1 Wave 1)

Note: ZOSOPT is now the option name for z/OS.

Required Updates

1. Update the *job parameters*, as needed.
2. Update the v2r1vol1 with the volume serial number for the MIGLIB and the SASMMOD1 libraries which were the targets of the Wave 0 installation. This will allow you to access the z/OS V2.1.0 level of the Wave 0 elements using the STEPLIB DD statements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.
4. Update *targetzone* to your target zone name.
5. Update WAVE1n so that n is A, AL, B, C, D, E, F, or G.
6. Update ZV21W1n so that n is A, AL, B, C, D, E, F, or G. This FMIDSET includes FMIDs for all elements within the specific ripple.
7. The XZREQ operand only needs to be specified when cross-zone processing is required.

Notes:

1. Adding the FMIDSET(ZV21W1n) in the FORFMID operand ensures the PTF service for all FMIDs (new, changed, and unchanged) will get applied at the same time as the ripple for the new FMIDs is installed.
2. If you did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the APPLY. In such a situation, you must add the HIPER value to the SOURCEID operand; for example, SOURCEID(ZOSV2R1,RSU*,HIPER).

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDS before putting your system into production.

If you do not BYPASS(HOLDCLASS(HIPER)), the FMIDs may not be installed if any of the HIPER maintenance is unavailable.

Any messages other than in 6.7, "Step 6: Review general installation notes" on page 45, or those listed in the following sections need to be investigated.

Note: The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON THE APPLY
COMMAND BUT SINCE NO ZONES WERE APPLICABLE FOR CROSS-ZONE
REQUISITE CHECKING, THE XZREQ OPERAND WILL BE IGNORED.
```

```
GIM20501I APPLY PROCESSING IS COMPLETE. THE HIGHEST RETURN
CODE WAS 04.
```

8.2.2.10 Additional messages expected during Wave 1A APPLY

Scenario: During a CBPDO installation of z/OS V2.1.0, if the bind of IEANUC01 fails with the following message produced, the SMP/E APPLY might fail for HBB7790, HDZ2210, HIP6210, and HFST101.

```
IEW2353E SECTION section CONTAINS INVALID DATA.
ERROR CODE IS 250013
```

Cause: The z/OS V2.1.0 level of the Program Management Binder was not used for APPLY. The reason could either be the MIGLIB library of z/OS V2.1.0 was not STEPLIBed to in the SMP/E APPLY step, or be the MIGLIB library was not APF authorized.

Resolution: Add STEPLIB for the MIGLIB library in which the z/OS V2.1.0 level of the Program Management Binder is installed to the SMP/E APPLY job, as shown in Figure 33 on page 107. Ensure that the MIGLIB library is APF-authorized; then, rerun the SMP/E APPLY job.

8.2.2.10.1 Messages expected during BCP APPLY

In addition to the general messages listed in 6.7, "Step 6: Review general installation notes" on page 45, the following messages might be received during the APPLY of BCP. Message GIM23913W will be

received in the SMP/E output for each load module in the NUCLEUS library. These messages are acceptable if they are the only reasons for the condition code 4.

- GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HBB7790 BECAUSE IT IS NOT IN THE target ZONE, where xxxxxxxx is any of the following modules:
AMDPRFMT ATBINPVT IEAIPL04 IEANUC11 IEFITJT IEFW21SD IWMO2CMD
- GIM23913W LINK-EDIT PROCESSING FOR SYSMOD HBB7790 WAS SUCCESSFUL FOR MODULE mmmmmmm IN LMOD nnnnnnnn IN THE NUCLEUS LIBRARY. THE RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss -- SEQUENCE NUMBER nnnnnn -- SYSPRINT FILE xxxxxxxx.
- GIM23903W LINK-EDIT PROCESSING FOR SYSMOD HBB7790 WAS SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss -- SEQUENCE NUMBER nnnnnn.

8.2.2.10.2 Messages expected during Communications Server IP Services APPLY

During the APPLY of Communications Server IP Services, the following messages are received:

- GIM62701W THE ++DELETE MCS FOR LMOD ENTRY EZAIMSLN IN SYSMOD HIP6210 WAS NOT PROCESSED BECAUSE THE SYSLIB VALUE DOES NOT MATCH THE EXISTING SYSLIB VALUE
- GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HIP6210 BECAUSE IT IS NOT IN THE target ZONE, where xxxxxxxx will be one of the following modules:
EZAADMLR EZAFTSRV EZAPPRT EZAPPSST GXDEMO1 GXDEMO2
GXDEMO3 GXDEMO4 GXDEMO4A GXDEMO5 GXDEMO6

During the APPLY of HIP6210, the following messages are expected:

IEW2646W 4B07 ESD RMODE(24) CONFLICTS WITH USER-SPECIFIED RMODE(ANY) FOR xxxxxxxx.

IEW2651W 511C ESD AMODE 24 CONFLICTS WITH USER-SPECIFIED AMODE 31 FOR ENTRY POINT xxxxxxxx.

IEW2646W 4A07 ESD RMODE(24) CONFLICTS WITH USER-SPECIFIED RMODE(ANY) FOR SECTION xxxxxxxx.

For message IEW2646W, xxxxxxxx is the CSECT name. For message IEW2651W, xxxxxxxx is the entry point name.

The APPLY step will complete with a condition code of 0004. Program Binder message IEW2454 will be received for the load modules listed in the following data sets:

TCPIP.SEZACMTX

EZAAA002 EZAAD02E EZAAE008 EZABB00Q EZACA00Z
EZAADHTN EZAAD028 EZAAE01D EZABB00R EZACA001
EZAAD0BU EZAAD04A EZAAE01H EZABB00T EZACA015
EZAAD0B5 EZAAD04C EZAAE016 EZABB00U EZACA016
EZAAD00Y EZAAD04D EZAAE02A EZABB00X EZACA019
EZAAD00Z EZAAD04E EZAAE029 EZABB00Z EZAFTPMM

EZAAD0PR EZAAD04F EZAEE03Q EZABB001 EZAFTPMT
 EZAAD0PS EZAAD04K EZAEE03V EZABB002 EZAMSGLC
 EZAAD0PT EZAAD04L EZAEE04A EZABB005 EZAMSGP
 EZAAD0PV EZAAD04M EZAEE046 EZABB006 EZAMSGW
 EZAAD0PW EZAAD04V EZAEE047 EZABB011 EZAXTI
 EZAAD0P0 EZAAD065 EZAEE05I EZABB012 EZBCRSTK
 EZAAD0P1 EZAEE00C EZAEE050 EZABB04C EZBIEFTM
 EZAAD0P2 EZAEE00D EZAEE060 EZABB04D EZBIEGTM
 EZAAD0P3 EZAEE00G EZAEE061 EZABB04J EZBMSGMI
 EZAAD0XE EZAEE00K EZABBWLD EZACA00K EZBPAINT
 EZAAD0XH EZAEE00L EZABB00A EZACA00L EZBPAREV
 EZAAD0YW EZAEE00R EZABB00B EZACA00M EZBTTSRT
 EZAAD00V EZAEE00S EZABB00C EZACA00Q EZBWTOCR
 EZAAD00W EZAEE00T EZABB00F EZACA00R EZBWTODM
 EZAAD00X EZAEE00U EZABB00H EZACA00S
 EZAAD00Z EZAEE006 EZABB00L EZACA00U
 EZAAD01L EZAEE007 EZABB000 EZACA00W

TCPIP.SEZADPIL

EZAAD00X EZAAD0W3 EZAAD064

TCPIP.SEZARPCL

EZAAD0BL EZAAD0EB EZAAD00A EZAAD00J EZAAD00K EZAAD00L
 EZAAD00M EZAAD00N EZAAD000 EZAAD009 EZAAD0PH EZAAD0PI
 EZAAD0PJ EZAAD0PY EZAAD0QA EZAAD0QB EZAAD0QD EZAAD0QE
 EZAAD0QF EZAAD0QG EZAAD0QH EZAAD0QI EZAAD0QJ EZAAD0Q5
 EZAAD0Q6 EZAAD0Q7 EZAAD0Q8 EZAAD0Q9 EZAAD0Z0 EZAAD013
 EZAAD04I EZAAD04J EZAAD07Z EZAAD080

TCPIP.SEZALIBN

EZAAD0TM EZAAD0U5 EZAAD0UH EZAAD0VB EZAAD0VP EZAAD0TN
 EZAAD0U9 EZAAD0V8 EZAAD0VF EZAAD0VQ EZAAD0U1 EZAAD0UA
 EZAAD0V9 EZAAD0VH EZAAD0VS EZAAD0U4 EZAAD0UG EZAAD0VA
 EZAAD0VJ

TCPIP.SEZALOAD

EZAESITE EZAIMSLN EZAMSGS EZAPSMPL EZATSITE EZAVXLAT

TCPIP.SEZATCP

EZACIC07

Because of these messages, and the resulting condition code, SMP/E produces one of the following messages for every load module that was link-edited in the same utility invocation:

GIM23903W LINK-EDIT PROCESSING FOR SYSMOD HIP6210 WAS SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss - SEQUENCE NUMBER nnnnnn."


```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD HIP6210 WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE
RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss --
SEQUENCE NUMBER nnnnnn -- SYSPRINT FILE xxxxxxxx.
```

The following MAC and MOD entries in the Communications Server IP Services FMID are superseded by the same part entries in feature FMIDs. Therefore, these MAC and MOD entries might be flagged as "NOT SEL" during the APPLY.

```
MAC EZACDIRB
MAC EZAODIRB
MOD EZACXADE
MOD EZACXAEN
MOD EZACX3DE
MOD EZACX3EN
MOD EZACX3FR
MOD EZACX3HD
MOD EZACX3HE
MOD EZACX3IK
MOD EZAPX3CC
MOD EZBISXGM
MOD EZBISXES
```

8.2.2.10.3 Messages expected during Communications Server XWindows X11R4 Feature APPLY

Because the Language Environment routines are not linked during the link-edit of Communications Server X11R4 XWindows, Program Binder message IEW2454 will be received for each load module in the following data sets:

- TCPIP.SEZAOLDX
- TCPIP.SEZAXAWL
- TCPIP.SEZAXMLB
- TCPIP.SEZAXTLB
- TCPIP.SEZAX11L

Because of these messages, and the resulting condition code, SMP/E produces one of the following messages for every load module that was link-edited in the same utility invocation. If these are the only cause of the condition code 4, it is acceptable.

```
GIM23903W LINK-EDIT PROCESSING FOR SYSMOD JIP621X WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE
RETURN CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss
SEQUENCE NUMBER nnnnnn.
```

```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD JIP621X WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE
RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss --
SEQUENCE NUMBER nnnnnn --."
```

During the APPLY of JIP621X you may receive the following message:

```
IEW2609W SECTION section name USABILITY ATTRIBUTE OF
usability-option CONFLICTS WITH REQUESTED USABILITY
OF usability-option.
```

8.2.2.10.4 Messages expected during Communications Server SNA Services APPLY

During the installation of SNA Services, you may receive message GIM23903W or GIM23913W for the load modules for HVT6210 that are installed into the following libraries: LPALIB, LINKLIB, MIGLIB, SISTCLIB, VTAMLIB.

```
GIM23903W LINK-EDIT PROCESSING FOR SYSMOD sysmod WAS SUCCESSFUL FOR
MODULE modname IN LMOD loadmod IN THE library LIBRARY. THE RETURN
CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss - SEQUENCE
NUMBER seqno.
```

```
GIM23913I LINK-EDIT PROCESSING FOR SYSMOD sysmod WAS SUCCESSFUL FOR
MODULE modname IN LMOD loadmod IN THE library LIBRARY. THE RETURN
CODE WAS 04. DATE yy.ddd TIME hh:mm:ss SEQUENCE
NUMBER seqno SYSPRINT FILE sysprint.
```

8.2.2.10.4.1 Warning messages: During the installation of Communications Server SNA Services, you may receive the following message during the apply:

```
IEW2609W SECTION section name USABILITY ATTRIBUTE OF
      usability-option CONFLICTS WITH REQUESTED
      USABILITY OF usability-option
```

```
IEW2646W ESD RMODE(24) CONFLICTS WITH USER-SPECIFIED
      RMODE(ANY) FOR SECTION ISTxxxxx.
```

```
IEW2651W ESD AMODE 24 CONFLICTS WITH USER-SPECIFIED
      AMODE 31 FOR ENTRY POINT ISTxxxxx.
```

```
IEW2660W RESULTANT AMODE(24) AND USER-SPECIFIED
      RMODE(ANY) ARE INCOMPATIBLE FOR ISTxxxxx.
      AMODE HAS BEEN CHANGED TO (31).
```

These messages can be ignored. If they are the only cause of the condition code 4, it is acceptable.

8.2.2.10.5 Messages expected during Cryptographic Services ICSF APPLY

During the APPLY of Cryptographic Services, ICSF, the following message is received and is acceptable; xxxxxxxx will be one of the following modules:

```
CSFATWOT CSFAVKID CSFCVR1 CSFDSTAT
```

Successful APPLY processing returns a condition code of 4.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HCR77A0
BECAUSE IT IS NOT IN THE target ZONE
```

8.2.2.10.6 Messages expected during ISPF APPLY

During the installation of ISPF, you might receive one of the following messages. For LMOD IGC0009C, the modules can be ISPSC93, ISPSC93Q, and ISPSC93X. For LMOD IGC0009D, the module can be ISPSC94. If these are the only cause of the condition code 4, it is acceptable.

```
GIM23903W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE
RETURN CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss
SEQUENCE NUMBER nnnnnn.
```

```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE
RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss --
SEQUENCE NUMBER xxxxxx --.
```

8.2.2.10.7 Messages expected during Metal C Runtime Library APPLY

Messages from Metal C have the following format, where xxxxxxxx is one of the following symbols.

```
IEW2454W 9203 SYMBOL xxxxxxxx UNRESOLVED. NO AUTOCALL (NCAL) SPECIFIED.
```

```
@@INTNAN  @@NANINT  @@PHLOAT  @@PHLOUT  ABS
ATOL      b_ecvt_i  b_fcvt_i  b_fecvt  b_ffcvt
b_fgcv    b_fgcv    b_gcvt_i  b_gecvt  b_lecvt
b_lfcvt   b_lgcvt   b_lgecvt bintl910 deci754
frstg31   frstg64   ISALPHA  ISUPPER  ISXDIGIT
i754nanp  i754pnan  i754type STRTOLL  STRTOULL
```

During the APPLY of Metal C Runtime Library, the following messages are expected:

```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD HSD7780 WAS SUCCESSFUL
FOR MODULE modname IN LMOD loadmod IN THE SCCR6BND LIBRARY. THE
RETURN CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss - SEQUENCE NUMBER
seqno - SYSPRINT FILE sysprint.
```

```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD HSD7780 WAS SUCCESSFUL
FOR MODULE modname IN LMOD loadmod IN THE SCCR3BND LIBRARY. THE
RETURN CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss - SEQUENCE NUMBER
seqno - SYSPRINT FILE.
```

8.2.2.11 Additional messages expected during Wave 1AL APPLY

Successful APPLY processing of Wave 1AL returns a condition code of 0 or 4. If the XZREQ operand was specified on the APPLY command but there were no applicable zones, message GIM50810W will be issued during APPLY processing and a condition code of 4 is expected.

8.2.2.12 Additional messages expected during Wave 1B APPLY

Successful APPLY processing of Wave 1B returns a condition code of 4.

8.2.2.12.1 Messages expected during DFSMS APPLY

During the APPLY of DFSMS you may receive the following messages.

```
GIM61903W LMOD yyyyyyyy WAS NOT DELETED BY SYSMOD HDZ2210  
BECAUSE yyyyyyyy IS NOT IN THE xxxx ZONE
```

In the message text, yyyyyyyy will be one of the following modules and xxxx is the name of the target zone.

```
ARCZCUC  ARCZDLC  ARCZPUT  EDGCXTRC  EMODVOL1  OMODVOL1
```

You may also receive the following messages:

```
GIM63201I  ALIAS DWW1RPCP WAS DELETED FROM THE LPALIB  
LIBRARY BY SYSMOD HDZ2210.
```

```
GIM63201I  ALIAS DWW1RARR WAS DELETED FROM THE LPALIB  
LIBRARY BY SYSMOD HDZ2210.
```

```
GIM63201I  ALIAS IDABLARR WAS DELETED FROM THE LPALIB  
LIBRARY BY SYSMOD HDZ2210.
```

```
GIM63201I  ALIAS IDABLVBB WAS DELETED FROM THE LPALIB  
LIBRARY BY SYSMOD HDZ2210.
```

```
GIM63201I  LMOD IDA019BL WAS DELETED FROM THE LPALIB  
LIBRARY BY SYSMOD HDZ2210.
```

```
GIM23903W LINK-EDIT PROCESSING FOR SYSMOD HDZ2210 WAS SUCCESSFUL FOR  
MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY.  
THE RETURN CODE WAS 04.  DATE yy.ddd -- TIME hh:mm:ss--  
SEQUENCE NUMBER nnnnnn.
```

```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx  
WAS SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx  
IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04.  
DATE yy.ddd - TIME hh:mm:ss-  
SEQUENCE NUMBER xxxxxx-
```

SMP/E produces one of the preceding messages for every load module that was link-edited in the same utility invocation.

The following unresolved external references may be encountered during the apply of DFSMS.

Messages from the Binder have the following format:

```
IEW2454W 9203 SYMBOL xxxxxxxx UNRESOLVED. NO AUTOCALL (NCAL) SPECIFIED.
```

In the message, xxxxxxxx will be one of the following items:

```
EMODVOL1  HASPXSUB  IDACAT13  IDAOCEA1  IDAOCEA2  IDA0192G  
IDA0192P  IEFAB4DC  IFG0EX0A  IFG0RR0B  IFG0RR0G  IFG0RR0H
```

```

IFG0SIOA IFG019EV IFG019RC IFG0190P IFG0191X IFG0192A
IFG0192F IFG0192I IFG0192Y IFG0193C IFG0193G IFG0194A
IFG0194F IFG0194J IFG0194K IFG0195A IFG0195B IFG0195T
IFG0196V IFG0198N IFG0199B IFG020EV IFG0200N IFG0200P
IFG0200S IFG0200T IFG0200U IFG0200V IFG0200W IFG0201A
IFG0202E IFG0202L IFG0204A IFG0204J IFG0209B IFG0230P
IFG0231P IFG0231T IFG0232Z IFG0234J IFG0239B IFG055ZZ
IFG0550P IFG0550Y IFG0551L IFG0552B IFG0552P IFG0552X
IFG0553B IFG0553F IFG0554A IFG0554J IFG0554K IFG0554L
IFG0554P IFG0554T IFG0555J IFG0555T IFG0556B IFG0557A
IFG0559B IFG0559C IGC0101I IGC0102O IGGDAP01 IGGDYXCS
IGGPRE00 IGGVRF00 IGG019EK IGG019JD IGG019SI IGG0190A
IGG0191A IGG0191C IGG0191G IGG0191L IGG0191Q IGG0191R
IGG01911 IGG0193A IGG0193B IGG0193M IGG0193Y IGG01930
IGG01935 IGG01946 IGG0196M IGG0196R IGG0196S IGG0197A
IGG0197C IGG0197L IGG0197N IGG0197V IGG0198B IGG0199F
IGG020FC IGG020T1 IGG020T2 IGG0200P IGG0201A IGG0201D
IGG0201P IGG0201W IGG0201Z IGG0202A IGG0202D IGG0202I
IGG02028 IGG02029 IGG0203A IGG0203B IGG0203M IGG0203Y
IGG0203Z IGG02030 IGG02035 IGG02046 IGG0206M IGG0213Z
IGG029DM IGG032DB IGG0325A IGG0325H IGG0325Z IGG055V1
IGG0550P IGG0553A IGG0553F IGG0553J IGWFARCO IGWFTRFE
IGWFTROC IHJ019SI ISTOCMDC NSLCTRLO NSLEHDRI NSLEHDRO
NSLETRLI NSLETRL0 NSLOHDRI NSLOHDRO OMODVOL1 READPSWD
SECLOADA

```

The following messages may be ignored if the Binder was used to APPLY DFSMS. If these are the only cause of the condition code 4, it is acceptable.

- IEW2651W 511C ESD AMODE 24 CONFLICTS WITH USER-SPECIFIED AMODE 31 FOR ENTRY POINT xxxxxxxx, where xxxxxxxx is one of the following items:

```

ABA      ADRRELVL  AR CABAMA  CBRICONN  CBROPDDT  CBROPMLT
CBRTRFMT IGX00024

```

- IEW2651W 511C ESD AMODE 31 CONFLICTS WITH USER-SPECIFIED AMODE 24 FOR ENTRY POINT xxxxxxxx, where xxxxxxxx are:

```

ARCFAIL  ARCFAIL2  ARCGIVER

```

- IEW2646W 4B07 ESD RMODE(24) CONFLICTS WITH USER-SPECIFIED RMODE (ANY) FOR SECTION xxxxxxxx, where xxxxxxxx is one of the following:

```

$PRIV000010  ARCASTAI  ARCAZMGS  ARCAZMGT  ARCAZMSG  ARCCBS
ARCCBSLB     ARCCOPYX  ARCCOP78  ARCCPCDT  ARCCPYPT  ARCCSTAI
ARCECDH     ARCDSTAI  ARCDTOBJ  ARCDTSRC  ARCECDH   ARCESD
ARCESDLB    ARCESTAE  ARCESTAI  ARCETOBJ  ARCETSRC  ARCFAILL
ARCFAILM    ARCGCPU   ARCGSTAI  ARCLANIT  ARCLANLB  ARCMINST
ARCMMSG     ARCMSGLB  ARCMSTAI  AR CNC    ARCP CABK  ARCP CADS
ARPCADV     ARPCARV   ARPCAUD   ARPCAUT   ARPCBEG   ARPCCOM
ARPCDEF     ARPCDIS   ARPCDLV   ARPCBEV   ARPCEMD   ARPCEND
ARPCFC      ARPCFVL   ARPCHLD   ARCPCLMC  ARCPMIG   ARPCOIF

```

ARPCON	ARPCPAT	ARPCRCY	ARPCRES	ARPCRPT	ARPCRST
ARPCRTN	ARPCSET	ARPCSTP	ARPCSTR	ARPCSWI	ARCPDA
ARCPPL	ARCPPL1	ARCPPL2	ARCSELT	ARCTCMIG	ARCTCRES
ARCTVPRM	ARCTVSV	ARCXSTAI	ARCYSCAN	ARCYSTAI	ARCZPVL
CBRHCLDL	CBRHCLLU	CBRHCLMK	CBRHTBSV	CBRKHLI	CBROPDDT
CBROPMLT	CBRTRDEF	CBRTRFMT	CBRTRRCD	CBRTRSSM	DSNHLI
IGDACTPT	IGDACTTT	IGX00024	OAMUTPCL	OSREQPCL	XSDTABLE

- IEW2635I 4B34 THREE BYTE ADCON IN SECTION ARCRPDS AT OFFSET *nnnnnnnn* IN CLASS B_TEXT WITH RMODE=ANY CANNOT BE RELOCATED.
- IEW2635I 4B34 THREE BYTE ADCON IN SECTION EDGMVSM AT OFFSET *nnnnnnnn* IN CLASS B_TEXT WITH RMODE=ANY CANNOT BE RELOCATED.
- IEW2635I 4B34 THREE BYTE ADCON IN SECTION GDEMCBOP AT OFFSET *nnnnnnnn* IN CLASS B_TEXT WITH RMODE=ANY CANNOT BE RELOCATED.
- IEW2635I 4B34 THREE BYTE ADCON IN SECTION GSLEXT30 AT OFFSET *nnnnnnnn* IN CLASS B_TEXT WITH RMODE=ANY CANNOT BE RELOCATED.
- IEW2400I 5D10 A REQUEST TO DELETE CSECT OR SYMBOL IFGDEBCK WAS RECEIVED, AND THE CSECT OR SYMBOL WAS NOT FOUND

8.2.2.13 Additional messages expected during Wave 1C APPLY

Successful APPLY processing of Wave 1C returns a condition code of 4.

8.2.2.13.1 Messages expected during BookManager/Build APPLY

During the installation of BookManager/Build, you receive the following messages:

- If you install BookManager READ first, you receive NOT SEL for the common parts, indicating that the BookManager READ retains ownership of the common parts. The common parts are:

```
EOYALLC EOYALLC2 EOYBOOK EOYBKIND EOYINDEX EOYINDEX
EOYPARM EOY@PRIM EIJBPOR EIJCFRE EIJDANI EIJDUTC
EIJENGL EIJFREN EIJGERM EIJITAL EIJNORW EIJPORT
EIJSPAN EIJSWED EIJKUKEN
```

- During the link-edit, one of the following messages is produced:

```
IEW2454W SYMBOL xxxxxxxx UNRESOLVED. NO AUTOCALL (NCAL)
SPECIFIED.
```

```
IEW2650I MODULE ENTRY NOT PROVIDED. ENTRY DEFAULTS TO SECTION
section-name.
```

All external references are resolved when the Post-APPLY link-edit step is performed.

- Because of these messages, and the resulting condition code, SMP/E produces one of the following messages for every load module that was link-edited in the same utility invocation:

```
GIM23903W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx WAS
SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE
xxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE yy.ddd --
TIME hh:mm:ss SEQUENCE NUMBER nnnnnn.
```

```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx WAS
SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE
xxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE yy.ddd --
TIME hh:mm:ss -- SEQUENCE NUMBER xxxxxx --.
```

This message might be GIM23903I or GIM23913I, depending on the SMP/E service level that you have on your driving system. If these are the only cause of the condition code 4, it is acceptable.

8.2.2.13.2 Messages expected during EREP APPLY

You may receive the following messages.

```
GIM61903W ALIAS IFCC9221 WAS NOT DELETED BY SYSMOD EER3500
BECAUSE IT IS NOT IN THE target ZONE.
```

```
GIM61903W LMOD IFCILG04 WAS NOT DELETED BY SYSMOD EER3500
BECAUSE IT IS NOT IN THE target ZONE.
```

8.2.2.13.3 Messages expected during TSO/E APPLY

During the installation of TSO/E, you will receive the following messages which are acceptable if they are the only cause of condition code 4.

- GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HTE7790 BECAUSE IT IS NOT IN THE target ZONE, where xxxxxxxx will be one of the following modules
IGC0006A IKJEFT02 IKJEFT09 IKJEGDRP IRXAPPC TEST
- GIM61903W ALIAS xxxxxxxx WAS NOT DELETED BY SYSMOD HTE7790 BECAUSE xxxxxxxx IS NOT IN THE target ZONE, where xxxxxxxx will be one of the following ALIASES:
GENTRANS IKJEFLIA IKJEGDRP IKJEGRUN IKJEGCAL IKJEGLOD
IKJEGGET IKJEGFRE IKJEGDEL TSOENV
- IEW2454W SYMBOL xxxxxxxx UNRESOLVED. NO AUTOCALL (NCAL) SPECIFIED., where xxxxxxxx is one of the following load modules:
ADFMDOLD ADFMDFLT ADFMDF01 IKJEFLA CHSFVMPC IGC0009C
IGC0009D

Because of these messages, and the resulting condition code, SMP/E produces one of the following messages for every load module that was link-edited in the same utility invocation:

```
GIM23903W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxx LIBRARY.
THE RETURN CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss
SEQUENCE NUMBER nnnnnn.
```

```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE
RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss --
SEQUENCE NUMBER xxxxxx --.
```

8.2.2.14 Additional messages expected during Wave 1D APPLY

Successful APPLY processing of Wave 1D returns a condition code of 0 or 4. However, if you have any USERMODs installed, then you may see the following acceptable message:

```
GIM44502W CHANGES FOR THE FOLLOWING USERMODS WILL BE LOST BECAUSE
THE ASSOCIATED FUNCTION SYSMOD HAS BEEN DELETED.
```

8.2.2.14.1 Messages expected during Cryptographic Services APPLY

During the APPLY of Cryptographic Services the following messages may be received and are acceptable if they are the only cause of the return code 4.

- GIM23903W LINK-EDIT PROCESSING FOR SYSMOD HCRY740 WAS SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE *yy.ddd* - TIME *hh:mm:ss* - SEQUENCE NUMBER nnnnnn.
- GIM23913W LINK-EDIT PROCESSING FOR SYSMOD HCRY740 WAS SUCCESSFUL for MODULE xxxxxxxx IN LMOD *yyyyyyyy* IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE *yy.ddd* -- TIME *hh:mm:ss* -- SEQUENCE NUMBER nnnnnn --., where *yyyyyyyy* will be one of the following load modules:
CDSNM001 CDSNM009 CDSNM010 CDSNM012 CDSNM013 CDSNM036
CDSNM037 CDSNM038
- IEW2480W A711 EXTERNAL SYMBOL RANDOM OF TYPE LD WAS ALREADY DEFINED AS A SYMBOL OF TYPE LD IN SECTION RANDOM.
- IEW2482W A712 THE ORIGINAL DEFINITION WAS IN A MODULE IDENTIFIED BY DDNAME SMPLTS. THE DUPLICATE DEFINITION IS IN SECTION @@RANDM IN A MODULE IDENTIFIED BY DDNAME SMPxxxxx.

8.2.2.14.2 Messages expected during z/OS Security Level 3 APPLY

During the APPLY of z/OS Security Level 3, the following messages may be received and are acceptable if they are the only cause of the return code 4.

- GIM23903W LINK-EDIT PROCESSING FOR SYSMOD JCRY741 WAS SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE *yy.ddd* - TIME *hh:mm:ss* - SEQUENCE NUMBER nnnnnn.
- GIM23913W LINK-EDIT PROCESSING FOR SYSMOD JCRY741 WAS SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD *yyyyyyyy* IN THE xxxxxxxx LIBRARY. THE RETURN CODE WAS 04. DATE *yy.ddd* -- TIME *hh:mm:ss* -- SEQUENCE NUMBER nnnnnn --., where *yyyyyyyy* will be one of the following load modules
CDSNM036 CDSNM037
- GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD xxxxxxxx BECAUSE IT IS NOT IN THE target ZONE, where xxxxxxxx will be one of the following modules:
CDSNM036 CDSNM037

8.2.2.15 Additional messages expected during Wave 1E APPLY: Successful APPLY processing of Wave 1E returns a condition code of 0 or 4. If the XZREQ operand was specified on the APPLY command but there were no applicable zones, message GIM50810W will issued during APPLY processing and a condition code of 4 is expected.

8.2.2.16 Additional messages expected during Wave 1F APPLY

Successful APPLY processing of Wave 1F returns a condition code of 4.

8.2.2.16.1 Messages expected during Bulk Data Transfer (BDT) APPLY

During the installation of Bulk Data Transfer (BDT), the following message is received for load modules BDTUX10, BDTUX19, and UX08KYWD:

- During the link-edit, one of the following messages is produced:
IEW2454W SYMBOL xxxxxxxx UNRESOLVED. NO AUTOCALL (NCAL)
SPECIFIED.
- Because of these messages, and the resulting condition code, SMP/E produces one of the following messages for every load module that was link-edited in the same utility invocation:
GIM23903W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY.
THE RETURN CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss
SEQUENCE NUMBER nnnnnn.

GIM23913W LINK-EDIT PROCESSING FOR SYSMOD xxxxxxxx WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE xxxxxxxx LIBRARY.
THE RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss --
SEQUENCE NUMBER xxxxxx --.

If these are the only cause of the condition code 4, it is acceptable.

8.2.2.16.2 Messages expected during DFSORT APPLY

The following message can be ignored; any other messages should be investigated. The Binder produces this message during steps that store modules into target libraries:

```
IEW2635I 4B34 THREE BYTE ADCON IN SECTION ICEXPUB0 AT OFFSET  
xxxxxxx IN CLASS B_TEXT WITH RMODE=ANY CANNOT BE RELOCATED.
```

8.2.2.16.3 Messages expected during HLASM Toolkit APPLY

During the installation of HLASM Toolkit, you might receive the following messages; they are acceptable if they are the only cause of the condition code 4:

```
IM23903W LINK-EDIT PROCESSING FOR SYSMOD JMQ416A WAS  
SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE  
SASMMOD2 LIBRARY.  
THE RETURN CODE WAS 04. DATE yy.ddd - TIME hh:mm:ss  
SEQUENCE NUMBER nnnnnn.
```

```
GIM23913W LINK-EDIT PROCESSING FOR SYSMOD JMQ416A WAS  
SUCCESSFUL FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE  
SASMMOD2 LIBRARY.  
THE RETURN CODE WAS 04. DATE yy.ddd -- TIME hh:mm:ss --  
SEQUENCE NUMBER xxxxxx --.
```

IEW2609W 5104 SECTION xxxxxxxx USABILITY ATTRIBUTE OF REUSABLE
CONFLICTS WITH REQUESTED USABILITY OF REFRESHABLE.

8.2.2.17 Additional messages expected during Wave 1G APPLY

Successful APPLY processing of Wave 1G returns a condition code of 0 or 4. A return code of 4 is expected if any of the messages documented in the following sections are received during the APPLY.

8.2.2.17.1 Messages expected during Distributed File Service APPLY

During the APPLY for Distributed File Service, the following messages might be received; they are acceptable if they are the only reasons for the condition code 4. In the message, *yyyyyy* is H0H2410 or HZFS410 and *xxxxxxx* is one of the following modules:

For H0H2410 IOECMINI, IOEGLUE
For HZFS410 IOEZM004, IOEZM006, IOEZM007

GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD *yyyyyy*
BECAUSE IT IS NOT IN THE *target* ZONE

8.2.2.17.2 Messages expected during Library Server APPLY

The APPLY for Library Server completes with an overall return code of 0.

8.2.2.17.3 Messages expected during Network File System APPLY

During the APPLY of Network File System, the following messages might be received. This is acceptable if it is the only cause of the return code 4.

GIM61903W LMOD *yyyyyyyy* WAS NOT DELETED BY SYSMOD HDZ221N
BECAUSE *yyyyyyyy* IS NOT IN THE *xxxx* ZONE

In the message text, *yyyyyyyy* will be one of the following modules and *xxxx* is the name of the target zone.

GFSAMAIN GFSMAIN GFSATCPL GFSATPNL GFSATPRL GFSAXOUT
GFSAXPRT GFSAXSRB GFSAXTIN GSAHFST GSALEGT GSAXEPL

8.3 Step 3: Install Wave 2 Elements

Starting with z/OS V2.1, the staged migration path with old levels of JES2, JES3, and SDSF is no longer supported, therefore, you cannot use earlier levels of JES2, JES3, or SDSF with z/OS V2.1. You must install the level of JES2, JES3 and SDSF shipped in z/OS V2.1 before performing the IPL of the z/OS V2.1 system.

Starting from z/OS V1.10.0, SDSF can be used with JES2, JES3, or both JES2 and JES3.

- If you plan to use SDSF and JES2, install FMIDs HQX7790, HJE7790, JJE779S, JQX779J, and JJE779J (if ordered).
- If you plan to use SDSF and JES3, install FMIDs HQX7790, HJS7790, and JQX779J (if ordered).
- If you plan to use SDSF with both JES2 and JES3, install FMIDs HQX7790, HJE7790, JJE779S, HJS7790, JQX779J, and JJE779J (if ordered).

You can install JES2, JES3, and SDSF by using the SMP/E RECEIVE, APPLY, and ACCEPT commands. For details about SMP/E, see the appropriate SMP/E books.

Note: This section uses sample JCL to illustrate installation steps. You can use the SMP/E dialogs instead of JCL.

8.3.1 Prepare to install Wave 2

This step describes the preparation work required before doing the APPLY. All examples follow the recommended installation sequence.

Reminders before You Begin

Use the following list to be sure you have completed the required planning tasks:

- If you are installing JES2 or JES3 in a sysplex, ensure you understand the sysplex software and hardware requirements before installing JES2 or JES3. See *z/OS Planning for Installation*, for more information.
- If you are installing JES2 in a MAS configuration or a network environment, ensure you understand the coexistence considerations prior to installing JES2. See *z/OS Migration* for additional information.
- If you are installing JES3 in a network environment, ensure that you understand the coexistence considerations before installing JES3.
- Check the PSP bucket, as described in 3.2, “Preventive Service Planning (PSP)” on page 17.
- Ensure your system meets the requirements for hardware, software, and coexistence considerations described in *z/OS Planning for Installation*.
- See the description of fallback considerations in *z/OS Planning for Installation*.
- Ensure that the installation has identified all the user modifications that must be reworked, as is required by the new release of JES3. See *z/OS Migration*, for more information.
- Before you install SDSF in z/OS V2.1.0, ensure that the SYSLIB concatenation in the target zone has been updated to include the SDSF target library SISFMAC and the SYSLIB concatenation in the DLIB zone has been updated to include library AISFMAC. If the SYSLIB concatenation does not include these two libraries, the installation of SDSF will fail. See 7.4.2.1, “Update SMP/E Entries” on page 65 for information on target zone SYSLIB concatenation and distribution zone SYSLIB concatenation.
- Before you install JES3, ensure that the requisite FMIDs HTE7790 and HDZ2210 have been installed as described in the previous chapters.

8.3.2 Run the Optional Delete Jobs for Wave 2

When you install the z/OS V2.1.0 Wave 2 elements, JES2, JES3, and SDSF, sample jobs are provided by each of these elements to delete the previous releases of these elements. Running the sample delete jobs for the Wave 2 elements is optional.

8.3.2.1 Run the Optional Delete Job for JES2: A sample job, HASIDLFN, is provided to delete JES2 releases replaced by the z/OS V2.1.0 level of JES2. Member HASIDLFN can be found in 'prefix.HJE7790.F1' (where the 'prefix' is the qualifier specified as the DSPREFIX in the SMP/E Options or the SMPTLIB DDDEF) after SMP/E RECEIVE processing is complete. Copy sample job HASIDLFN, update as required, and run the job. Running the sample delete job is optional. Normal SMP/E APPLY/ACCEPT processing of JES2 (FMID HJE7790) deletes the previous releases of JES2 (if the optional "dummy" function delete was not performed).

Sample job HASIDLFN will RECEIVE, APPLY, and ACCEPT a function named DM1JES2. During SMP/E processing, the functions deleted by DM1JES2 (and all dependent functions) are removed from the target and distribution zones. After the APPLY and ACCEPT of function DM1JES2 has completed, the previous levels of the JES2 libraries will be empty. The sample job also contains commented steps UCLIN and REJECT. If these steps are uncommented, the job will clean up the CSI zone entries for DM1JES2 along with the entries for the deleted JES2 releases and any associated product HOLDDATA.

During RECEIVE processing of function DM1JES2, a condition code of 4 is expected along with the following message:

```
GIM39701W  SYSMOD DM1JES2 HAS NO ELEMENTS.
```

During APPLY processing of function DM1JES2, a return code of 4 is expected, along with the following messages if USERMOD ASMJES2 had been installed previously (xxxxxxx will be multiple module names)

```
GIM44502W  CHANGES FOR THE FOLLOWING USERMODS WILL BE LOST BECAUSE  
          THE ASSOCIATED FUNCTION SYSMOD HAS BEEN DELETED.
```

```
GIM44601I  USERMOD ASMJES2 IN MOD xxxxxxxx
```

8.3.2.2 Run the Optional Delete Job for JES3: A sample job, IATJDLFN, is provided to delete JES3 releases replaced by the z/OS V2.1.0 level of JES3. Member IATJDLFN can be found in 'prefix.HJS7790.F1' (where the 'prefix' is the qualifier specified as the DSPREFIX in the SMP/E Options or the SMPTLIB DDDEF) after SMP/E RECEIVE processing is complete. Copy sample job IATJDLFN, update it as required, and run the job. Running the sample delete job is optional. Normal SMP/E APPLY/ACCEPT processing of JES3 (FMID HJS7790) deletes the previous releases of JES3 (if the optional "dummy" function delete was not performed).

Sample job IATJDLFN will RECEIVE, APPLY, and ACCEPT a function named DM1JES3. During SMP/E processing, the functions deleted by DM1JES3 (and all dependent functions) are removed from the target and distribution zones. After the APPLY and ACCEPT of function DM1JES3 has completed, the JES3 libraries will be empty. The sample job also contains commented steps UCLIN and REJECT. If these steps are uncommented, the job will clean up the CSI zone entries for DM1JES3 along with the entries for the deleted JES3 releases and any associated product HOLDDATA.

During RECEIVE processing of function DM1JES3, a condition code of 4 is expected along with the following message:

```
GIM39701W  SYSMOD DM1JES3 HAS NO ELEMENTS.
```

During APPLY processing of function DM1JES3, a return code of 4 is expected, along with the following messages if USERMOD ASMJES3 had been installed previously (xxxxxxx will be multiple module names):

```
GIM44502W  CHANGES FOR THE FOLLOWING USERMODS WILL BE LOST BECAUSE  
          THE ASSOCIATED FUNCTION SYSMOD HAS BEEN DELETED.
```

```
GIM44601I  USERMOD ASMJES3 IN MOD xxxxxxxx
```

8.3.2.3 Run the Optional Delete Job for SDSF: Before you install SDSF, you might consider dummy function deleting the prior level of SDSF to decrease installation runtime. You can create a dummy function delete job modeled after HASIDLFN to delete SDSF.

8.3.3 Allocate Target and Distribution Libraries for Wave 2 Elements

Figure 34 contains the sample jobs used to allocate and catalog the target and distribution libraries for JES2, JES3, and SDSF. To use a sample job, copy the job and customize it as required for your installation. The table contains the following fields.

Job Name Name of the sample job to be run.
Job Type Type of job that is to be run.
Description Element name for which the job is to be run.
RELFILE Identifies the location of the sample job.

Note: If you are installing on a clone of the system, many of these data sets should already exist.

Figure 34. Wave 2 Allocate Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
HASIALC	ALLOCATE	JES2	'prefix.HJE7790.F1'
IATJALC	ALLOCATE	JES3	'prefix.HJS7790.F1'
ISFISALC	ALLOCATE	SDSF	'prefix.HQX7790.F2'
ISFJ2ALC	ALLOCATE	SDSF	'prefix.JJE779S.F1'

Note:

- The 'prefix' is the qualifier specified as the DSPREFIX in the SMP/E Options or the SMPTLIB DDDEF.
- If you specify a volume for any data set in the allocate job, you must also specify the same volume in the corresponding DDDEF entry in the DDDEF job (see Figure 36 on page 125).

The sample job specifies the storage requirements in blocks. You can use the storage allocations as they are, or convert them to cylinder or track allocations. Refer to Appendix C, "DASD Storage Requirements Tables" on page 343 for the appropriate DASD storage requirements.

After the sample allocate jobs are run, verify the condition code is 0 and check the allocation messages to ensure all libraries were successfully allocated.

8.3.4 Set up File System Directories for Wave 2

You must create the required directories in the root file system for the target system before installing SDSF, if the directories required for installation of SDSF do not exist. You can create the directories by running the sample jobs listed in Figure 35 on page 125. The following fields are represented.

Job Name Name of the job that is to be run.
Job Type Type of job that is to be run.
Description Element name for which the job is to be run.

RELFILE Identifies the location of the sample job.

Figure 35. Wave 2 Define Directories Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
ISFISMKD	MKDIR	SDSF	'prefix.HQX7790.F2'

Notes:

1. The 'prefix' is the high-level qualifier value specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.
2. After the above job is run, the expected return code is 0.

8.3.5 Define DDDEFs for Wave 2 Elements

Figure 36 contains the sample jobs used to create the target and distribution DDDEFs unique to JES2, SDSF, and JES3. To use a sample job, copy the job and customize it as required for your installation. You only need to run these jobs if any of the DDDEF entries do not exist. The following fields are represented.

Job Name Name of the sample job to be run.
Job Type Type of job that is to be run.
Description Element name for which the job is to be run.
RELFILE Location of the sample job.

Figure 36. Wave 2 DDDEF Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
HASIDDEF	DDDEF	JES2	'prefix.HJE7790.F1'
IATJDDEF	DDDEF	JES3	'prefix.HJS7790.F1'
ISFISDDD	DDDEF	SDSF	'prefix.HQX7790.F2'
ISFJ2DDD	DDDEF	SDSF	'prefix.JJE779S.F1'

Notes:

1. The 'prefix' is the qualifier specified as the DSPREFIX in the SMP/E Options or the SMPTLIB DDDEF.
2. For the elements in the above table, if you specify a volume for any dataset in the DDDEF job, you must also specify the same volume in the corresponding allocate entry in the allocate job (see Figure 34 on page 124).

If you are installing Wave 2 elements in target and distribution zones that contained a previously installed release, you must replace the existing DDDEF entries for the JES2, JES3, and SDSF libraries of previous releases with the DDDEF entries for the libraries of current release.

If you use sample job HASIDDEF, IATJDDEF, ISFISDDD, or ISFJ2DDD to replace the existing DDDEF entries, you must change the ADD to REP in the sample job before running the job.

A condition code of 0 is expected if the DDDEF entries are successfully added to the SMP/E CSI when the sample jobs are run.

8.3.6 Set High Level Assembler Option for SDSF

For SDSF to assemble correctly, the High Level Assembler option must be set to OPTABLE(UNI); OPTABLE(ESA) will not work.

8.3.7 Set High Level Assembler Option for JES2

For JES2 to assemble correctly, set your SMP/E Global Utility ASMA90 options in your CSI as follows:

- GOFF
- LIST(133)
- DECK
- NOOBJECT

In addition, you must do one of the following actions:

- Specify a unique output file using the print operand - for example, PRINT(ASMPRINT) - and create a DDDEF in the target and DLIB zones for ASMPRINT, specifying SYSOUT
- Add the following JCL DD card to the APPLY jobs:

```
//SYSPRINT DD SYSOUT=*,LRECL=133,RECFM=FBA
```

8.3.8 APPLY Wave 2

The following sections describe the steps needed to APPLY Wave 2.

8.3.8.1 Do an SMP/E APPLY CHECK for Wave 2: Run an APPLY CHECK to identify any requisite service, and additional holds (for example, HOLDSYS(DOC)), that may need to be resolved before APPLY processing. Resolve any holds and receive any requisite service identified by the APPLY CHECK before the next step.

Figure 37 on page 127 shows a sample APPLY CHECK for the functions specified in the SELECT operand, plus received PTFs that are applicable only to the FMIDs listed in the FORFMID.


```

//CHECK JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vol1
//          DD DSN=ASM.SASMMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vol1
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(targetzone)
    OPTIONS(ZOSOPT) .
  UPGRADE.
  APPLY CHECK XZREQ
    FORFMID(HJE7790,HQX7790,HJS7790
            JJE779J,JJE779S,JQX779J)
    /* If not ordered, remove */
  SELECT(HJE7790,HQX7790,HJS7790
         JJE779J,JJE779S,JQX779J)
    /* If not ordered, remove */
  SOURCEID(ZOSV2R1,RSU*)
  /* see Note 2 below */
  FIXCAT(IBM.ProductInstall-RequiredService)
  /* see Note 2 below */
  GROUPEXTEND(NOAPARS,NOUSERMODS)
  BYPASS(HOLDSYSTEM,HOLDUSER,
         HOLDCLASS(ERREL,UCLREL,HIPER)) .
/*

```

Figure 37. SMP/E APPLY CHECK for Wave 2 (all FMIDs and All Service)

Note: ZOSOPT is now the option name for z/OS.

Required Updates

1. Update the job parameters.
2. Either remove the STEPLIB (if you are using the Wave 1 target system to install Wave 2) or update the v2r1vol1 with the volume serial number for the MIGLIB and the SASMMOD1 libraries which were the targets of the Wave 0 install. This will allow you to access the z/OS V2.1.0 level of the Wave 0 elements using the STEPLIB DD statements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.
4. Update targetzone to your target zone name.
5. The XZREQ operand only needs to be specified when cross-zone processing is required.
6. If you plan to use JES2 and SDSF, and did not order JES3, remove the JES3 FMID HJS7790 from the FORFMID and SELECT operands in the sample job before running the job.
7. If you plan to use JES2 and SDSF, you must install FMID JJE779S concurrently with FMIDs HJE7790 and HQX7790.

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDS before putting your system into production.

If you do not BYPASS(HOLDCLASS(HIPER)), the FMIDs may not be installed if any of the HIPER maintenance is unavailable.

Any messages other than those listed in 6.7, "Step 6: Review general installation notes" on page 45 or listed below should be investigated.

Notes:

1. The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON  
THE APPLY COMMAND BUT SINCE NO ZONES WERE APPLICABLE  
FOR CROSS-ZONE REQUISITE CHECKING,  
THE XZREQ OPERAND WILL BE IGNORED.
```

```
GIM20501I APPLY PROCESSING IS COMPLETE.  
THE HIGHEST RETURN CODE WAS 04.
```

2. If you did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the APPLY. In such a situation, you must add the HIPER value to the SOURCEID operand; for example, SOURCEID(ZOSV2R1,RSU*,HIPER).

Successful APPLY CHECK processing of JES2 and SDSF returns a condition code of 0. If JES3 is included in the APPLY CHECK, then successful APPLY CHECK processing returns a condition code of 4.

8.3.8.1.1 Messages expected during APPLY CHECK Processing for JES3: During the installation of the JES3 component you can expect to receive the following messages:

```
GIM61903W LMOD IATUX86 WAS NOT DELETED BY  
SYSMOD HJS7790 BECAUSE IT IS NOT IN THE target ZONE.
```

```
GIM61903W LMOD IATIMDL WAS NOT DELETED BY  
SYSMOD HJS7790 BECAUSE IT IS NOT IN THE target ZONE.
```

These messages are acceptable. Any messages other than the messages listed above or the messages identified in 6.7, "Step 6: Review general installation notes" on page 45 must be investigated.

A condition code of 4 is expected during APPLY CHECK processing for JES3.

8.3.8.2 Do an SMP/E APPLY for Wave 2: Do not specify ASSEM on the APPLY command for JES2 or JES3. The specification of ASSEM on the APPLY command can cause serviceability problems.

Be certain that all exception conditions have been satisfied before adding a BYPASS(HOLDSYSTEM) during the SMP/E APPLY step.

Figure 38 shows a sample APPLY for the functions specified in the SELECT operand, plus received PTFs that are applicable only to the FMIDs listed in the FORFMID.

```
//APPLY JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//          DD DSN=ASM.SASMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(targetzone)
  OPTIONS(ZOSOPT) .
  APPLY XZREQ
    FORFMID(HJE7790,HQX7790,HJS7790
            JJE779J,JJE779S,JQX779J)
            /* If not ordered, remove */
    SELECT(HJE7790,HQX7790,HJS7790
           JJE779J,JQX779J,JJE779S)
           /* If not ordered, remove */
  SOURCEID(ZOSV2R1,RSU*)
  /* see Note 2 below */
  FIXCAT(IBM.ProductInstall-RequiredService)
  /* see Note 2 below */
  BYPASS(HOLDSYSTEM,HOLDUSER,
  HOLDCLASS(ERREL,UCLREL,HIPER))
  GROUPEXTEND(NOAPARS,NOUSERMODS)
  COMPRESS(ALL) .
/*
```

Figure 38. SMP/E APPLY for Wave 2 (FMIDs and All Service)

Note: ZOSOPT is now the option name for z/OS.

Required Updates

1. Update the job parameters.
2. Either remove the STEPLIB (if you are using the Wave 1 target system to install Wave 2) or update the v2r1vol1 with the volume serial number for the MIGLIB and the SASMOD1 libraries which were the targets of the Wave 0 install. This will allow you to access the z/OS V2.1.0 level of the Wave 0 elements using the STEPLIB DD statements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.
4. Update targetzone to your target zone name.
5. The XZREQ operand only needs to be specified when cross-zone processing is required.
6. If you plan to use JES2 and SDSF, and did not order JES3, remove the JES3 FMID HJS7790 from the FORFMID and SELECT operands in the sample job before running the job.
7. If you plan to use JES2 and SDSF, you must install FMID JJE779S concurrently with FMIDs HJE7790 and HQX7790.

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDS before putting your system into production.

If you do not BYPASS(HOLDCLASS(HIPER)), the FMIDs may not be installed if any of the HIPER maintenance is unavailable.

Any messages other than those listed in 6.7, "Step 6: Review general installation notes" on page 45 or those listed below should be investigated.

Notes:

1. The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON  
THE APPLY COMMAND BUT SINCE NO ZONES WERE APPLICABLE  
FOR CROSS-ZONE REQUISITE CHECKING,  
THE XZREQ OPERAND WILL BE IGNORED.
```

```
GIM20501I APPLY PROCESSING IS COMPLETE.  
THE HIGHEST RETURN CODE WAS 04.
```

2. If you did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the APPLY. In such a situation, you must add the HIPER value to the SOURCEID operand; for example, SOURCEID(ZOSV2R1,RSU*,HIPER).

Successful APPLY processing of JES2 and SDSF returns a condition code of 0. If JES3 is included in the APPLY processing, then successful APPLY processing returns a condition code of 4.

8.3.8.2.1 Messages expected during APPLY Processing for JES3

During the installation of the JES3 component you can expect to receive the following messages:

```
GIM61903W  LMOD IATUX86 WAS NOT DELETED BY
SYSMOD HJS7790 BECAUSE IT IS NOT IN THE target ZONE.
```

```
GIM61903W  LMOD IATIMDL WAS NOT DELETED
BY SYSMOD HJS7790 BECAUSE IT IS NOT IN THE target ZONE.
```

```
GIM23903W  LINK-EDIT PROCESSING FOR
SYSMOD xxxxxxxx WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx
IN THE xxxxxx LIBRARY. THE RETURN CODE WAS 04.
```

Note: This message might be GIM23903I, depending on the SMP/E service level you have on your driving system.

You might receive either message GIM23903W or the following GIM23913W message for load modules IATNUCF and IATNUCI:

```
GIM23913W  LINK-EDIT PROCESSING FOR
SYSMOD HJS7790 WAS SUCCESSFUL
FOR MODULE xxxxxxxx IN LMOD xxxxxxxx IN THE SIATLIB LIBRARY.
THE RETURN CODE WAS 04.
DATE yy.ddd - TIME hh:mm:ss -
SEQUENCE NUMBER nnnnnn - SYSPRINT FILE nnnnnnnn.
```

These messages are acceptable. Because of the following IEW2454W messages, and the resulting condition code, SMP/E will produce message GIM23903W for every load module that was link-edited in the same utility invocation.

During the installation of the JES3 component you might receive IEW2454W messages (unresolved external references) during the link-edit of load module IATNUCF. The references are:

```
DSDDDR DSIFCT IATCNINX LJMFFCT SMFBUFAB SMFBUFBL
TAPDDR VARYLFCT
```

You might also receive an IEW0461 or IEW2454W message during the link-edit of load module IATNUCI with an unresolved external reference for IATINIT. These messages are acceptable.

8.4 Step 4: Do Post-APPLY work for Wave 1 and wave 2

Once you have successfully SMP/E APPLY'd all the Wave 1 elements and Wave 2 elements, you must perform the Post-APPLY activities. Post-APPLY work for Wave 1 and Wave 2 must be run from your **driving** system unless otherwise specified.

Post-APPLY jobs include:

- Wave 1A:
 - Compile MMS data sets
 - Run Post-APPLY for Communications Server IP Services
- Wave 1B:
 - There are no Post-APPLY steps for Wave 1B FMIDs.
- Wave 1C:
 - Copy online books and dictionaries
 - Run Post-APPLY link-edit for BookManager/Build and BookManager READ
 - Update font library with BookManager READ fonts
 - Run Post-APPLY link-edit for FFST
 - Run TSO/E Information Center Facility Post-APPLY ICQPOST1 and ICQPOST2 (when appropriate)
- Wave 1D:
 - Cryptographic Services PKI Services:
 - Run sample job to allocate VSAM datasets for runtime use.
 - Run sample REXX exec to define RACF user IDs and profiles.
- Wave 2:
 - Run UCLIN to automate future SDSF assemblies
- General:
 - Run sample job, CLNCRSZ, an SMP/E REPORT CROSSZONE

Note: IBM has verified that every product that is now part of z/OS and that supplies CALLLIB'd libraries is upwardly compatible. Therefore, a REPORT CALLLIBS is not required.

8.4.1 Wave 1A Post-Installation jobs

8.4.1.1 Compile MMS Data Sets

After installing BCP, if you choose to use the MVS Message Service (MMS) the message files must be compiled into runtime message files. If you will be installing additional elements (such as TSO/E or JES2) into the message files, it is only necessary to compile these message files once. After the installation of the additional products or elements, compilation can begin.

For the MVS message service (MMS) to handle translated messages, your installation must use the MVS message compiler to format and install message files that contain English message skeletons and translated language message skeletons. The following summarizes the steps for providing translated messages:

- Verify the message files are correctly installed on your system.
- Allocate space for each runtime message file. Edit and run the job in member CNLDEFCL to allocate runtime message files. CNLDEFCL is supplied in your SAMPLIB library on the target system after APPLY processing has completed.
- Use the MVS message compiler to format the installation message file into a runtime message file. Edit and run the job in member CNLCOMP to compile and load the runtime message files. CNLCOMP is supplied in your SAMPLIB library on the target system after APPLY processing has completed.
- Create installation exit routines, if needed.

- Create or update the SYS1.PARMLIB members to initialize values for MMS:
 - CNLLSTxx** define the available languages for message translation. A sample CNLLSTXX is provided in the SYS1.SAMPLIB library.
 - CNLcccxx** define the date and time formats.
 - CONSOLxx** specify the CNLLSTxx member in effect for the system.
- Activate MMS.

See the description of how to activate MMS, creating installation exits, and how to handle translated messages in *z/OS MVS Planning: Operations*.

8.4.1.2 Run Post-APPLY for Communications Server IP Services

The following sections describe the post-apply steps for Communications Server IP Services.

8.4.1.2.1 Perform SMP/E LINK for IMS module

The Communications Server IP Services IMS sockets interface requires an IMS load module during link-edit. The APPLY for LMOD EZAIMSLN will receive a return code of 0004. After the APPLY, these modules are not executable. At this point, you are required to run a postlink job to make the Communications Server IP Services IMS module be fully resolved. This is accomplished by executing EZAIMSCZ, supplied in *TCPIP.SEZAINST*. The EZAIMSCZ job invokes the LINK function supplied with SMP/E.

EZAIMSCZ performs a cross-zone link-edit. Communications Server IP Services should not be installed into the same SMP/E zone as IMS. SMP/E tracks this cross-zone link and if subsequent IMS maintenance is applied, SMP/E can automatically maintain the affected Communications Server IP Services load modules. For the automatic maintenance to occur, the IMS global zone must contain zoneindex subentries to the z/OS target and distribution zones and must have an options entry for ZOSOPT. The z/OS TARGETZONE XZLINK entry must be set to AUTOMATIC (it defaults to DEFERRED). See the *SMP/E Reference* for more information on XZLINK.

Before you submit EZAIMSCZ, your z/OS global zone containing Communications Server IP Services must contain zoneindex subentries for the target and distribution zones containing the IMS libraries. The index entries may be added using SMP/E interactive dialogs or by using JCL and SMP/E statements.

EZAIMSCZ may end with a condition code of 0004 caused by SMP/E warning message:

```
GIM69064W MODULE aaaaaa WILL BE LINK-EDITED
BUT ITS SERVICE LEVEL OR FMID IN THE DISTRIBUTION ZONE IS
DIFFERENT FROM THAT IN THE TARGET ZONE.
```

There are two possible solutions:

1. Investigate and solve the problem indicated by GIM69064.
2. Ignore the return code of 0004.

Complete the following steps:

- Create a ZONEINDEX in the z/OS global zone for the IMS target and distribution zones.

- Create a ZONEINDEX in the IMS global zone for the z/OS target and distribution zones.
- Submit the job and ensure you have a return code of 00.

8.4.2 Wave 1B Post-Installation jobs

There are no post-installation jobs for Wave 1B elements.

8.4.3 Wave 1C Post-Installation jobs

The following sections describe post-installation jobs for Wave 1C elements.

8.4.3.1 Copy online books and dictionaries

BookManager/Build and BookManager READ online books and dictionaries are shipped as partitioned data sets but must be copied to sequential data sets before they can be used. Edit and run the jobs in members EOYUNLD (for BookManager/Build) and EOXUNLD (for BookManager READ) to copy these partitioned data sets to sequential data sets. These members are supplied in your SEOYSAMP library on the target system after APPLY processing has completed.

If you receive updates to the online books and dictionaries data sets, you must run these jobs again.

Notes:

1. If you are installing more than one language feature, run this job for the first language you are installing, then rerun this job for the other languages after changing ENU to the correct language abbreviation throughout the job.

The list of National Languages and the respective abbreviations for BookManager READ (EOXUNLD) and BookManager/Build (EOYUNLD) is:

PTB	Brazilian Portuguese
FRC	Canadian French
DAN	Danish
NLD	Netherlands Dutch
FRA	French
DEU	German
ITA	Italian
ESP	Spanish

2. The datasets required for copying online books are created when the EOYALLC2 job is run.

8.4.3.2 Run Post-APPLY Link-Edit for BookManager/Build and BookManager READ

If BookManager/Build and BookManager Read was installed during APPLY processing for Wave 1C elements, you must run a link-edit job for BookManager/Build and BookManager.

Edit and run job EOYPLINK (for BUILD) and EOXPLINK (for READ). These jobs reside in members of the SEOYSAMP library on the target system after successful APPLY processing. They link modules placed in BookManager's target libraries with the other modules needed to make them executable.

The Post-APPLY link-edit step may need to be run any time maintenance is performed to CALLLIBed libraries. However, it should not be required unless a PTF for one of these elements requires all application programs to relink-edit with the updated routines.

Notes:

1. Please note that GDDM is required and the EOYPLINK and EOXP LINK jobs should not be modified by removing the GDDM references.
2. The message IEW2646W may be generated indicating there is a mismatch between the RMODE values. This is not a problem and the message can be ignored.
3. In the EOXP LINK job, you may need to change AISPMOD1 to SISPLOAD in the SYSLIB DD statement. This will be necessary if you have dummy deleted the old level of ISPF before APPLYing the new level, and are running EOXP LINK before ACCEPTing the new level of ISPF. In this scenario, EOXP LINK would fail since the ISPF distribution libraries would be empty.

8.4.3.3 Update font library with BookManager READ Fonts

BookManager READ requires the Gothic BookManager Semilight font to print using the GML Starter Set option. This font is provided with BookManager READ in your SEOXFONT target library. Figure 39 contains sample JCL that can be used to copy the Gothic BookManager Semilight font from your SEOXFONT target library to your FONTLIBB library.

Note: The C0BKGL15 member to be copied is an alias for the EOXF015 member; therefore, all members listed should be copied at the same time to preserve the alias relationship.

```
//FONTCOPY JOB <job parameter> /*update the job parameter*/
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//SEOXFONT DD DSN=EOY.SEOXFONT,DISP=SHR
//FONTLIBB DD DSN=SYS1.FONTLIBB,DISP=SHR
//SYSIN DD *
COPY INDD=SEOXFONT,OUTDD=FONTLIBB
SELECT MEMBER=(C0BKGL15,EOXF015)
/*
```

Figure 39. Sample JCL to Copy Gothic BookManager Semilight Fonts

Note: The following only applies if you have the PSF product. BookManager READ provides the Gothic BookManager Semilight font **only** in the 240-pel resolution. If you want to print using the GML Starter Set option on a 300-pel printer, you must use the font conversion utility APSRCF30 to convert the Gothic BookManager Semilight font to 300-pel resolution. See *PSF for z/OS: Customization* for information on using the APSRCF30 utility.

8.4.3.4 Run Post-APPLY Link-Edit for FFST

The Post-APPLY link-edit step might need to be run when maintenance is performed on FFST. Follow the specific instructions in the maintenance being installed. IEW2646W and IEW2651W messages may be generated indicating that there is a mismatch between the RMODE and AMODE values. This is not a problem and these messages can be ignored.

8.4.3.5 Run Post-APPLY for TSO/E Information Center Facility (when appropriate)

To use the Information Center function of TSO/E, you must allocate the data sets listed in Figure 40 if they are not present on your system. The attributes for these data sets must conform to the attributes of your ISPF/PDF table libraries. The minimum space allocation for each data set is 221 blocks. You may want to allocate more space to allow room for future expansion.

The tables distributed with the Information Center Facility are copied to the data sets in Figure 40 by the ICQPOST1 and ICQPOST2 jobs. These jobs are supplied in your SAMPLIB library on the target system after APPLY processing has completed.

Figure 40. Information Center Facility Data Sets

Data Set	Description
ICQ.ICQABTAB	Course abstracts
ICQ.ICQGCTAB	User requests
ICQ.ICQAATAB	Names
ICQ.ICQANTAB	News
ICQ.ICQTLIB	User enrollment tables
ICQ.ICQAPTAB	Printer support
ICQ.ICQAMTAB	Administrator Application Manager tables
ICQ.ICQCMTAB	User Application Manager tables

Note: New Information Center Facility installations can execute ICQPOST1 and ICQPOST2 to distribute Information Center Facility parts to the appropriate execution libraries. If you are a previous user of the Information Center Facility, and you want to preserve customized data, do not execute the ICQPOST1 and ICQPOST2 jobs. These jobs replace tables that contain current Information Center Facility data for your installation.

8.4.4 Wave 1D Post-Installation jobs

The following section describes post-installation jobs for Wave 1D of the installation process.

8.4.4.1 Run Cryptographic Services PKI Services job

Run IKYCVSAM, the sample job to allocate VSAM data sets for runtime use. Sample job IKYCVSAM can be found in the SAMPLIB library after APPLY processing has completed.

8.4.5 Wave 1E Post-Installation jobs

There are no post-installation jobs for Wave 1E elements.

8.4.6 Wave 1F Post-Installation jobs

There are no post-installation jobs for Wave 1F elements.

8.4.7 Wave 1G Post-Installation jobs

There are no post-installation jobs for Wave 1G elements.

8.4.8 Wave 2 Post-Installation jobs

8.4.8.1 Run UCLIN to Automate Future SDSF Assemblies: IBM suggests you run UCLIN to automate future assemblies when JES2 service is installed. Sample JCL ISFISUCL to do this can be found in the SISFJCL1 library.

After the APPLY processing has completed, run the UCLIN sample job of ISFISUCL that points to the UCLIN stream within the SISFJCL1 library for z/OS V2.1.0 JES2. Instructions in ISFISUCL indicate the changes required to run the job, such as specification of the SMP/E procedure name, target zone, and how to update the UCLIN DD.

After you make the required changes, run the job against the zone containing SDSF and JES2. Maintenance applied to any JES2 macro that has been included in the UCLIN job will cause the affected SDSF parts to be reassembled.

The UCLIN jobs create a GENASM subentry in the MAC entry for each JES2 macro that is referenced by SDSF. The GENASM subentries created specify the SDSF modules that reference the JES2 macro. The UCLIN ADD function is used instead of REP so that any existing GENASM subentries are not replaced by these jobs.

Whenever SMP/E applies maintenance to a JES2 macro, the associated SDSF modules are reassembled and relink-edited. This facility remains in effect as long as the CSI entry describing the JES2 macro is not replaced (for example, when a new level of JES2 is installed). If the entry is replaced, the UCLIN job needs to be rerun to restore the required GENASM entries.

If the UCLIN job is not run to automate assemblies, SDSF must be reassembled whenever SMP/E applies maintenance to a JES2 macro. The procedure to reassemble SDSF can be found in the SISFJCL1 library. Member ISFASMP uses an SMP/E job to RECEIVE and APPLY a sample USERMOD to perform the assemblies and link-edits under the control of SMP/E. Sample job ISFASMP is an optional job to reassemble SDSF when needed. It is not required to be run after a normal Wave 2 Apply.

8.4.9 Wave 1 and Wave 2 general Post-Installation jobs

The following sections describe post-installation jobs for Wave 1 and Wave 2.

8.4.9.1 Run SMP/E REPORT CROSSZONE (Target Zone)

If you did not use automatic cross-zone IFREQ checking when installing z/OS V2.1.0 Wave 1, you may run sample job CLNCRSZ, and see *SMP/E for z/OS Commands*, for information on the SMP/E REPORT CROSSZONE command. For instructions on how to set up cross-zone processing, see 7.3.1, “Create a cross-zone set” on page 58.

8.5 Step 5: Customize Wave 1 and Wave 2

Once you have successfully SMP/E APPLY'd the Wave 1 and Wave 2 elements and performed the Post-APPLY work, you must customize these elements. Customization for Wave 1 and Wave 2 may be run from your **driving** system unless otherwise specified.

It is important that you have read the migration requirements documented in *z/OS Migration*.

8.5.1 Required setup

The following sections describe steps that are required to set up the system.

8.5.1.1 Reassemble stand-alone dump

When you install z/OS V2.1.0, you must reassemble the stand-alone dump program. For information on stand-alone dump, see *z/OS MVS Diagnosis: Tools and Service Aids*.

8.5.1.2 Complete DFSMSdss actions

If you are enabling DFSMSdss, ensure that the following tasks are completed.

If you intend to use the DFSMSdss stand-alone services, use the DFSMSdss BUILD_SA function to build the IPLable stand-alone services core image. Perform this step after DFSMSdss is installed and accepted by SMP/E. Stand-alone services supports the following tape subsystems:

- 3494 Enterprise Automated Tape Library
- 3495 Enterprise Automated Tape Library
- 3590 Enterprise Tape Subsystem

Restriction: Stand-alone services does not allow you to create the core image on an SMS-managed volume.

Perform the following Migration Actions:

1. Prepare for stand-alone services by creating an IPLable core image with the BUILD_SA command. You can specify the device (card reader, tape drive, or DASD volume) from which stand-alone services are IPLed. You also can specify the operator console to be used for stand-alone services.

2. Use RACF or another security product to protect the SYS1.ADR.SAIPLD.Vvolser data set and for the stand-alone services modules.
3. Make a backup copy of your system that can be restored by this function.

For the procedure, see the chapter in *z/OS DFSMSdss Storage Administration*, entitled "Managing Availability with DFSMSdss", specifically the section, "Backing up Volumes". For details, see *z/OS DFSMSdss Storage Administration*.

8.5.1.3 Write new IPL TEXT

You must run IPLTEXT to write a new copy of the IPL text before IPLing your newly built z/OS system.

```
//IPLTEXT JOB <job parameters>
/*MESSAGE PLEASE AUTHORIZE IPLTEXT UPDATE FOR volser(JES2 user)
/*OPERATOR PLEASE AUTHORIZE IPLTEXT UPDATE FOR volser(JES3 user)
//STP1 EXEC PGM=ICKDSF,REGION=0M
//SYSPRINT DD SYSOUT=*
//IVOL DD VOL=SER=volser,UNIT=SYSALLDA,DISP=SHR
//SAMPLIB DD DSN=SYS1.SAMPLIB(IPLRECS),DISP=SHR,UNIT=SYSALLDA,
//          VOL=SER=vvvvvv
//          DD DSN=SYS1.SAMPLIB(IEAIPL00),DISP=SHR,UNIT=SYSALLDA,
//          VOL=SER=vvvvvv
//SYSIN DD *
  REFORMAT DDNAME(IVOL) VERIFY(volser) IPLDD(SAMPLIB,OBJ) -
  BOOTSTRAP
/*
```

Figure 41. Sample JCL for Writing the IPL Text

Required Updates

1. Update the *job parameters*.
2. Replace *vvvvvv* to your volume.
3. Replace *volser* to your IPL volume.

8.5.1.4 Create and update your IODF

IODFs created on prior z/OS releases can be used to IPL z/OS V2.1.0. For more information on IODF compatibility and how to create an IODF, see *z/OS HCD User's Guide*. If you are migrating to HCD, have OEM processor definitions in your current IODF, and have not received instruction from your OEM vendor, you should contact your IBM account team for additional information from the HCD development group. This, however, only applies to OEM processors that have been defined in the IODF using a non-IBM processor type/model.

8.5.2 PARMLIB member considerations

After z/OS V2.1.0 is installed, you must tailor the system to meet your installation's needs. You will need to review, modify, and create entries in SYS1.PARMLIB, SYS1.PROCLIB, and SYS*n*.IPLPARM. Some functions of z/OS Version 2 Release 1, such as APPC/MVS, require that you copy (and possibly modify) members from SYS1.SAMPLIB for use in other libraries.

z/OS provides the capability to concatenate up to ten additional data sets to SYS1.PARMLIB at IPL, creating a "logical PARMLIB." A logical PARMLIB is a concatenation of parameter libraries that can be accessed through a set of system services. The concatenation is defined in the LOADxx PARMLIB member at system initialization but can be changed later with a SET command. Programs that use these services can access PARMLIB members without being aware of which data sets actually comprise the concatenation. You can use separate PARMLIB data sets to isolate IBM-supplied and SMP/E-supported members from locally customized members. For information on PARMLIB concatenation, see *z/OS MVS Initialization and Tuning Reference*.

SMP/E installation places a number of members in the PARMLIB pointed to by the PARMLIB DDDEF in your target zone, or the PARMLIB DD statement in your SMP/E procedure. This PARMLIB data set is a copy of your production PARMLIB, as described in 6.1, "Overview for the clone of your system" on page 33. Before IPLing your production system, you must do one of the following:

1. Concatenate the PARMLIB pointed to by the SMP/E DDDEF.
2. Copy the members that SMP/E installed into your production PARMLIB concatenation.
3. Update your existing members to reflect any needed changes.

The following is a complete list of PARMLIB members that were shipped with the exclusive element FMIDs when this program directory was written. It is possible that a PTF could add or change a PARMLIB member, so you should also check the Element Summary Report in your SMP/E APPLY output for any new elements with a type of ++PARM to ensure that this list is complete when you perform your installation.

For a list of all samples used in PARMLIB and shipped in SYS1.SAMPLIB, refer to Figure 43 on page 141.

8.5.2.1 What is new for z/OS V2.1.0: For a summary of PARMLIB changes in this release, see *z/OS MVS Initialization and Tuning Reference*.

8.5.2.2 z/OS Version 2 Release 1 PARMLIB members: Figure 42 shows the SMP/E supported PARMLIB members that are installed directly into SYS1.PARMLIB.

Figure 42 (Page 1 of 2). PARMLIB Members Installed Directly in SYS1.PARMLIB

ADYSET00	ADYSET01	ADYSET02	ANTMIN00	ANTXIN00	ASAIPCSP
ASBIPCSP	ATBIPCSP	AUTOR00	AUTORRM	AUTORRP	BDTIPCSP

Figure 42 (Page 2 of 2). PARMLIB Members Installed Directly in SYS1.PARMLIB

BHIIPCSP	BLSCECT	BLSCECTX	BPXIPCSP	CEAPRM00	CEEIPCSP
CLOCK00	CNLENU00	CNLJPN00	COFDLF00	COFIPCSP	COFVLF00
COUPLE00	CSFIPCSP	CTIAXR00	CTIBPX00	CTIBPX01	CTICBR00
CTICEA00	CTIDMD00	CTIEZB00	CTIEZBTN	CTIGRS00	CTIHWI00
CTIHZS00	CTIIDS00	CTIIEFAL	CTIIKE00	CTIITT00	CTIJES01
CTIJES02	CTIJES03	CTIJES04	CTILOG00	CTINFC00	CTINFS00
CTINSS00	CTINTA00	CTIOPS00	CTIORA00	CTIRES00	CTIRSMSP
CTIRSM01	CTISMS00	CTIXCF00	CTIXES00	DIAG00	DIAG01
DIAG02	ERBRMF00	ERBRMF01	ERBRMF02	ERBRMF03	ERBRMF04
EZAIPCSP	GPMSRV00	GRSCNF00	GRSRNL00	GTFPARM	GTZPRM00
GXLIPCSP	HZSPRM00	IARIPCSP	IAXIPCSP	IAZIPCSP	ICHIPCSP
IDAVDT00	IEAABD00	IEACMD00	IEADMP00	IEADMR00	IEAIPCSP
IEAOPT00	IEAPAK00	IEASLP00	IEAVIPCS	IEFIPCSA	IEFIPCSI
IEFIPCST	IEFSSN00	IGWIPCSP	IPCSPR00	ISGIPCSP	IVTPRM00
IXCIPCSP	IXLIPCSP	IXZIPCSP			

Attention

If you do not make necessary changes to SYS1.PARMLIB, SYS1.PROCLIB, and SYS*n*.IPLPARM, the system might not initialize or run successfully. For example:

- If you do not create a LOADxx PARMLIB member, your system will not IPL.
- If the copies of BLSCECT and all the other IPCS PARMLIB members used on your production system are not current, IPCS might fail when you attempt to use it.

When you migrate to z/OS V2.1.0, you must complete certain actions before loading the initial program for the z/OS V2.1.0 target system. For a complete description of all changes needed for a migration, see *z/OS Migration*.

For information on PARMLIB members, see *z/OS MVS Initialization and Tuning Reference*.

Figure 43 describes the PARMLIB updates that are recommended for z/OS V2.1.0. For additional information on PARMLIB considerations, see the individual elements' customization books and *z/OS MVS Initialization and Tuning Guide*. The PARMLIB members shown are for example only. Be sure to change the high-level qualifier of the data sets to match your installation.

Figure 43 (Page 1 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
APPCPMxx	See SAMPLIB members APPCPMRX and APPCPMXX.	BCP
ASCHPMxx	See SAMPLIB members ASCHPMRX and ASCHPMXX.	BCP
AXR00	See SAMPLIB member AXR00.	BCP
BPXPRMxx	FILESYSTYPE TYPE(HFS) ENTRYPOINT(GFUAINIT)	BCP (see note)
Notes:		
<ol style="list-style-type: none"> 1. The FILESYSTYPE statement allows you to mount an HFS, which is needed in Wave 1. 2. If you plan to use a root zFS file system, you may specify TYPE(ZFS) on the FILESYSTYPE statement. 		
COVLFxx	CLASS NAME(CSVLLA) EMAJ(LLA)	BCP
	CLASS NAME(IRRGTS) EMAJ(GTS) CLASS NAME(IRRGMAP) EMAJ(GMAP) CLASS NAME(IRRSMAP) EMAJ(SMAP) CLASS NAME(IRRUMAP) EMAJ(UMAP) CLASS NAME(IRRACEE) EMAJ(ACEE)	RACF (see note)
	Note: The RACF sample is provided in member RACPARM of SAMPLIB.	
	COM='S EPWFFST.FFST, SUB=MSTR'	FFST
	COM='S EZAZSSI,P=nodename'	Communications Server IP Services
COM='S RMF.RMF,,,MEMBER(00)'	RMF	
COM='S SDSF'	SDSF (see note)	
COM='S ICEOPT,ICEPRM=xx' COM='S ICEOPT,ICEPRM=(x1,...,xn)'	DFSORT (see note)	
Notes:		
<ul style="list-style-type: none"> • Start procedure FFSTPROC contains DD statements for SYSPRINT and SYSABEND that contain SYSOUT=A. SYSOUT is only allowed if the procedure is started by JES. If you still want FFST to be started by the master scheduler, change the DD statements for SYSPRINT and SYSABEND so that they contain typical data set information. • Use the 'S SDSF' command to start the SDSF server whenever the system is IPLed. The SDSF server must be active on each system that has SDSF users. As of z/OS V1.9.0, SDSF is installed in Wave 2. • You can use the 'S ICEOPT,ICEPRM=xx' command to activate an ICEPRMxx member that contains changes to the installation defaults of DFSORT. You can use the 'S ICEOPT,ICEPRM=(x1,...,xn)' command to activate multiple ICEPRMxx members that contain changes to the installation defaults of DFSORT. See z/OS <i>DFSORT Installation and Customization</i> for details. 		

Figure 43 (Page 2 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
CTIxxxxx	Default PARMLIB members provided: CTIBPX00, CTIIEFAL, CTIBPX01, CTIGRS00, CTIITT00, CTIJES02, CTIJES03, CTIJES04, CTILOG00, CTIOPS00, CTIRSMSP, CTIRSM01, CTIXCF00, CTIAXR00, CTICEA00, CTIXES00	BCP
	Default PARMLIB member provide: CTISMS00	DFSMS
	Default PARMLIB members provided: CTIDMD00, CTIIDS00, CTIIKE00, CTIEZB00, CTIEZBTN, CTINSS00, CTINTA00, CTIORA00, CTIRES00	Communications Server IP Services
	Default PARMLIB members provided: CTINFC00 (for NFS Client), CTINFS00 (for NFS Server)	NFS
EPHWPxx	EPH	Library Server
Note: See 8.5.5.9.2, "Library Server customization considerations" on page 201 for more information about EPHWPxx.		
ERBRMFxx	Default PARMLIB members provided: ERBRMF00, ERBRMF01, ERBRMF02, ERBRMF03, ERBRMF04	RMF
GPMSRVxx	Default PARMLIB member GPMSRV00 provided for RMF Distributed Data Server.	RMF
GTZPRM00	Recommended PARMLIB member GTZPRM00 provided for IBM Generic Tracker for z/OS	BCP
HZSPRM00	Default PARMLIB member HZSPRM00 provided for IBM Health Checker for z/OS	BCP
xxxIPCSP	Default PARMLIB members: ASAIPCSP, ASBIPCSP, ATBIPCSP, BPXIPCSP, COFIPCSP, IARIPCSP, IAXIPCSP, ISGIPCSP, IXCIPCSP, IXLIPCSP, IXZIPCSP	BCP
	Default PARMLIB member: BDTIPCSP	BDT
	Default PARMLIB member: EZAIPCSP	Communications Server IP Services
	Default PARMLIB member: IGWIPCSP	DFSMS
	Default PARMLIB member: CSFIPCSP	Cryptographic Services ICSF
	Default PARMLIB member: HASLIPCS	JES2
	Default PARMLIB members: IATIPCSI, IATIPCSP	JES3
	Default PARMLIB member: CEEIPCSP	Language Environment
	Default PARMLIB member: ICHIPCSP	RACF
	Copy member from SISFJCL: ISFIPCSP	SDSF

Figure 43 (Page 3 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
IEALPAxx	INCLUDE LIBRARY(SYS1.LINKLIB) MODULES(ICHDEX01)	RACF
<p>Note: Only required if you are currently using the dummy authentication masking algorithm, ICHDEX01, and want to continue to use it.</p>		
IEASYSxx	Update suffixes as required to specify updated PARMLIB members OMVS=xx. OMVS=xx specifies BPXPRMxx parmlib member.	z/OS UNIX System Services
<p>Note: The OMVS parameter specifies the PARMLIB member or members to use to locate the PARMLIB statements to configure the z/OS UNIX System Services kernel. OMVS=xx specifies the BPXPRMxx parmlib member.</p>		
IECIOSxx	MIH TIME=mm:ss,DEV=(dddd-dddd)	Communications Server IP Services
<p>Note: Update IECIOSxx with the ranges of addresses used on the Communication devices. For a description of the appropriate advice with respect to MIH, see <i>z/OS Communications Server: IP Configuration Reference</i>.</p>		
IEFSSNxx	SUBSYS SUBNAME(JES2) PRIMARY(YES) START(YES) SUBSYS SUBNAME(IRLM) SUBSYS SUBNAME(JRLM)	BCP (see note 1)
	SUBSYS SUBNAME(BDT)	BDT
	SUBSYS SUBNAME(SMS) INITRTN(IGDSSIIN) INITPARM(' ID=xx,PROMPT=DISPLAY') SUBSYS SUBNAME(OAM1) INITRTN(CBRINIT)	DFSMS (see note 4)
	SUBSYS SUBNAME(FFST)	FFST
	SUBSYS SUBNAME(ISPF) INITRTN(ISPDTSSI)	ISPF (see note 3)
	SUBSYS SUBNAME(RACF) INITRTN(IRRSSI00) INITPARM('%X')	RACF (see note 2)
	<p>Notes:</p> <ol style="list-style-type: none"> 1. The BCP member is provided in member IEFSSN00 of PARMLIB. 2. An additional RACF sample is provided in member RACPARM of SAMPLIB. 3. The ISPF member is required only if using ISPF GUI TSO Linemode Support. See <i>z/OS ISPF Planning and Customizing</i> for more information. 4. where xx refers to your IGD SMSxx member of PARMLIB. See <i>z/OS MVS Initialization and Tuning Guide</i> for more information about IEFSSNxx. 	

Figure 43 (Page 4 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
IEFSSNxx	SUBSYS SUBNAME(TNF) SUBSYS SUBNAME(VMCF) or TNF VMCF	Communications Server IP Services
<p>Note: VMCF and TNF are restartable beginning with TCP/IP 3.2 and with this enhancement, display and easy modification of the VMCF and TNF subsystems are possible. See <i>Communications Server IP Services for MVS: Configuration Guide</i> for more information and command syntax associated with the restartable VMCF and TNF enhancements.</p>		
IFAPRDxx	To define the enablement policy for base elements and features. For details, see 8.5.2.3, "IFAPRDxx considerations" on page 151.	BDT SNA NJE BDT File-to-File BookManager/Build (*) XL C/C++ DFSMSdss DFSMSshm DFSMSrmm DFSMStvs DFSORT GDDM-PGF (*) GDDM-REXX HCM HLASM Toolkit (*) Infoprint Server Communications Server IP Services Communications Server IP Services CICS Sockets Communications Server IP Services IMS Sockets JES3 SDSF RMF Security Server RACF zEnterprise Data Compression (zEDC)
<p>Notes:</p> <ul style="list-style-type: none"> (*) indicates the element may register as a z/OS Version 2 Release 1 feature or as a stand-alone product. Communications Server IP Services is the element name for TCP/IP, but the name entry for TCP/IP remains unchanged in the IFAPRDxx member. IFAPRD00 is built by CBPDO RIMLIB job ZOSREG. 		

Figure 43 (Page 5 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
IGDSMSxx	SMS ACDS(sys1.xxx.ACDS) COMMDS(sys1.xxx.COMMDS)	DFSMS (see note below)
<p>Note: sys1.xxx.ACDS is the name of your Active Control Dataset and sys1.xxx.COMMDS is the name of your Communications data set. See <i>z/OS MVS Initialization and Tuning Guide</i> for more information about IGDSMSxx.</p>		
IKJTSOxx	AUTHCMD NAMES(BINDDATA BDATA LISTDATA LDATA SETCACHE SETC	DFSMS
	AD ADDSD AG ADDGROUP AU ADDUSER ALG ALTGROUP ALD ALTDSO ALU ALTUSER BLKUPD CO CONNECT DD DELDSO DG DELGROUP DU DELUSER LD LISTDSO LG LISTGRP LU LISTUSER RACDCERT RAOLINK RACPRIV RALT RALTER RDEF RDEFINE RDEL RDELETE RE REMOVE RL RLIST RVARY PASSWORD PW PHRASE PE PERMIT SETR SETROPTS SR SEARCH	RACF

Figure 43 (Page 6 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
IKJTSOxx (continued)	MVPXDISP FTP LPQ LPR LPRM MODDVIPA RSH PING TRACERTE	Communications Server IP Services
	RECEIVE TRANSMIT XMIT LISTB LISTBC LISTD LISTDS SE SEND RACONVRT CONSPROF SYNC TESTAUTH TESTA PARMLIB IKJPRMLB)	TSO/E
IKJTSOxx (continued)	AUTHPGM NAMES(
	CSFDAUTH CSFDPKDS	Cryptographic Services ICSF
	ICHDSM00 IRRUT100 IRRUT200 IRRUT400 IRRDPI00 IRRXUTI2	RACF
	FTP	Communications Server IP Services
	IOEDFSXP IOEAGSLV IOEAGFMT IOEZADM)	Distributed File Service (see note below)
	AUTHTSF NAMES(
	CSFDAUTH CSFDPKDS	Cryptographic Services ICSF
	ICQASLI0 IKJEFF76)	TSO/E
<p>Note: The following updates specifically apply to the support listed below:</p> <p>DFS/SMB IOEDFSXP zFS IOEAGSLV, IOEAGFMT, IOEZADM</p>		
<p>Note: For more information on using IKJTSOxx, see <i>z/OS MVS Initialization and Tuning Reference</i>. See <i>z/OS MVS Initialization and Tuning Guide</i> for information on specifying HELP data sets in IKJTSOxx.</p>		
IRROPTxx	ALLOCATE FILE(SYSUT1) DATASET ('SYS1.SAMPLIB(IRRDPSDS) ') IRRDPI00 UPDATE FREE FILE(SYSUT1)	RACF

Figure 43 (Page 7 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
ISFPRMxx	Copy members ISFPRM00, ISFPRM01 from SISFJCL.	SDSF
<p>Note: By default, SDSF reads the ISFPRMxx members from SYS1.PARMLIB and any data set concatenated to PARMLIB. ISFPRM00 is the default unless overridden on the start command or changed in the JCL. You can use a different partitioned data set by adding it to the server JCL using ddname SDSFPARM.</p>		
IVTPRM00	Default PARMLIB member IVTPRM00 is provided. For details, see <i>z/OS Communications Server: New Function Summary</i> .	Communications Server SNA Services
LNKLSTxx or PROGxx	SYS1.CMDLIB	BCP, DFSMS, TSO/E
	SYS1.SBDTLINK	BDT
	EOY.SEOYLOAD	BookManager/ Build BookManager READ
	CBC.SCCNCMP	XL C/C++ without Debug Tool
	CBC.SCLBDLL CBC.SCLBDLL2	Runtime Library Extensions
	SYS1.SICELINK	DFSORT
	SYS1.SEPWMOD2	FFST
	SYS1.SEPWMOD3	FFST
	GDDM.SADMMOD	GDDM
	ASM.SASMMOD1	HLASM
	TCPIP.SEZALOAD	Communications Server IP Services
	ISP.SISPLOAD	ISPF
	SYS1.SHASLNKE SYS1.SHASMIG	JES2
	SYS1.SIATLIB SYS1.SIATLINK SYS1.SIATMIG	JES3
	CEE.SCEERUN CEE.SCEERUN2	Language Environment
SYS1.SIOALMOD	OSA/SF	

Figure 43 (Page 8 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
LNKLSTxx or PROG xx (continued)	REXX.SEAGALT	Alternate Library for REXX
	SYS1.SERBLINK	RMF
	ISF.SISFLINK ISF.SISFMOD1	SDSF
	SYS1.DFQLLIB	ISMF
	SYS1.DGTLLIB	ISMF
	SYS1.SGIMLMD0	SMP/E
<p>Notes:</p> <ul style="list-style-type: none"> • If the LNKAUTH parameter in the IEASYSxx member of SYS1.PARMLIB does not specify LNKLST, you must add these data sets to the APF table to make them APF-authorized. See <i>z/OS MVS Initialization and Tuning Guide</i> for more information. • See 8.5.2.5, “LNKLSTxx considerations” on page 154. 		
LOADxx	For detailed information, see <i>z/OS MVS Initialization and Tuning Reference</i> .	BCP
<p>Note: Parmlib symbolic preprocessor can be used to set up and validate the new LOADxx PARMLIB member.</p>		

Figure 43 (Page 9 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
LPALSTxx	EOY.SEOYLPA	BookManager READ
	SYS1.SBDTLPA	BDT
	SYS1.SICELPA SYS1.SORTLPA (see note 3)	DFSORT
	TCPIP.SEZALPA	Communications Server IP Services
	ISP.SISPLPA	ISPF
	SYS1.SIATLPA	JES3
	CEE.SCEELPA (see note 1)	Language Environment
	SYS1.SERBLPA	RMF
	ISF.SISFLPA (see note 2) ISF.SISFLOAD	SDSF
	SYS1.SDWWDLPA	DFSMS

Notes:

1. CEE.SCEELPA should be added to LPALSTxx only if CEE.SCEERUN is added to LNKLSTxx. See 8.5.2.5.1, "Making the Run-time library available" on page 154.
2. To execute SDSF from the link pack area (LPA) for improved performance, add ISF.SISFLOAD in your LPALSTxx member in SYS1.PARMLIB
3. To make DFSORT programs available on the system:
 - To make DFSORT resident, load the modules from SORTLPA into the link pack area (LPA) or dynamic LPA, and add SICELINK to the link list.
 - To make DFSORT nonresident, add SICELINK and SORTLPA (in this order) to the link list, or use a JOBLIB or STEPLIB for SICELINK and SORTLPA (in this order).

If you want to make DFSORT SVC accessible at IPL, put SICELPA into the LPA or modified link pack area (MLPA).

Figure 43 (Page 10 of 10). PARMLIB Updates

PARMLIB Member	TEXT	Element Name
PROGxx or IEAAPFxx	All LNKSTxx (or PROGxx) libraries. See item 3 on page 156 in 8.5.2.6, "PROGxx and IEAAPFxx considerations" on page 156.	All
	All STEPLIB or ISPLLIB libraries. See Figure 47 on page 161 for the appropriate data sets.	All
	SYS1.SBDTLIB SYS1.SBDTLINK	BDT
	CSF.SCSFMOD0	Cryptographic Services ICSF
	SYS1.SEPWMOD1	FFST
	TCPIP.SEZATCP TCPIP.SEZALNK2 TCPIP.SEZADSIL	Communications Server IP Services
	SYS1.SIEALNKE	All
	SYS1.SERBLINK	RMF
	SYS1.VTAMLIB SYS1.SISTCLIB	Communications Server SNA Services
	SYS1.NFSLIBE	Network File System
SYS1.SISFLINK	SDSF	
Note: See 8.5.2.6, "PROGxx and IEAAPFxx considerations" on page 156.		
SCHEDxx	The default program properties table, IEFSDPPT, shipped by z/OS V2.1.0 BCP includes entries for all z/OS elements. Therefore, the SCHEDxx entries that were previously required by elements are no longer required. See <i>z/OS MVS Initialization and Tuning Reference</i> for more details of the specific entries that are defaulted to.	

8.5.2.3 IFAPRDxx considerations: With z/OS, products can use registration services to determine if they are enabled to run on a particular system. This requires the product be defined appropriately in the enablement policy for the system using the IFAPRDxx PARMLIB member.

Customers must ensure the policy in IFAPRDxx enables only that which they are licensed. Use of (and enablement of) z/OS features is subject to the z/OS license terms and conditions and must be done with the knowledge of your asset manager according to the terms and conditions for z/OS. See the Usage Restriction section of the *z/OS Licensed Program Specifications* for additional license terms and conditions.

When you order an IBM product that packages priced optional features with the base product (such as z/OS), IBM supplies a tailored IFAPRD00 PARMLIB member that enables the product and any optional features ordered with the product. Thus, any feature ordered with the product is enabled during

installation when you copy the contents of the tailored IFAPRD00 member to an active IFAPRDxx member and issue SET command or IPL. If you do not order a feature, it is shipped disabled but you can enable it later. *z/OS MVS Product Management* contains information on how to enable a z/OS feature and how to discontinue use of a feature.

Therefore, you must ensure IFAPRDxx is set up properly. CBPDO provides a job, ZOSREG, in the RIMLIB data set to place a tailored IFAPRD00 member into your SYS1.PARMLIB. If you ordered any optional features that use the register service, the STATE statement is set as ENABLED for you to use the product; otherwise the STATE is set as DISABLED. This job must be run before IPL, or the SET command be used if it has been run after the IPL, or some elements and features will not work. Furthermore, if you added any other products to your IFAPRD00 PARMLIB member and they are still applicable, you will need to make those changes to the member built by ZOSREG or use multiple IFAPRDxx members.

See *z/OS Planning for Installation* for additional information on enabling z/OS features.

IBM supplies you with a tailored IFAPRD00 parmlib member that has been customized for your order. You should use this IFAPRD00 parmlib member if you have determined from the above information that it is required for your environment.

8.5.2.4 BPXPRMxx updates: z/OS provides the capability to dynamically add Physical File Systems to a UNIX System Services configuration. SETOMVS RESET=(yy) is a console command designed to be used with a subset of BPXPRMxx parmlib statements. FILESYSTYPE, SUBFILESYSTYPE, NETWORK, and system limits (such as MAXPROCSYS, etc.) can be changed dynamically by issuing SETOMVS RESET=(xx). An updated or new parmlib member, BPXPRMyy, can be concatenated with other parmlib members at initial IPL or through the SET OMVS=(xx,yy,...) command.

You must copy the sample BPXPRMxx member from SYS1.SAMPLIB to your PARMLIB, renaming it to fit your environment (BPXPRMxx). Then, create or update another PARMLIB member, BPXPRMyy, with the following information for elements z/OS UNIX System Services Application Services, Communications Server IP Services, Distributed File Service, and Network File System. The BPXPRMyy member can then be added dynamically by issuing the SETOMVS RESET=(yy) command. Also, you will need to update your IEASYSxx PARMLIB member to contain the OMVS=(yy,xx,...) parameter for future IPLs. For more information, see *z/OS UNIX System Services Planning* and *z/OS MVS Initialization and Tuning Guide*.

```
MAXTHREADTASKS(500)
MAXTHREADS(500)
MAXPROCUSER(100)
FILESYSTYPE TYPE(UDS) ENTRYPOINT(BPXTUINT)
FILESYSTYPE TYPE(INET) ENTRYPOINT(EZBPFINI)
  STEPLIBLIST('etc/steplist') /* See Note 2 */
FILESYSTYPE TYPE(ZFS) ENTRYPOINT(IOEFSCM)
ASNAME(ZFS) /* See Note 4 */
  NETWORK DOMAINNAME(AF_UNIX)
    DOMAINNUMBER(1)
    MAXSOCKETS(2000)
    TYPE(UDS)
```

```

NETWORK DOMAINNAME(AF_INET)
        DOMAINNUMBER(2)
        MAXSOCKETS(64000)
        TYPE(INET)
IPCSEMSEMS(50)
IPCSHMMPAGES(2048)
FILESYSTYPE TYPE(NFS) ENTRYPOINT(GFSCINIT)
        PARM(' ')
        ASNAME(GFSCPROC)
        ASNAME(GFSCPROC)

```

Notes:

1. The values listed in the previous figure are the minimum values needed to load the initial program.
2. STEPLIBLIST('etc/steplib') will need to be added under FILESYSTYPE(INET) ENTRYPOINT(EZBPFINI).
3. For installation parameters, see *z/OS Network File System Guide and Reference*.
4. This entry is required to run ZFS; for more information, see *z/OS Distributed File Service zFS Administration*.
5. See *z/OS UNIX System Services Planning* for information about how to specify the appropriate MAXFILEPROC value in the BPXPRMxx PARMLIB member.

If you have more than one AF_NET transport providers on an MVS image, you must use the common INET, CINET. CINET is defined in BPXPRMxx to identify the use of the Common INET physical file system. For example, in the preceding created PARMLIB member, BPXPRMyy will need to be updated instead with the following information:

```

FILESYSTYPE TYPE (CINET) ENTRYPOINT(BPXCINT)
        NETWORK DOMAINNAME(AF_INET)
                DOMAINNUMBER(2)
                MAXSOCKETS(64000)
                TYPE(CINET)
                INADDRANYPORT(4000)                                /* SEE NOTE */
                INADDRANYCOUNT(2000)                            /* SEE NOTE */
SUBFILESYSTYPE NAME(tcpjob1)
                TYPE(CINET)
                ENTRYPOINT(EZBPFINI)
SUBFILESYSTYPE NAME(tcpjob2)
                TYPE(CINET)
                ENTRYPOINT(EZBPFINI)
SUBFILESYSTYPE NAME(tcpjob3)
                TYPE(CINET)
                ENTRYPOINT(EZBPFINI)
SUBFILESYSTYPE NAME(STC1)
                TYPE(CINET)
                ENTRYPOINT(EZBPFINI)

```

Note: The INADDRANYPORT assignment is coordinated with similar PORT assignments in the PROFILE.TCPIP data set. For customizing the Communications Server IP Services file system statements, see *z/OS UNIX System Services Planning* and *z/OS MVS Initialization and Tuning Guide*.

8.5.2.5 LNKLSTxx considerations

1. In addition to the data sets you specify in LNKLSTxx or on LNKLST statements in PROGxx, the system automatically places these data sets at the beginning of the link list (unless overridden by a SYSLIB statement in PROGxx):

- SYS1.LINKLIB
- SYS1.MIGLIB
- SYS1.CSSLIB
- SYS1.SIEALNKE
- SYS1.SIEAMIGE

Note: As of z/OS V1.8.0, data sets SYS1.SIEALNKE and SYS1.SIEAMIGE MUST be cataloged to ensure that these data sets are located during IPL.

2. If you plan to run the SDSF server and ISF.SISFLOAD is not defined in the LNKLST or LPA, you must also add ISF.SISFLINK to your LNKLSTxx member of SYS1.PARMLIB or to a LNKLST statement in a PROGxx member.
3. The JES2, JES3, and SDSF libraries are created after JES2, JES3, or SDSF is installed in Wave 2. However, if you add the JES2, JES3, or SDSF libraries to the link list during Wave 1 customization, load the initial program, and then install JES2, JES3, or SDSF in Wave 2, the JES2, JES3, or SDSF libraries might not be found.
4. TCPIP.SEZALNK2 is optional but not recommended. The member in SEZALNK2 is reserved for the NCS administrator and is not copied to your existing LINKLIB data sets. The NCS administrator must have a separate TSO logon procedure, with SEZALNK2 added to the STEPLIB concatenation. SEZALNK2 must be RACF-protected so that unauthorized users are denied access. You must also APF authorize the SEZALNK2 library.
5. To make DFSORT programs available on the system, use either of the following procedures:
 - To make DFSORT resident, load the modules from SORTLPA into the link pack area (LPA) or dynamic LPA, and add SICELINK to the link list.
 - To make DFSORT nonresident, add SICELINK and SORTLPA (in this order) to the link list, or use a JOBLIB or STEPLIB for SICELINK and SORTLPA (in this order).

8.5.2.5.1 Making the Run-time library available

Many elements, features and functions of z/OS Version 2 Release 1 require the run-time libraries provided by Language Environment, SCEERUN and SCEERUN2, to be made available in the program search order. The best way to do that is by adding the SCEERUN and SCEERUN2 data sets in LNKLST. Figure 44 lists the z/OS Version 2 Release 1 elements, features and functions in Wave 1 that require Language Environment. The list was generated by analyzing which elements use the SMP/E CALLLIBS function to include Language Environment stubs and reviewing Post-APPLY link edit jobs supplied by elements.

Figure 44. Wave 1 elements that require Language Environment

<ul style="list-style-type: none"> • BookManager/Build • BookManager READ • BCP • BCP - Base Control Program Internal Interface (BCPii) • BCP - Capacity Provisioning • XL C/C++ • C/C++ Host Performance Analyzer • Communications Server IP Services • Communications Server SNA Services • Cryptographic Services • Cryptographic Services ICSF • DFSMS (Character Data Representation Architecture, CDRA) • DFSORT Locale Processing 	<ul style="list-style-type: none"> • Distributed File Service • HCD • IBM HTTP Server Base • Infoprint Server • IBM TDS • ISPF • Library Server • Network File System • OSA/SF • RMF • Security Server (RACF) • SMP/E Planning and Migration Assistant • z/OS Security Level 3 System SSL Security Level 3 • z/OS UNIX System Services
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8.5.2.5.1.1 z/OS Elements and Features Using STEPLIB for Language Environment

The following sections list the z/OS elements and features that use STEPLIB for Language Environment.

Distributed File Service

1. Add SCEERUN to the startup procedures DFS and DFSKERN; shipped samples are in 'hlq.SIOEPROC.'
2. Add SCEERUN data set to your TSO logon proc by concatenating it to ISPLLIB DD statement and/or concatenate it to STEPLIB (the TSOLIB function of TSO/E could be used).
3. Add the "export STEPLIB=hlq.SCEERUN" in the /etc/profile file.

IBM HTTP Server Base

1. Add SCEERUN and SCLBDLL to the procedure, IMWEBSRV found in 'SYS1.SAMPLIB'.
2. Add "STEPLIB=hlq.SCEERUN:hlq.SCLBDLL:hlq.SIEALNKE" to the /etc/httpd.envvars file.
3. Add SIEALNKE data set to STEPLIB

Infoprint Server

1. Add SCEERUN and SCLBDLL to the startup procedure for NetSpool and IP PrintWay Basic Mode, and any JCL that invokes AOPBATCH, including the AOPPRINT procedure in SYS1.PROCLIB. If you add SCEERUN and SCLBDLL to the STEPLIB in the ANFWPROC procedure for IP PrintWay Basic Mode, then SCEERUN and SCLBDLL must be marked as APF-authorized.
2. Add SCEERUN and SCLBDLL data sets to your TSO logon proc, by concatenating them to ISPLLIB DD statement and/or concatenating them to STEPLIB (the TSOLIB function of TSO/E could be used).
3. Add the SCEERUN and SCLBDLL data sets to the STEPLIBLIST facility of the BPXPRMxx PARMLIB member. If you add SCEERUN and SCLBDLL to the STEPLIBLIST facility of the BPXPRMxx PARMLIB member, then SCEERUN and SCLBDLL must be marked as APF-authorized.

4. Add `export STEPLIB=h1q.SCEERUN:h1q.SCLBDLL` to the `/etc/rc` file.

5. Remove the following statements from the `/etc/profile` file:

```
if [-z "$STEPLIB"] && tty -s;
then
  export STEPLIB=none
  exec sh -L
fi
```

6. Replace with `export STEPLIB=h1q.SCEERUN:h1q.SCLBDLL` in the `/etc/profile` file.

Network File System

Add SCEERUN to the startup procedures; shipped samples are

- GFSAPROC (server)
- GFSCPROC (client)

8.5.2.6 PROGxx and IEAAPFxx considerations

1. See *z/OS MVS Initialization and Tuning Guide* for information about using the PROGxx and IEAAPFxx PARMLIB members.
2. If the default for the LNKAUTH system parameter is taken (LNKAUTH=LNKLST) or is specified in IEASYSxx, or by the operator, libraries in the LNKLST concatenation are authorized when accessed as part of the LNKLST concatenation. However, if they are accessed outside the LNKLST concatenation (for example, through a STEPLIB) they will not be APF authorized unless they are specified in PROGxx or IEAAPFxx. Therefore, you must include any LNKLST libraries that are to be accessed outside the LNKLST in PROGxx or IEAAPFxx.
3. Except for concatenations opened during system initialization, an unauthorized library concatenated to any authorized libraries will cause the system to consider all the concatenated libraries **unauthorized**. Therefore, if one library in a concatenation must be APF authorized, you must include all libraries in that concatenation in PROGxx.

8.5.3 PROCLIB member considerations

This section describes the PROCLIB customization that must be performed for the Wave 1 and Wave 2 elements. PROCLIB customization consists of three steps:

1. Ensure the default PROCLIB members have been copied to your default PROCLIB to pick up the new and changed members.
2. Update individual sample members provided and ensure they are accessible to the system, as shown in Figure 45 on page 157.
3. Ensure entire libraries are accessible to the system, as shown in Figure 46 on page 160.

The following figure, shown in ripple order, describes the PROCLIB updates that are required for z/OS V2.1.0. Note that PARMLIB concatenation function has been incorporated into some sample procedures.

IBM recommends you base your customized procedures on the IBM-supplied samples. For additional information on PROCLIB considerations, see the customization books for the particular element.

8.5.3.1 Copying default PROCLIB members: After the PROCLIB updates are complete, the members listed in Figure 45 must be made accessible to the system by copying them to a procedure library that is in your JES procedure library concatenation.

Figure 45 (Page 1 of 3). PROCLIB Member Updates

PROCLIB Member	Action to Take	Element Name
ASCH ASCHINT APPC AVM AXRNN AXRPSTRT BCDPROC BLSJIPCS BLSJPRMI BPXAS BPXOINIT CBDJCMPR CBDJIMPT CBDJIOCP CBDJRPTS CBDJXMIT CBDQAJSK CBDQDISP CEA CVAFTR DEALLOC DFM DLF DUMPSRV GTF HIS HZR IEESYSAS IEEVMPCR IFGOCETR INIT IXGLOGRS LINKS LKED LLA LOGROUTE OMVS RDR RDR3200 RDR400 RMTGEN VLF XWTR	Ensure these procedures are correctly customized for your environment. They are provided in your PROCLIB data set.	BCP HCD DFSMS

Figure 45 (Page 2 of 3). PROCLIB Member Updates

PROCLIB Member	Action to Take	Element Name
BDT\$V2SP BDT\$V2TP	Copy these procedures and update for your environment. BDT\$V2SP is the started procedure for BDT. BDT\$V2TP is the started procedure for the BDT transaction queuing integrity (TQI) address space. Both of these procedures are provided in your SBDTSAMP library.	BDT
CFZCIM	Procedure is provided in your PROCLIB data set. Update for your environment.	Common Information Model (CIM)
EOYBUILD EOYINDEX	Change these procedures for your environment. Sample members are provided in your SEOYPROC library.	BookManager/Build BookManager READ
EZAZSSI	A sample member is provided in your SEZAINST library.	Communications Server IP Services
GTZ	The procedure is provided in your PROCLIB data set.	BCP
HZSPROC	Procedure is provided in your PROCLIB data set. Update for your environment. See <i>IBM Health Checker for z/OS: User's Guide</i> for additional information.	BCP
ICEOPT	The procedure is provided in your PROCLIB data set.	DFSORT
IOEP0001 IOEP0003 IOEP0004 IOEP0002 *	These are SIOEPROC library members. The aliases DFS, DFSKERN, and ZFS are provided to refer to IOEP0001, IOEP0003, and IOEP0004, respectively. DFS is the sample procedure for running the DFS server. DFSKERN is the sample procedure for running the DFS server DFSKERN process in a separate address space. ZFS is the sample procedure for running ZFS. Ensure these aliases are maintained and reflect local updates to these sample procedures. * Note: Although the DFS client function was removed in z/OS V1R13, DFSCM (sample procedure for running the DFS client) and IOEP0002 are still shipped. Their only purpose now, however, is to issue error message IOEP12402E to customers who still have the DFS client configured on their system.	Distributed File Service
EPWFFST	Copy this procedure and update for your environment. Sample member is provided in your SEPWSRC2 library.	FFST
ASMAC ASMACL ASMACLG ASMACG	Change these procedures for your environment. Sample members are provided in your SASMSAM1 library. If the previous release of High Level Assembler has been used, users might have become accustomed to using the old procedure names of HLASMC, HLASMCG, HLASMCLG and HLASMCL. To make the transition from the previous release, in your SASMSAM1 library, these old procedure names appear as aliases for the sample supplied procedures.	High Level Assembler

Figure 45 (Page 3 of 3). PROCLIB Member Updates

PROCLIB Member	Action to Take	Element Name
ANFWPROC APIJPJCL AOPPRINT AOPSTART AOPSTOP	Procedures are provided in your PROCLIB data set. Update your environment, as described in <i>z/OS Infoprint Server Customization</i> .	Infoprint Server
DSSRV	DSSRV is an alias in the SGLDSAMP library.	IBM TDS Server
GFSAPROC GFSCPROC	Update for your environment. These members are provided in your NFSSAMP library. GFSAPROC is a sample MVS NFS procedure, GFSCPROC is a sample MVS NFS procedure.	Network File System
IOAOSASF	Copy this procedure and update for your environment. Sample member is provided in your SIOASAMP library.	OSA/SF
RACF	This supplied procedure may be updated. See member RACPROC in SAMPLIB.	RACF
RMF RMFCSC RMFGAT RMFM3B GPMSEVERE GPM4CIM	These supplied procedures may be updated, if you would like. See the comments provided in this member of your PROCLIB data set.	RMF
SDSF	Copy member ISFSRJCL from your SISFJCL data set to PROCLIB and call it SDSF to define the SDSF server. The SDSF server is only needed if you intend to define initialization statements or exploit the sysplex support in place of the ISFPARMS macros. If you do not plan to run the SDSF server, copying this PROCLIB member is not required.	SDSF

8.5.3.2 Ensuring that entire libraries are accessible: The following procedure libraries, which are shown in ripple order, must either be copied to SYS1.PROCLIB or be added to a PROCLIB concatenation accessible to JES. Customization considerations for these data sets are detailed after this figure.

Figure 46 (Page 1 of 2). PROCLIB Concatenation

DDNAME	Element	Note
SEOYPROC	BookManager/Build	
SCCNPRC	XL C/C++	
SCEEPROC	Language Environment	
SGLDSAMP	IBM Tivoli Directory Server for z/OS	This data set contains various LDAP procedures and sample jobs.

Figure 46 (Page 2 of 2). PROCLIB Concatenation

DDNAME	Element	Note
SIOEPROC	Distributed File Service	Contains aliases DFS, DFSKERN, ZFS, and DFSCM (see Figure 45 on page 157); ensure these aliases are maintained. Note that with the removal of DCE support in z/OS V1R13, DFSCM has limited function but is still required.

8.5.3.3 Customize procedures for XL C/C++: You may customize the procedures provided by C/C++. For more information, see *z/OS XL C/C++ User's Guide*.

8.5.3.4 Customize Language Environment procedures: You may customize the procedures provided by Language Environment. For more information, see *z/OS Language Environment Customization*.

8.5.4 z/OS Version 2 Release 1 ISPF setup considerations

Figure 47 shows the data sets that must be concatenated to ISPF DDNAMEs in the logon procedure to use z/OS V2.1.0 functions. See Figure 48 on page 166 for Logon Proc using language libraries.

Figure 47 (Page 1 of 5). Logon PROC Updates

DDNAME	DDDEF	ELEMENT
ISPILIB	SISPSAMP	ISPF
Note: ISPILIB is used for image support (bitmaps) for ISPF C/S.		
ISPLLIB	DFQLLIB DGTLLIB	DFSMS
	SCBDHENU	HCD
	SGIMLMD0	SMP/E
Note:		
<ul style="list-style-type: none"> To avoid needing SYS1.NUCLEUS in your ISPLLIB, use the parameter UIM_LIBNAME in the HCD profile to point to the data set containing the UIMs and UDTs. If the keyword is omitted, SYS1.NUCLEUS is assumed. If UIM_LIBNAME=* is specified, HCD assumes the UIM data sets are part of the ISPLLIB or STEPLIB DDNAME. Data sets in the LNKLSTxx or the LPALSTxx should not be included in the ISPLLIB or STEPLIB DDNAME. 		

Figure 47 (Page 2 of 5). Logon PROC Updates

DDNAME	DDDEF	ELEMENT
ISPMLIB	SBLSMMSG0	BCP
	SBPXMENU	BCP (z/OS UNIX)
	SBDTMSG	BDT
	SEOYBENU SEOYMENU	BookManager/Build and BookManager READ
	SEPHMSG1	BookManager Read (for DBCS Print Utility only)
	DGTMLIB DFQMLIB SEDGMENU	DFSMS
	SADMMSG	GDDM
	SCBDMENU	HCD
	SEZAMENU	Communications Server IP Services
	SCSFMSG0	Cryptographic Services ICSF
	SAOPMENU	Infoprint Server
	SISPMENU	ISPF
	SIATMSG0	JES3
	SERBMENU	RMF
	SISFMLIB	SDSF
	HRFMSG	Security Server (RACF)
	SGIMMENU	SMP/E
	ICQMLIB	TSO/E

Figure 47 (Page 3 of 5). Logon PROC Updates

DDNAME	DDDEF	ELEMENT
ISPPLIB	SBLSPNL0 SBXPENU	BCP BCP (z/OS UNIX)
	SBDTPNL0	BDT
	SEOYPENU	BookManager READ
	SEPHPNL1	BookManager Read (for DBCS Print Utility only)
	DFQPLIB DGTPLIB SEDGPENU	DFSMS
	SEPWPENU	FFST
	SADMPNL	GDDM
	SCBDPENU	HCD
	SEZAPENU	Communications Server IP Services
	SCSFPNL0	Cryptographic Services ICSF
	SAOPPENU	Infoprint Server
	SISPPENU	ISPF
	SHASPNL0	JES2
	SIATPNL0	JES3
	SERBPENU	RMF
	SISFPLIB	SDSF
	HRFPANL	Security Server (RACF)
	SGIMPENU	SMP/E
	ICQPLIB	TSO/E
ISPSLIB	SBLSKEL0	BCP
	DGTSLIB	DFSMS
	SCSFSKL0	Cryptographic Services ICSF
	SISPSLIB	ISPF
	SISPSENU	ISPF
	SISFSLIB	SDSF
	HRFSKEL	Security Server (RACF)
	SGIMSENU	SMP/E
	ICQSLIB	TSO/E

Figure 47 (Page 4 of 5). Logon PROC Updates

DDNAME	DDDEF	ELEMENT
ISPTLIB	SBLSTBL0 SBPXTENU	BCP BCP (z/OS UNIX)
	SEOYTENU	BookManager/Build and BookManager READ
	SEPHTBL1	BookManager Read (for DBCS Print Utility only)
	DGTTLIB	DFSMS
	SCBDTENU	HCD
	SCSFTLIB	Cryptographic Services ICSF
	SEZAPENU	Communications Server IP Services
	SISPTENU	ISPF
	SIATTBL0	JES3
	SERBT SERBTENU	RMF
	SISFTLIB	SDSF
	SGIMTENU SMPTABL	SMP/E
	ICQTLIB	TSO/E
<p>Note: SMPTABL is required for SMP/E in the ISPF concatenation, but does not have a DDDEF. For more information on how to allocate the SMPTABL, see 8.5.4.1, "SMP/E customization considerations for ISPF" on page 170.</p>		
SYSEXEC	SBPXEXEC	BCP (z/OS UNIX)
	SEOYCLIB	BookManager/Build and BookManager READ
	SEZAEXEC	Communications Server
	SEDGEXE1	DFSMS
	SIOEEXEC	Distributed File Service
	SEPWSRC1	FFST
	SAOPEXEC	Infoprint Server
	SISPEXEC	ISPF
	SISFEXEC	SDSF
	SGLDEXEC	IBM TDS Server
<p>Notes:</p> <ol style="list-style-type: none"> 1. Ensure all libraries in the SYSEXEC concatenation have the same record format. 2. The libraries in SYSEXEC could be put in the SYSPROC DD instead. 		

Figure 47 (Page 5 of 5). Logon PROC Updates

DDNAME	DDDEF	ELEMENT
SYSHELP	HELP	BCP, DFSMS, z/OS UNIX System Services, RACF, RMF, TSO/E Communications Server IP
	SBDTHELP	BDT
	SISPHELP	ISPF
	SISFHELP	SDSF
	HELPEXP	TSO/E
SYSPROC	SBLSCLI0	BCP
	SBDTCLI0	BDT
	SEOYCLIB	BookManager/Build and BookManager READ
	SCCNUTL	XL C/C++
	DGTCLIB	DFSMS
	SEPWCENU	FFST
	SCBDCLST	HCD
	SCSFCLI0	Integrated Cryptographic Service Facility
	SISPCLIB	ISPF
	SERBCLS	RMF
	HRFCLST	Security Server (RACF)
SGIMCLS0	SMP/E	
Notes:		
<ol style="list-style-type: none"> 1. Ensure all libraries in the SYSPROC concatenation have the same record format. 2. EOY2GDF, EOY2PSEG, and EOYPARM members of SEOYCLIB should be customized for the customer site. 3. Data Sets SCCNUTL contain only REXX EXECs. 		
STEPLIB or LNKLSTxx	SBDTLIB	BDT
	SEPWMOD4	FFST
	SCBDHENU	HCD
<p>Note: If the following libraries are removed from LNKLSTxx, add them to the STEPLIB concatenation and authorize every library in the concatenation using PROGxx or IEAAPFxx.</p> <ul style="list-style-type: none"> • SISpload • SISfload • SCEERUN • SCLBDLL • SCLBDLL2 • SCCNCMP 		

Notes:

1. Each BookManager READ user requires access to the product libraries and a recommended region size of 4 megabytes. If you use large books or use many books, you may require a larger region size.
2. BookManager READ does not support LIBDEFs because certain functions may be lost if LIBDEFs are used.
3. Remove the DFSORT libraries SICECLIB, SICETLIB, SICESLIB, ICEPENU, and SICEMENU from LOGON PROCs because these libraries have been removed in z/OS V1.10.0.

The logon PROC updates for the Language libraries are listed below. Add appropriate Language libraries to your logon PROC. Unless the English library is specified as required in the table, you can remove the English library after you add the Language libraries.

<i>Figure 48 (Page 1 of 5). Logon PROC Updates for Language libraries</i>		
DDNAME	DDDEF	ELEMENT
ISPMLIB	SBPXMCHS SBPXMJPN	BCP Simplified Chinese BCP Japanese
	SEOYBDAN SEOYMDAN	BookManager READ Danish
	SEOYBDEU SEOYMDEU	BookManager READ German
	SEOYBESP SEOYMESP	BookManager READ Spanish
	SEOYBFRA SEOYMFRA	BookManager READ French
	SEOYBFRC SEOYMFRC	BookManager READ Canadian French
	SEOYBITA SEOYMITA	BookManager READ Italian
	SEOYBNLD SEOYMNLD	BookManager READ Netherlands Dutch
	SEOYBPTB SEOYMPTB	BookManager READ Brazilian Portuguese

Figure 48 (Page 2 of 5). Logon PROC Updates for Language libraries

DDNAME	DDDEF	ELEMENT
ISPMLIB (Continued)	DFQMKLB DGTMKLB SEDGMJPN	DFSMS Japanese
	SCBDMJPN	HCD Japanese
	SAOPMJPN	Infoprint Server Japanese
	SISPMENP SISPMDES SISPMDEU SISPMJPN	ISPF Upper Case English ISPF Swiss German ISPF German ISPF Japanese
	SCEEMSGP	Language Environment Upper Case English
	SERBMJPN	RMF Japanese
	SICHMJPN	Security Server (RACF) Japanese
	SGIMMJPN	SMP/E Japanese
	ICQPMLIB ICQGMLIB ICQKMLIB	TSO/E Simplified Chinese TSO/E German TSO/E Japanese

Figure 48 (Page 3 of 5). Logon PROC Updates for Language libraries

DDNAME	DDEF	ELEMENT
ISPPLIB	SBPXPCHS SBXPJPJN	BCP Simplified Chinese BCP Japanese
	SEOYPDAN	BookManager READ Danish
	SEOYPDEU	BookManager READ German
	SEOYPESP	BookManager READ Spanish
	SEOYPFRA	BookManager READ French
	SEOYPFRC	BookManager READ Canadian French
	SEOYPITA	BookManager READ Italian
	SEOYPNLD	BookManager READ Netherlands Dutch
	SEOYPPTB	BookManager READ Brazilian Portuguese
	DFQPKLB DGTPKLB SEDGPJPN	DFSMS Japanese
	SCBDPJPN	HCD Japanese
	SAOPPJPJN	Infoprint Server Japanese
	SISPPENP SISPPDES SISPPDEU SISPPJPN	ISPF Upper Case English ISPF Swiss German ISPF German ISPF Japanese
	SERBPJPN	RMF Japanese
	SICHPJPN	Security Server (RACF) Japanese
SGIMPJPN	SMP/E Japanese	
ICQPPLIB ICQGPLIB ICQKPLIB	TSO/E Simplified Chinese TSO/E German TSO/E Japanese	
ISPSLIB	DGTSKLB	DFSMS Japanese
	SISPSENP SISPSDES SISPSDEU SISPSJPN	ISPF Upper Case English ISPF Swiss German ISPF German ISPF Japanese

Figure 48 (Page 4 of 5). Logon PROC Updates for Language libraries

DDNAME	DDEF	ELEMENT
ISPTLIB	SBPXTCHS SBPXTJPN	BCP Simplified Chinese BCP Japanese
	SEOYTDAN	BookManager READ Danish
	SEOYTDEU	BookManager READ German
	SEOYTESP	BookManager READ Spanish
	SEOYTFRA	BookManager READ French
	SEOYTFRC	BookManager READ Canadian French
	SEOYTITA	BookManager READ Italian
	SEOYTNLD	BookManager READ Netherlands Dutch
	SEOYPTTB	BookManager READ Brazilian Portuguese
	SCBDTJPN	HCD Japanese
	SISPTENP SISPTDES SISPTDEU SISPTJPN	ISPF Upper Case English ISPF Swiss German ISPF German ISPF Japanese
	SERBTJPN	RMF Japanese
SGIMTJPN SGIMTENU	SMP/E Japanese SMP/E English	
ICQPTABL ICQGtabl ICQKTABL	TSO/E Simplified Chinese TSO/E German TSO/E Japanese	
Note: Both the Japanese and English SMP/E libraries are required in the ISPTLIB concatenation.		
SYSEXEC	ICQGCLIB ICQKCLIB ICQPCLIB	TSO/E German TSO/E Japanese TSO/E Simplified Chinese

Figure 48 (Page 5 of 5). Logon PROC Updates for Language libraries

DDNAME	DDDEF	ELEMENT
SYSHELP	PHELP	BCP (z/OS UNIX), TSO/E, z/OS UNIX System Services Simplified Chinese
	KHELP	BCP (z/OS UNIX), TSO/E, z/OS UNIX System Services Japanese
	HLPKLB	DFSMS Japanese
	GHELP	TSO/E German

Note: Remove the DFSORT Japanese libraries SICEPJPN and SICEMJPN from logon PROCs because these libraries are obsolete since z/OS V1.10.0.

8.5.4.1 SMP/E customization considerations for ISPF

Use the ISPCTL1 and ISPCTL2 files to generate JCL for submitted SMP/E jobs. The SMP/E job submit facility lets you browse and edit this JCL. You can omit these files from your logon procedure and let ISPF automatically allocate them as needed. To save the input JCL generated by the dialogs, allocate a permanent sequential data set to ISPCTL1 (LRECL=80, RECFM=FB) before you enter the SMP/E dialogs or just use EDIT CREATE.

Allocate a single, installation-wide table data set to the ISPTLIB and SMPTABL DD statements. SMP/E uses this table data set to save process status information for the SYSMOD management dialogs. The data set must be a partitioned data set (LRECL=80, RECFM=FB). Because the data set is also in the concatenation of ISPTLIB, make the block size compatible with the block size of the corresponding ISPF data sets.

8.5.4.2 Update ISPF Command Table ISPTCM (if Required): For more information and instructions about updating ISPTCM, see *z/OS ISPF Planning and Customizing*.

8.5.5 Element customization

After the elements are installed, you should examine (and if necessary, change) any installation exits and modifications to meet your installation's needs.

8.5.5.1 RACF security considerations

To perform the customization procedures for several of the z/OS V2.1.0 Wave 1 elements, you must have certain security permissions available. You may set up the security for all of the Wave 1 elements at this time. The following list shows elements that require RACF security and the location of more information.

- Cryptographic Services OCSF (see 8.5.5.6.1, “Cryptographic Services OCSF customization considerations” on page 190)
- DFSMS (see *z/OS DFSMS Storage Administration Reference*)
- FFST (see 8.5.5.5.5, “FFST customization considerations” on page 188)
- HCD (see *z/OS HCD User's Guide*)
- HCM (see *z/OS and z/VM HCM User's Guide*)
- Communications Server IP Services (see 4 on page 179)
- Cryptographic Services ICSF (see *z/OS Cryptographic Services ICSF Administrator's Guide* and *z/OS Cryptographic Services ICSF System Programmer's Guide*)
- OSA/SF (see 8.5.5.8.4, “OSA/SF customization considerations” on page 198)
- RMF (see 8.5.5.7.4, “RMF customization considerations” on page 194)
- Security Server (see 8.5.5.6.3, “Security Server (RACF) customization considerations” on page 191)
- IBM Tivoli Directory Server for z/OS (see 8.5.5.3.4, “IBM Tivoli Directory Server for z/OS customization considerations” on page 173)
- TSO/E (see *z/OS TSO/E Customization*)
- z/OS UNIX System Services (see 8.5.5.2, “z/OS UNIX System Services customization considerations”)
- z/OS UNIX System Services Application Services (see 8.5.5.4.3, “z/OS UNIX System Services Application Services customization” on page 183)
- Library Server (see 8.5.5.9.2.7, “Setting security authorizations” on page 224)
- Distributed File Service (see 8.5.5.9.1, “Distributed File Service customization considerations” on page 199)
- Infoprint Server (see 8.5.5.9.3.4, “Establish security for Infoprint Server” on page 231)
- Network File System (see *z/OS Network File System Guide and Reference*)

Note: The SDSF element, which is installed in Wave 2, requires certain security permissions to be defined when SDSF is used in a JES3 environment.

8.5.5.2 z/OS UNIX System Services customization considerations

Note: This section must be completed before the Communications Server IP Services customization section can be performed.

A SAMPLIB member is provided with z/OS UNIX System Services Kernel, BPXISEC1, which is a sample TSO CLIST that provides all the RACF commands needed for the security setup of z/OS UNIX System Services. This CLIST is being provided as a central location for these commands and should be used by customers in conjunction with *z/OS UNIX System Services Planning* to reference detailed information. You may also need to refer to:

- *z/OS Security Server RACF Security Administrator's Guide*
- *z/OS Security Server RACF System Programmer's Guide*
- *z/OS Security Server RACF Command Language Reference*

This CLIST is structured into separate sections, each with a set of block comments, describing the RACF function that will be setup and what needs to be changed by the customer. **Ensure you execute this CLIST from a RACF special user ID!**

8.5.5.3 Customization considerations for Wave 1A

The following sections contain additional customization considerations for Wave 1A.

8.5.5.3.1 Integrated Security Services Network Authentication Service customization considerations

The following customization actions should be done at this time:

- Catalog all of the EUVF.SEUVFxxx, where xxx is LIB (Library) and EXC (REXX execs for the TSO logon procedure).
- Delete OBSOLETE datasets EUVF.SEUVFxxx, if they exist, where xxx is LNK, LPA (these modules moved to SYS1.SIEALNKE), HDR (Header data moved to SYS1.SIEAHDR), and EXP (Exports from DLL file moved to SYS1.SIEASID).
- Copy the SKRDKDC started task proc in EUVF.SEUVFSAM to SYS1.PROCLIB
- Copy the SKRBWTR started task proc in EUVF.SEUVFSAM to SYS1.PROCLIB or to a proclib in the IEFPSI DD name in your MSTJCLxx member in your PARMLIB concatenation.
- Customize the SKRBWTR procedure according to your system installation needs.
- Copy the appropriate CTIKDCxx member from EUVF.SEUVFSAM to your installation's PARMLIB member and customize as necessary to support the component's tracing that you may need to perform.
- Remove any instances of EUVF.SEUVFLPA dataset from LPALSTnn.
- Remove any instances of EUVF.SEUVFLNK dataset from LNKLSTnn.

Detailed steps to get the program into operational status are defined in *z/OS Integrated Security Services Network Authentication Service Administration*.

8.5.5.3.2 Language Environment customization considerations

Refer to *z/OS Language Environment Customization* for more information and instructions on Language Environment customization. You can customize any of the following items for Language Environment:

- Default run-time options
- User exits:
 - Assembler user exit
 - High-level language user exit
 - Abnormal termination exit
- CLISTs
- Place Language Environment modules in the link pack area
- COBOL COBPACKs
- Fortran LIBPACKs
- Make Language Environment available under CICS (optional)
 - Add CICS PPT entries
 - Add DCT entries

- Add Language Environment-CICS data sets to CICS startup job stream
- Language-specific features:
 - OS/VS COBOL Compatibility Library
 - COBOL parameter list exit
 - COBOL reusable environment
 - C/C++ Base locale time information
 - Improving performance on IMS/DC
 - Fortran unit attribute table
 - VS Fortran compatibility unit attribute table
 - VS Fortran compatibility run-time options
 - VS Fortran compatibility error option table

8.5.5.3.3 Cryptographic Services ICSF customization considerations

Refer to *z/OS Cryptographic Services ICSF Administrator's Guide* and *z/OS Cryptographic Services ICSF System Programmer's Guide* for more information on Cryptographic Services ICSF customization.

8.5.5.3.4 IBM Tivoli Directory Server for z/OS customization considerations

Refer to the *z/OS IBM Tivoli Directory Server Administration and Use for z/OS*.

8.5.5.3.5 IBM Generic Tracker for z/OS Customization Considerations

The IBM Generic Tracker for z/OS also provides the following samples in SYS1.SAMPLIB:

- GTZCNIDJ** creates GTZPRMxxx parmlib members from existing CNIDTRxxx parmlib members.
- GTZPRNTJ** prints data and associated information currently stored in tracking facility.
- GTZSHCK** a sample health check to report tracked events
- GTZSHCKJ** builds the GTZSHCK sample health check

Refer to the samples' prologue and *z/OS MVS Diagnosis: Tools and Service Aids* for more information and instructions about IBM Generic Tracker customization.

8.5.5.3.6 IBM Health Checker for z/OS customization considerations

The IBM Health Checker for z/OS also provides the following samples in SYS1.SAMPLIB:

- HZSALLCP** allocates the persistent data dataset. This sample must be updated so HZSPROC and this sample reflect the same dataset.
- HZSPRINT** prints the current, or logstream copies of message buffers
- HZSMMSGNJ** processes the check's message table

Refer to *IBM Health Checker for z/OS: User's Guide* for more information and instructions about IBM Health Checker customization.

8.5.5.3.7 ISPF customization considerations

Refer to *z/OS ISPF Planning and Customizing* for more detailed information on customizing ISPF.

8.5.5.3.7.1 ISPF C/S with TSO linemode in a GUI window

See *z/OS ISPF Planning and Customizing* for information on customizing ISPF C/S to display TSO linemode output in a GUI window.

8.5.5.3.7.2 z/OS Version 2 Release 1 Sample panels

Sample ISPF panels are provided to enable panels for most z/OS Version 2 Release 1 elements. These panels reside in the SISPPENU data set after APPLY processing. Two sample panels are supplied:

ISR@390S This sample panel is distributed with options used by system programmers and administrators. It includes options for:

- GDDM Print Queue Manager
- HCD I/O configuration
- APPC Administration Dialog
- Work Load Manager
- FFST dump formatting
- Infoprint Server
- RMF
- SMP/E
- TCP/IP NPF

ISR@390U This sample menu panel includes the options used by most ISPF users. It includes options for:

- BookManager/Build
- BookManager/Read Online Documentation
- BookManager/Read Bookshelf Index Creation
- DFSMSrmm/ISMF
- DFSMSdfp/ISMF
- BDT File-to-File Feature
- IPCS for dump reading
- z/OS Unix Browse Files
- z/OS Unix Edit Files
- z/OS Unix Shell
- Security Server
- TSO/E Information Center Facility
- SDSF

Options for these elements have not been included in the samples:

- Communications Server SNA Services IPCS Trace

The panels for this element require extensive setup. Refer to "Installing the VTAM Dump Analysis Enhancements and the VIT Analysis Tool" in *z/OS Communications Server: New Function Summary* for information about enabling these panels.

ISPF customization for RACF panels

If your installation uses the TSO/E session manager, and you want it to capture the output of RACF panels, specify PANEL(ICHPO0SM) instead of PANEL(ICHPO0), in ISR@390U. For example, change:

```
12, 'PANEL(ICHPO0) SCRNAME(SEcurity)'
```

to

```
12, 'PANEL(ICHPO0SM) SCRNAME(SEcurity)'
```

8.5.5.3.7.3 Using the z/OS Version 2 Release 1 Sample panels

Starting from z/OS V1.9.0 ISPF, the sample panel ISR@390 was no longer included in the product. The ISR@PRIM panel now includes these two options:

12 z/OS System z/OS system programmer applications

13 z/OS User z/OS user applications

Thus ISR@PRIM is now the same as ISR@390 that was in previous releases. Therefore, no customization is needed to replace the Primary Option menu with ISR@390. The sample USERMOD, OS39001, documented for previous releases, is no longer required and should not be used.

8.5.5.4 Customization considerations for Wave 1B

The following sections contain additional customization considerations for Wave 1B.

8.5.5.4.1 Communications Server IP Services customization considerations

Perform the following steps to complete the installation and initial customization of the Communications Server IP Services address space and key servers. At the completion of these steps, the Communications Server will have been set up for a basic configuration with no network attachments.

Additional customization will be required to link the host to the network, bring up additional services, and optimize the use of initially configured services.

By choosing appropriate data set names and procedure names, these configuration steps can be done without interfering with any existing IP configuration. However, some customers may choose to simply review these steps and instead do IP configuration according to procedures they already have in place.

Refer to *z/OS Communications Server: New Function Summary* and *z/OS Communications Server: IP Configuration Guide* for more detailed customization instructions.

Before running the verification procedure you must have a fully functional z/OS UNIX environment and a fully functional security environment, either RACF or some other security program.

The following steps must be run from a TSO user ID with an OMVS segment defined. The user ID must be uid=0 or permitted to access the 'BPX.SUPERUSER' resource in the FACILITY class. The user ID must also be able to create and write to the required TSO datasets and hierarchical file system files and to perform RACF definitions. Steps in the EZARACFI job provide guidance for creating the entries that are required to complete the Communications Server IP IVP.

The PROCLIB used to contain the IVP procedures (*IVP_proclib_dsn*) must be in the PROCLIB concatenation. Before executing the steps, the following values must be known:

- **target_lib_hlq**: high level qualifier of the TCP/IP target libraries (SEZAxxxx data sets). This will have been selected when the HLQ variable was chosen for the EZACSALC job run earlier in the Program Directory steps.
- **dyn_alc_hlq**: high level qualifier of dynamically allocated TCP/IP data sets. Default is TCPIP, but we recommend use of TCPIVP.
- **Default_RACF_group**: RACF group to which TCPIP and server procedures will be permitted. Default is OMVSGRP, which is the value used by the z/OS UNIX IVP. If you change the RACF Group for the z/OS UNIX IVP, it will need to be changed here as well. This group must be defined before the instructions below are executed.
- **TCPIP_PROFILE_name**: data set name for the TCPIP.PROFILE. Defaults to TCPIP.PROFILE.TCPIP, but we recommend use of 'TCPIVP.TCPPARMS(PROFILE)'. For the purpose of these installation verification procedures, this must be an MVS data set, not an HFS file.
- **TCPIP_DATA_name**: data set name for the TCPIP.DATA data set. Defaults to TCPIP.TCPIP.DATA, but we recommend use of 'TCPIVP.TCPPARMS(TCPDATA)'. For the purpose of these installation verification procedures, this must be in an MVS data set, not an HFS file.
- **TCPIP_procname**: procedure name chosen for the TCP/IP address space; defaults to TCPIP.
- **SYSLOGD_procname**: procedure name for syslog daemon; defaults to SYSLOGD
- **FTPD_procname**: procedure name for FTP daemon; defaults to FTPD.
- **IVP_proclib_dsn**: data set name of the IVP-specific procedure library.
- **IVP_jcllib_dsn**: data set name for batch jobs used for installation and verification.
- **IVP_configuration_dsn**: name of partitioned dataset to be used to contain configuration files for executing the IVP. We recommend use of 'TCPIVP.TCPPARMS'
- **hostname**: The name of the system as it will be known in the TCP network.

Note: To avoid accidentally overlaying an existing system environment, a default is not used. The preceding environment settings are meant to be discarded and not used in a live network.

When executing the following steps, you must use the same value for each of the *highlighted variables* (for example, *dyn_alc_hlq*) for each step where that variable is required.

Also verify:

- the Communications Server IP Services datasets have been added to the appropriate LNKLSTxx and LPALSTxx members of PARMLIB.
- BPXPRMxx parmlib member in use by z/OS UNIX has been updated for Communications Server IP Services.
 - Check there is a FILESYSTYPE statement specifying entry point EZBPFINI, as shown in the following example.

```
FILESYSTYPE TYPE(INET) ENTRYPOINT(EZBPFINI)
NETWORK DOMAINNAME(AF_INET)
DOMAINNUMBER(2)
MAXSOCKETS(60000)
```
 - If any changes are required, the new OMVS parameters may be updated by using the SETOMVS RESET=(yy) command or by re-IPLing.

Customization steps

1. Allocate required data sets

- Customize the EZAGETIN job
 - This job allocates required TCPIP datasets, such as translation tables, HOSTS.LOCAL, ETC.SERVICES, etc
 - Copy the sample job to a JCL data set of your choice: *target_lib_hlq*.SEZAINST(EZAGETIN) to *IVP_jcllib_dsn*(EZAGETIN)
 - Fill in any required parameters on the //JOB statement
 - Set the DSPPREFIX variable on the //PROC statement to *dyn_alc_hlq* or accept the default of TCPIP.
 - Set the TGTPRFX variable to *target_lib_hlq* or accept the default of TCPIP.
 - Set variables on the //PROC statement for the DASD volume serial and type where the datasets will be allocated
- Run the EZAGETIN job.
 - Expected results: The job should complete with all steps receiving a condition code 0.
- Update the *dyn_alc_hlq*HOSTS.LOCAL file
 - Copy an existing HOST entry, change the IP address to the loopback address and fill in the appropriate *hostname* value; for example:

```
HOST : 127.0.0.1   :hostname :::
```
 - Comment out the additional sample HOST, NET, and GATEWAY statements.
- Run makesite to create the hlq.HOSTS.ADDRINFO and hlq.HOSTS.SITEINFO datasets
 - From TSO, issue the following command:

```
makesite hlq=dyn_alc_hlq
```
 - Expected results:
 - The following messages should be seen at the TSO session:

```
EZA0547I Writing out dyn_alc_hlq.HOSTS.SITEINFO ...  
EZA0548I Writing out dyn_alc_hlq.HOSTS.ADDRINFO ...
```
 - Messages EZA0550I through EZA0566I will also be generated showing statistics from the input data set read and the output data sets created.

2. Allocate the partitioned dataset for IVP configuration

- If not already allocated, *IVP_configuration_dsn* must be allocated now. To do so, copy the allocation job: *target_lib_hlq*.SEZAINST(ALOCPARM) to *IVP_jcllib_dsn*(ALOCPARM).
- Fill in any required parameters on the //JOB statement.
- Change the //ALLOCT EXEC statement to set the DSN variable to *IVP_configuration_dsn*, or accept the default of 'TCPIVP.TCPPARMS'.
- Change the //ALLOCT EXEC statement to set the DSP variable to the appropriate final disposition of the dataset, or accept the default of 'CATLG'.
- Change the //ALLOCT EXEC statement to set the TVOL1 variable to the volume serial of the volume on which you wish to allocate the data set.
- Submit the ALOCPARM job.
 - Expected results: The job should complete with a condition code 0.

3. Customize the TCP/IP address space

- Customize the procedure for starting the TCP/IP address space:
 - Copy the sample start procedure from the SEZAINST library to the appropriate proclib: *target_lib_hlq.SEZAINST(TCPIPPROC)* to *IVP_proclib_dsn(TCPIP_procname)*
 - Make changes necessary to fit your environment
 - If desired, change the default jobname to the chosen procedure name on the //PROC statement: TCPIP to *TCPIP_procname*
 - Note:** If the system is configured for common INET (CINET is specified in the BPXPRMxx member of SYS1.PARMLIB), the name chosen for the TCP/IP start procedure must match the one used for the SUBFILESYSTYPE NAME value. For this IVP, however, common INET will not be used. See *z/OS UNIX System Services Planning* for details.
 - Set up the //PROFILE DD card to point to the data set to be used to contain the TCPIP.PROFILE.
 - Either uncomment one of the provided statements (to use either TCPIP.PROFILE.TCPIP or TCPIVP.TCPPARMS(PROFILE) as the value of *TCPIP_PROFILE_name*) **-or-**
 - Copy one of the provided //PROFILE DD statements, uncomment it, and set DSN equal to *TCPIP_PROFILE_name*
 - If desired, change the default TCPIP.DATA name to the selected *TCPIP_DATA_name*
 - Set up the //SYSTCPD DD card to point to data set to be used to contain the TCPIP.DATA
 - Either uncomment one of the provided statements (to use either TCPIP.SEZAINST(TCPDATA) or the recommended value of TCPIVP.TCPPARMS(TCPDATA) as the value of *TCPIP_DATA_name*) **-or-**
 - Copy one of the provided //SYSTCPD DD statements, uncomment it, and set DSN equal to *TCPIP_DATA_name*
 - Comment out the PARM= card of the //EXEC statement. Uncomment the SET statement on the line above the EXEC statement and specify the appropriate dsname for the TCPIP.DATA data set. Uncomment the two lines for the PARM, following the EXEC statement, that specifies the setting for the RESOLVER_CONFIG environment variable.

```
//* SET PARM1=TCPIVP.TCPPARMS(TCPDATA) ...
//* PARM=('&PARMS',
//* 'ENVAR("RESOLVER_CONFIG=//''&PARM1''")')
```
 - If not using 'TCPIVP.TCPPARMS(TCPDATA)' for *TCPIP_DATA_name*, change the ENVAR setting on the //EXEC statement to use *TCPIP_DATA_name*.
- Customize the TCPIP profile data set
 - Copy the sample TCPIP profile dataset from the SEZAINST library to the selected location: *target_lib_hlq.SEZAINST(SAMPPROF)* to *TCPIP_PROFILE_name*
- Note:** If *TCPIP_PROFILE_name* is not an existing data set, it will need to be allocated.
- If not using the default value for *FTPD_procname*, change the PORT statement that specifies FTPD1 to the chosen *FTPD_procname1* (be sure to add the 1 at the end).
- Customize the TCPIP.DATA data set

- Copy the sample TCPIP.DATA dataset from the SEZAINST library to the selected location: *target_lib_hlq.SEZAINST(TCPDATA)* to *TCPIP_DATA_name*.

Note: If *TCPIP_DATA_name* is not an existing data set, it will need to be allocated.

- Set TCPIPJOBNAME to the value of *TCPIP_procname*.
- Set HOSTNAME statement to the *hostname* of the system as it will be known in the TCP network.
- Set DOMAINORIGIN statement to the domain for this host or comment out the statement.
- Set DATASETPREFIX to the value of *dyn_alc_hlq*.

4. Do required RACF definitions

- Customize the EZARACFI job
 - This job will perform the RACF definitions and define OMVS segments required for the TCP/IP address and servers.
 - Copy the sample job to a JCL data set of your choice: *target_lib_hlq.SEZAINST(EZARACFI)* to *IVP_jcllib_dsn(EZARACFI)*.
 - Fill in any required parameters on the //JOB statement.
 - If not using the default value for *Default_RACF_group*, change the DFLTGRP(OMVSGRP) definitions on the ADDUSER statements for the DAEMONS step to use the selected value for *Default_RACF_group*. (Note, it is assumed this group has already been created.).
 - If desired, comment out ADDUSER and RDEFINE statements for any servers for which you do not want to do RACF definitions at this time. Note, however, the step will be terminated by the first comment statement, so move any comments to the end of the //SYSTSIN input.
 - For this IVP, RACF definitions are required for the TCPIP, SYSLOGD, and FTPD started procedures.
 - If not using the default value for *TCPIP_procname*, change 'TCPIP' on the ADDUSER and RDEFINE statements to the selected value for *TCPIP_procname*.
 - If not using the default value for *SYSLOGD_procname*, change 'SYSLOGD' on the ADDUSER and RDEFINE statements to the selected value for *SYSLOGD_procname*.
 - If not using the default value for *FTPD_procname*, change 'FTPD' on the ADDUSER and RDEFINE statements to the selected value for *FTPD_procname*.

Note: For the purposes of the IVP, the preceding RACF definitions are the only ones used. You may, however, wish to uncomment additional RACF definitions for other applications that are not part of the IVP in the EZARACF sample.

- Additional steps are required when running with BPX.DAEMON set up (If you are not running with BPX.DAEMON, skip to Step 4 on page 180.)
 - If you have a BPX.DAEMON environment, you must ensure all load modules loaded into an address space come from controlled libraries. If a module is loaded from a noncontrolled library, the address space loses its authorization. This means you must define all the libraries from where modules may be loaded as program controlled. See *z/OS UNIX System Services Planning* for more information on the BPX.DAEMON resource in the FACILITY class. The following steps, found in EZARACF, can be used for including z/OS IP in an existing BPX.DAEMON environment.
 - Permit servers to the BPX.DAEMON resource.(EZARACF)
 - Uncomment the //BPXDAEMN EXEC statement and the //SYSTSPRT DD and //SYSTSIN DD cards associated with it.

- Uncomment (remove the */***) RACF statements to permit (PE) the TCP/IP address space and the FTP daemon to a resource in the FACILITY class.
- If not using the default value for *TCPIP_procname* change 'TCPIP' on the PE statement to the selected value for *TCPIP_procname*.
- If not using the default value for *FTPD_procname* change 'FTPD' on the PE statement to the selected value for *FTPD_procname*.
- Enable program control for runtime library modules
 - Uncomment the *//PADS EXEC* statement and the *//SYSTSPRT* and *//SYSTSIN DD* cards associated with it.
 - Uncomment (remove the */***) RALT statements for 'SYS1.LINKLIB', 'cee.SCEERUN', and 'tcpip.SEZALOAD'.
 - Change the high level qualifier for the C run-time library from 'cee' to the appropriate high level qualifier.
 - Change the 'volser' value on the RALT statement to the volume serial for the C run-time library.
 - Change the high level qualifier for the TCP/IP load libraries from 'tcpip' to *target_lib_hlq*.
 - Change the 'volser' value on the RALT statement for the TCP/IP load library to the volume serial for the TCP/IP load library.
 - Uncomment the SETROPTS statement and move it to immediately after the last uncommented RALT statement.
- Run the EZARACFI job
 - Expected results: The job completes with condition code 0 and no error messages.
 - Note, if the users are already defined to RACF, error messages for 'invalid user ID' are generated. Successful ADDUSER definitions produce only the TSO 'READY' prompt in the output.
 - The condition code returned is the condition code for the last RACF command issued, so read the job output to verify the RACF definitions were done.

5. Customize SYSLOGD

- Copy the sample start procedure from the SEZAINST library to the appropriate PROCLIB: *target_lib_hlq.SEZAINST(SYSLOGD)* to *IVP_proclib_dsn(SYSLOGD_procname)*.
- If desired, change the default jobname to the chosen procedure name on the *//PROC* statement: SYSLOGD to *SYSLOGD_procname*.
- Comment out the *//CONFHFS EXEC* statement and uncomment the *//CONFPDS EXEC* statement.
- On the *//CONFPDS EXEC* statement, either accept the default location for the configuration file or change *TCPIVP.TCPPARMS(SYSLOG)* to *IVP_configuration_dsn(SYSLOG)*.
- Copy the sample configuration file to the IVP-specific configuration files: */usr/lpp/tcpip/samples/syslog.conf* to *IVP_configuration_dsn(SYSLOG)*.

From TSO, this can be done with an OGET command (note that the command should be issued on one line):

```
oget '/usr/lpp/tcpip/samples/syslog.conf'
'IVP_configuration_dsn (SYSLOG)'
```

6. Customize FTP

- Set up the FTPD proc
 - Copy the sample start procedure from the SEZAINST library to the appropriate proclib: *target_lib_hlq.SEZAINST(FTPD)* to *IVP_proclib_dsn(FTPD_procname)*.
 - If desired, change the default jobname to the chosen procedure name on the //PROC statement: FTPD to *FTPD_procname*.
 - Comment out the first PARM= card on the //EXEC statement. Uncomment the SET statement and both lines of the second PARM= on the //EXEC statement. Change PARM1= on the //SET statement to point to the appropriate TCPIP.DATA data set.
- Uncomment the //SYSFTPD DD statement which specifies TCPIVP.TCPPARMS(FTPDATA).
 - On the //SYSFTPD DD statement, either accept the default location for the server FTP.DATA file or change TCPIVP.TCPPARMS(FTPDATA) to *IVP_configuration_dsn(FTPDATA)*.
- Uncomment the //SYSTCPD DD statement which specifies TCPIVP.TCPPARMS(TCPDATA).
- On the //SYSTCPD DD statement, either accept the default location for the TCPIP.DATA set or change TCPIVP.TCPPARMS (TCPDATA) to *TCPIP_DATA_name*.

7. Set up the server and client FTP.DATA files

- Copy the sample server FTP.DATA file to the appropriate server FTP.DATA file: *target_lib_hlq.SEZAINST(FTPDATA)* to *IVP_configuration_dsn(FTPDATA)*
- Copy the sample client FTP.DATA file to the appropriate client FTP.DATA file: *target_lib_hlq.SEZAINST(FTCDATA)* to *IVP_configuration_dsn(FTCDATA)*
- **Note:** See *z/OS Communications Server: SNA Resource Definition Reference* and *z/OS Communications Server: SNA Network Implementation Guide* for detailed information on setting up and verifying VTAM configuration.
- Ensure the *IVP_Default_LUs* are defined to VTAM. Sample definitions are provided in *target_lib_hlq.SEZAINST(IVPLU)*.
 - The *IVP_Default_LUs* must be defined in a dataset that is in the concatenation of datasets specified on the VTAMLST DD statement in the procedure used to start VTAM.
 - If changes were made to the VTAMLST concatenation, stop and restart VTAM.
- Refresh LLA

If LLA is running and has not been refreshed since the Communications Server for code was installed, refresh LLA before proceeding with the IVP.

8.5.5.4.1.1 CICS sockets interface customization considerations

Refer to the *z/OS Communications Server: IP CICS Sockets Guide* for the customization required to use the CICS Sockets Interface.

8.5.5.4.1.2 IMS sockets interface customization considerations

Refer to the *z/OS Communications Server: IP IMS Sockets Guide* for the customization required to use the IMS Sockets Interface.

8.5.5.4.1.3 Network Print Facility customization considerations

Refer to the *z/OS Communications Server: IP Configuration Reference*.

8.5.5.4.1.4 Communications Server Security Level 3 customization considerations

Refer to the *z/OS Communications Server: IP Configuration Reference*.

8.5.5.4.2 DFSMS customization considerations

For information on activating Object Access Method, see *z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Tape Libraries* or *z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support*.

For information on activating DFSMSshm, see *z/OS DFSMSshm Implementation and Customization Guide*.

For information on activating DFSMSrmm, see *z/OS DFSMSrmm Implementation and Customization Guide*.

8.5.5.4.2.1 Make ISMF available to the TSO user

To make ISMF available to the TSO users, refer to *z/OS DFSMS Using the Interactive Storage Management Facility*. For cataloging information, see *z/OS DFSMS Managing Catalogs*.

8.5.5.4.2.2 3800/3900 Printing Subsystem

If you are installing an IBM 3800 or 3900 Printing Subsystem for the first time, you must install library character sets, graphic character modification modules, and character arrangement tables in SYS1.IMAGELIB. A job to accomplish this task is contained in member LCSBLD1 of SYS1.SAMPLIB after DFSMS has been installed. If you have run LCSBLD1 previously, you do not need to rerun it after installing DFSMS.

8.5.5.4.2.3 Starter set information

The Starter Set is a pre-defined Source Control Data Set (SCDS) containing information that defines a specific storage management policy.

This is provided as a sample SCDS to allow new SMS installations to start SMS before having to go through defining the construct definitions, and writing the Automatic Class Selection (ACS) routines.

The sample SCDS named SCDS.PRIMARY.LINEAR is packaged in the target library SYS1.IGDVBS1 as member DFPSSCDS.

SYS1.SAMPLIB will contain the following members:

DFPSSDCR source ACS routine for DATACLAS

DFPSSMCR source ACS routine for MGMTCLAS

DFPSSSCR source ACS routine for STORCLAS

DFPSSSGR source ACS routine for STORGRP

DFPSSIMP JCL to IMPORT SCDS

Note: After the SMP/E APPLY is performed for DFSMS, run job DFPSSIMP available in SYS1.SAMPLIB to IMPORT 'SCDS.PRIMARY.LINEAR' from target library SYS1.IGDVBS1.

For more information about the Starter Set, refer to the *z/OS DFSMSdfp Storage Administration*. This manual contains a detailed description of the sample SCDS.

8.5.5.4.2.4 Activate CDRA

If your installation will use the Character Data Representation Architecture (CDRA) and numeric conversion routines provided in this release of z/OS, you must activate the function by tailoring and running SYS1.SAMPLIB(CDRAINIT).

Language Environment is required for Distributed FileManager (DFM/MVS) to do CDRA conversions. If your installation's link list does not refer to the Language Environment runtime library, SCEERUN, you must add the appropriate STEPLIB DD statement to DFM startup procedure SYS1.PROCLIB(DFM). You must also make the same change to SYS1.SAMPLIB(GDETPDEF) and rerun it.

8.5.5.4.3 z/OS UNIX System Services Application Services customization

For details on getting the shell and utilities in operational status, see *z/OS UNIX System Services Planning*.

8.5.5.5 Customization considerations for Wave 1C

The following sections contain additional customization considerations for Wave 1c.

8.5.5.5.1 BookManager/Build customization considerations

Before you can use BookManager/Build, you must set some defaults for your site by customizing the PROCLIB members EOYBUILD and EOYINDEX (shipped in EOY.SEOYPROC) and the EOY2GDF, EOY2PSEG, and EOYPARM members of EOY.SEOYCLIB, as shown in Figure 49. See *IBM BookManager BUILD/MVS: Installation Planning and Customization* for more information on BookManager/Build customization.

Figure 49 (Page 1 of 2). Customizing BookManager/Build PROCLIB Members

PROCLIB Member	Installation Defaults
EOYBUILD	<ul style="list-style-type: none"> • BookManager/Build/MVS high-level qualifier • Markup language • STEPLIB members • Macro libraries for markup languages • Profiles for markup languages • SCRIPT user exits • Graphic and image support • GDDM symbol library • Location of the REXX EXECs • BUILD options data set • PostScript Interpreter data set.
EOYINDEX	<ul style="list-style-type: none"> • BookManager/Build/MVS high-level qualifier • DFSMS data classes • Language of BookManager/Build/MVS.

Figure 49 (Page 2 of 2). Customizing BookManager/Build PROCLIB Members

PROCLIB Member	Installation Defaults
EOY2GDF	<ul style="list-style-type: none">• GDDM load libraries• GDDM CGM-to-GDF conversion profiles.
EOY2PSEG	<ul style="list-style-type: none">• GDQF load library
EOYPARM	<ul style="list-style-type: none">• The BookManager/Build/MVS high-level qualifier• The background PROCLIB• The default language for synonyms in a bookshelf search index• The high-level qualifier for the linguistic dictionary associated with the default language• The high-level qualifier to be used for temporary data sets in a NOPREF environment.

8.5.5.5.2 BookManager READ customization considerations

Refer to *IBM BookManager READ/MVS: Installation Planning and Customization* for more information on BookManager READ customization.

This section describes the customization to BookManager READ that is required before users can read and print online books, including:

- Updating installation defaults in EOXVOPTS
- Allocating BookManager READ data sets for users
- Customizing the Index Utility
- Setting bookshelf defaults.

8.5.5.5.2.1 Customize defaults in EOXVOPTS

Before you can use BookManager READ, you must customize the EOXVOPTS member of the SEOYCLIB target library to set defaults for your installation. The options shown here are the options that **must** be defined for z/OS Version 2 Release 1. *IBM BookManager READ/MVS: Installation Planning and Customization* contains detailed information on all the parameters in EOXVOPTS. Refer to the BookManager READ PSP Bucket for additional information on EOXVOPTS.

Note: If you have changed any of the default data set names when you installed z/OS Version 2 Release 1, or if you want to use a default language other than US English, then you should review all the parameters in EOXVOPTS for further customization that might be required for your installation.

BookManager READ provides support for three categories of printers:

- 38PP - 3800 Model 3, 6, or 8
- 3820 - 3820 Page Printer
- 4250 - 4250 ElectroCompositor

If you want to print BookManager READ BOOKs on AFP printers, you should modify the BookManager READ options to specify logical device **AFPA**, or one of the other logical devices shown in Figure 50 on page 186. z/OS Font Collection provides fonts to support printing with device type AFPA. By customizing BookManager READ to use the AFPA device type, you can achieve printer independence, and print softcopy books on any AFP laser printer including 300-pel printers and AFP outline printers.

You may set the defaults for all three categories of devices to use the AFPA device type, as described below. If you have already customized BookManager READ to print on 3800, 3820, 4250 or other devices, you may continue to use the device types and font libraries as defined on your existing system.

Category 38PP: Choose one of the following:

If you are using a 3800 printer

QFNT38PP Specify the name of your font library for unbounded box fonts, if different from the default of SYS1.FONTLIB.

Note: You must use your existing fonts to print on a 3800 printer, as no unbounded box fonts are provided with z/OS Version 2 Release 1.

QDEV38PP Specify a valid **38PPxxxx** type for 3800 printers, as listed in *Document Control Facility: SCRIPT/VS Language Reference*, SH35-0070, if different from the default of 38PPN.

If you are not using a 3800 printer This option supports AFP page printers

QFNT38PP Specify the name of a bounded box font library. To use the fonts provided with z/OS Font Collection, specify SYS1.FONTLIBB if you will be using 240-pel printers, or SYS1.FONT300 if you will be using 300-pel printers.

Note: If you have a mix of 240- and 300-pel printers, then we suggest specifying the 300-pel font library here and/or in QFNT4250, and the 240-pel font library in QFNT3820.

QDEV38PP Override this option to specify **AFPA**, or one of the other options listed in Figure 50 on page 186.

Category 3820

QNFT3820 To use the 240-pel fonts provided with z/OS Font Collection, specify the name of the 240-pel font library, which is normally SYS1.FONTLIBB.

QDEV3820 To use the fonts provided with z/OS Font Collection, override this option to specify **AFPA**, or one of the other options listed in Figure 50 on page 186. To use your existing fonts, specify **3820xxxx**.

Category 4250

QNFT4250 Override this name to show the name of the font library for the fonts you installed. To use the fonts provided with the z/OS Font Collection, specify SYS1.FONTLIBB if you will be using 240-pel printers, SYS1.FONT300 if you will be using 300-pel printers, or SYS1.SFNILIB if you will be using AFP outline printers.

Note: If you have a mix of 240- and 300-pel printers, we suggest specifying the 300-pel font library here and/or in QFNT38PP, and the 240-pel font library in QFNT3820.

QDEV4250 Override this option to specify **AFPA**, or one of the other options listed in Figure 50 on page 186.

Other options in EOXVOPTS

- QBMPROF** Specify the name of the BookMaster profile data set. Ensure PTF UQ04721 is installed. Change the name of the profile data set to EDF.R40.EDFMAC(EDFOS390), which has been customized for OS/390 and can be used with z/OS. If you already have the fonts installed that come with the full BookMaster licensed product, you can use EDFPRF40 as your profile.
- QBMSMAC** Specify the name of the BookMaster system macro library. Change this name to EDF.R40.EDFMAC1 for BookManager books on AFP printers.
- QSSPROF** Specify the name of the DCF Starter Set GML profile data set. Change this name to SCRIPT.R40.MACLIB(DSMPROF4) for BookManager books on AFP printers.
- QSSSMAC** Specify the name of the DCF Starter Set GML system macro library. Change this name to SCRIPT.R40.MACLIB for BookManager on AFP printers.
- QGDDMSYM** Specify the name of the GDDM symbol library, if different from the supplied default.
- QGDDMSAM** Specify the name of the GDDM library containing OS2LINK and PCLK PC files, if different from the supplied default.
- QGDDMDEF** Specify the name of the GDDM ADMDEFS (definitions) data set.

Figure 50. Devices for AFP Printers

Logical Device Type	Page Size		Margins			Line Length
	Width	Length	Bind	Top	Bottom	
AFPA	8.5i	11i				6i
AFPA90	11i	8.5i				
AFPA180	8.5i	11i				
AFPA270	11i	8.5i				
AFPL	8.5i	14i	1i	.5i	.5i	
AFPA4	210mm	297mm				
AFPB4	257mm	364mm				
AFPB5	182mm	257mm				
AFPE	184.2mm	266.7mm				

Note: The DCF physical device type can be any 240 dpi or 300 dpi AFP printer compatible with the 3820 at the data stream level.

8.5.5.5.2.2 Customize EOXMNALC for data set allocation

The EOXMNALC REXX EXEC is provided with BookManager READ to create BookManager user data sets. Allocations for temporary user data sets, such as the following, can be modified by updating the EOXMNALC member of the SEOYCLIB target library.

- Bookshelves
- Notes
- The COPY/PRINT function
- Bookmarks
- The list of bookshelves

- A PSEG picture
- A GDF picture

The size of the copy or print data set is specified in this EXEC. The default size of the print data set is 10 tracks. If this data set is too small, you may be unable to print large books. You may increase the allocation of the print data set by modifying the EOXMNALC EXEC.

8.5.5.5.2.3 *Customize the Index utility*

The Index Utility creates a bookshelf and associates a synonym dictionary with each bookshelf search index to be used for synonym searching. To customize the Index Utility, you must perform the following steps:

- Update the EOYINDEX proc (see 8.5.3, “PROCLIB member considerations” on page 156)
- Update the EOYPARM member in SEOYCLIB.

Note: These members are also used by BookManager/Build. The same installation defaults are used for both elements.

8.5.5.5.2.4 *Set bookshelf defaults*

You must complete the customization of BookManager READ by setting the default bookshelf for users. Complete this step by performing the tasks in 8.6.5.2, “Run the BookManager READ Installation Verification Procedure” on page 267.

8.5.5.5.2.5 *Set up ISPF preprocessed panels*

You might want to use the ISPF ISPPREP facility to build preprocessed versions of the ISPF panels. This step is optional, but may improve BookManager performance, depending on your system environment. An example would be to convert the entire partitioned SEOYPENU data set and unconditionally write the preprocessed panels to your PREP.SEOYPENU partitioned data set. Both data sets should be cataloged. The command for this example would look like this:

```
SELECT PGM(ISPPREP) PARM(INPAN('EOY.SEOYPENU(*)'),
      OUTPAN('EOY.PREP.SEOYPENU( )'), REPLACE) NEWAPPL
```

The partitioned data set containing the preprocessed panels must be concatenated into the ISPLIB search string for the ISPF start-up CLIST. Do not replace the SEOYPENU data set with the partitioned data set created by the preprocessing procedure. For more information on using ISPPREP, see *z/OS ISPF Dialog Developer's Guide and Reference*.

There are 9 panels in the SEOYPENU data set which will not undergo preprocessing:

```
EOYML000  E0XPNEF  E0XXN  E0XXQ1  E0XXQ3  E0XX82
EOXX83    E0XX92  E0XX93
```

You will have to copy these 9 panels into the preprocessed panel library, or concatenate the SEOYPENU data set behind your PREP.SEOYPENU library in your ISPLIB concatenation list.

8.5.5.5.3 EREP customization considerations

The JCL job used to run EREP should include an EXEC PGM=IFCEREP1 statement. Refer to *EREP User's Guide* for more information. For more information on creating, maintaining, and refreshing the SYS1.LOGREC data set or the Logrec Log Stream, see *z/OS MVS Diagnosis: Tools and Service Aids*.

8.5.5.5.4 ESCON Director Support customization considerations: The following sections describe customization considerations for ESCON Director Support.

8.5.5.5.4.1 ESCON Director Support security

Installation of ESCON Director Support enables nonauthorized programs to issue I/O to online switches using the EXCP access method, if the switch control unit/device has been defined to z/OS Version 2 Release 1. To control access to a switch from a host processor, any combination of the following can be used:

- Keep the device offline to z/OS Version 2 Release 1 to prevent nonauthorized programs from allocating the device. OFFLINE=YES is the IOCP default. (ESCON Director Support itself does not require a switch to be online to z/OS Version 2 Release 1 in order to retrieve device information.)
- Add a z/OS Version 2 Release 1 system authorization facility (SAF) exit to monitor and control allocation to switches. z/OS Version 2 Release 1 allocation will call SAF whenever a user or program allocates a switch.
- Monitor and control allocation to switches using RACF. RACF provides a resource class, DEVICES, to control allocation to unit record, teleprocessing, and graphics devices.

8.5.5.5.5 FFST customization considerations

See the *FFST/MVS FFST/VM Operations Guide* for more information on how to get the program into operational status by coding macros.

- Considerations when invoking FFST in a NetView environment:

Make sure NetView tasks CNMICALRT and BNJDSESV are active for Alerts to appear on the NPDA alert screen. See the help for NCCF LIST and NCCF START for more information. If your installation uses NetView filters to prevent certain data from being collected or displayed, ensure that a filter is not blocking CPU information. You may automate the setting of the CPU hardware monitor filter during NetView initialization by updating CNMSTYLE as follows:

- Locate "PDFILTER" and in that section add the following statement to allow FFST to pass CPU Generic Alerts to NetView, where x represents a unique suffix.

```
NPDA.PDFILTER.x = NPDA SRFILTER AREC PASS TREF CPU
```

See *NetView Administration Reference* for more information about this statement.

- Considerations when invoking FFST with RACF:

If you use RACF or another security program to protect any of the FFST data sets, verify the application programmer has the necessary access for the following data sets:

- FFST message log to review the messages that are issued when a probe statement is executed
- FFST CLIST library to invoke the translators and to format the diagnostic output
- FFST panel library to invoke the help screens for the translators and the dump formatter

- Data sets allocated for the outputs produced by FFST
- In addition, you need to associate the RACF SYSSTC1 user ID with the FFST started task using the RACF STARTED class or using an entry in the RACF started procedures table, ICHRIN03. See *z/OS Security Server RACF System Programmer's Guide* for additional information.

8.5.5.5.6 GDDM and GDDM-PGF customization considerations

Refer to *GDDM System Customization and Administration* for more information on GDDM customization. Customization includes tuning the operating-system-related values and defining input and output devices to GDDM. These activities include:

- Activating language features
- Updating GDDM defaults
- Defining GDDM to TSO
- Defining GDDM to CICS
- Defining GDDM to IMS
- Making GDDM-OS/2 available
- Making GDDM-PCLK available
- Making GDDM-REXX available
- Reblocking any existing objects

8.5.5.5.7 ICKDSF customization considerations

ICKDSF now provides a sample job for creating the stand-alone tape. Edit and submit SYS1.SAMPLIB(ICKSAT) to copy the ICKDSF Stand-Alone program to an unlabeled tape. Consult the instructions in the sample job for more information. Successful creation of a stand-alone tape returns a condition code of 0. Refer to the *Device Support Facilities User's Guide* for additional information on loading the stand-alone tape.

8.5.5.5.8 TSO/E customization considerations

TSO/E Dynamic Broadcast Support, which was introduced in z/OS V1R3, allows more flexible broadcast dataset processing:

- You can switch to a different broadcast data set dynamically without an IPL.
- System programmers can specify the IKJTSOxx parmlib member on the IPL parameters.
- The TSO/E dynamic broadcast support includes system commands to allow an installation to dynamically activate an IKJTSOxx parmlib member (SET IKJTSO=xx) and display the settings of the active IKJTSOxx parmlib member (DISPLAY IKJTSO). These system commands complement the TSO/E PARMLIB command in providing greater flexibility when customizing TSO/E parmlib settings.
- You are no longer required to name the broadcast data set SYS1.BROADCAST. You can specify the broadcast data set name that you wish to use on the new BROADCAST parameter on the SEND statement of the IKJTSOxx parmlib member.
- The entry for the broadcast data set is no longer needed in master JCL. Instead, TSO/E allocates the broadcast data set during IPL.
- TSO/E now allows you to log on even if the broadcast data set has not yet been allocated.

Refer to *z/OS TSO/E General Information* for more information.

Refer to *z/OS TSO/E Customization* for more information on TSO/E customization.

8.5.5.5.9 3270 PC File Transfer Program customization considerations

The following sections describe various customization considerations for 3270 PC File Transfer Program.

8.5.5.5.9.1 Modify translate tables for 3270 PC File Transfer Program

The translate tables included in this program, which convert between ASCII and EBCDIC codes, might not be suitable for your installation. These tables may be modified by patching the IND\$FILE module.

The translate character that is most likely to cause problems is the EBCDIC character X'3F' that translates to an ASCII X'1A'. This later character is treated as an end-of-file (EOF) in many personal computer programs, especially editors.

The entry points to the IND\$FILE module are:

EBCDASCI EBCDIC to ASCII translate table
ASCIEBCD ASCII to EBCDIC translate table

Refer to the binder listing for the proper offsets for these entry points. It is advised that the USERMOD SMP/E format be used to modify the translation tables.

The example below shows how to change the EBCDIC character "3F" to translate to "5B" instead of "1A":

1. Find the offset of the EBCDIC-to-ASCII translation table (EBCDASCI) 020F40
2. Add the character value "3F" to that address + 3F
3. This is the verify address = 020F7F

```
++USERMOD(*****).          (***** = ALPHABETIC NAME)
++VER(Z038)  FMID(HFX1102) .
++ZAP(EBCDASCI) .
  NAME EBCDASCI
VER 020F7F 1A
REP 020F7F 5B
  IDRDATA *****
```

If you change the EBCDASCI table to translate X'3F' to some other character, you should also change the ASCIEBCD table to translate that ASCII character back to X'3F'.

8.5.5.6 Customization considerations for Wave 1D: The following sections describe customization considerations and tasks for Wave 1D.

8.5.5.6.1 Cryptographic Services OCSF customization considerations

Your order will only contain the fmids appropriate for your country code. Applying these fmids will activate the correct security level. Detailed steps to get OCSF into operational status are defined in *z/OS Open Cryptographic Services Facility Application Programming*. This book describes:

- Installation of service providers
- Setup of RACF FACILITY class needed to run applications using OCSF

- IVP procedures

8.5.5.6.2 Alternate Library for REXX customization considerations

The following sections describe various considerations for customizing Alternate Library for REXX.

8.5.5.6.2.1 Activating Alternate Library for REXX

Alternate Library for REXX is fully operational when the SMP/E installation and the customization activities described below are complete. If you do not APF-Authorize the load module library, REXX.SEAGALT, you will get an abend condition when the Alternate Library for REXX routines are requested by an APF-Authorized routine.

8.5.5.6.2.2 Installing the compiler programming table for the Alternate Library for REXX

The Compiler Programming Table (CPT), IRXCMPTM, is the TSO/E module that identifies a library to TSO/E. As of the integration of the Alternate Library for REXX into z/OS V1R9, TSO/E has changed the IRXCMPTM default to specify the values of the Alternate Library for REXX. As for z/OS V1R9, or later, if the TSO/E IRXCMPTM default is acceptable to you:

- You no longer need to modify IRXCMPTM; do not install any USERMODs to IRXCMPTM.
- You no longer need to override SYS1.LINKLIB(IRXCMPTM) with an LPA list entry for REXX.SEAGALT (the load library of the Alternate Library for REXX, which provides a customized IRXCMPTM). REXX.SEAGALT(IRXCMPTM) of the Alternate Library for REXX matches the TSO/E-changed default.

8.5.5.6.3 Security Server (RACF) customization considerations

Refer to *z/OS Security Server RACF System Programmer's Guide* for information on z/OS Security Server RACF customization and refer to *z/OS Migration* for migration actions.

8.5.5.6.3.1 Prepare the RACF database

Before you load the initial program with the new RACF active, complete either of the following actions:

- Allocate, format, and catalog a RACF database on the target system (IRRMIN00 with PARM=NEW).
- Upgrade the existing RACF database templates to the current level of the RACF templates that are shipped with z/OS V2.1.0 (IRRMIN00 with PARM=UPDATE).

If your templates are already at the level required by this release, you do not need to update the templates. Message IRR8025 may be issued and no further action is required.

You can create or upgrade a RACF database by running the IRRMIN00 utility, as described in *z/OS Security Server RACF System Programmer's Guide*. Sample jobs are provided in SYS1.SAMPLIB member RACJCL.

It is recommended that a backup database is created that RACF will maintain as a duplicate of the primary. Those migrating from a prior level of RACF should not update both the primary and backup database templates at the same time.

8.5.5.6.3.2 Automate Dynamic Parse initialization

Note: Because all RACF installations must activate dynamic parse after each IPL, it is **strongly** recommended that you automate dynamic parse initialization.

The IRRDPI00 command builds a “dynamic” table for parsing segment-related keywords. Dynamic parse is used to add, list, alter, or delete DFP, TSO, or any other nonbase segment information with the RACF commands.

There are two methods to automate dynamic parse initialization. The first involves updating the RACF parameter library to automatically invoke the IRRDPI00 UPDATE command at every IPL. This method requires the RACF subsystem address space to be active. Example of the first method (IRROPTxx) is shown in Figure 43 on page 141. The second method involves PARMLIB and PROCLIB updates to START IRRDPTAB at every IPL. These methods are described in *z/OS Security Server RACF System Programmer's Guide*.

8.5.5.6.3.3 Data Encryption Standard (DES) for passwords

Beginning with RACF 2.1:

- If you want to use the Data Encryption Standard (DES), you can skip this step. DES is the installed default encryption algorithm for passwords.
- If you are currently using the masking algorithm and want to continue using the masking algorithm you will need to update a member of SYS1.PARMLIB to activate the ICHDEX01 exit shipped with RACF. Example of this method is shown in Figure 43 on page 141.
- If you want to implement your own algorithm for password authentication, you can write both an ICHDEX01 exit and an ICHDEX11 exit, and put them in SYS1.LPALIB.

Note: If you are not currently using the DES password algorithm, you must replace the z/OS V2.1.0 RACF default with your installation's password algorithm, or develop a coordinated migration plan to switch all your systems to the DES algorithm.

For more information, see *z/OS Security Server RACF System Programmer's Guide*.

8.5.5.6.3.4 Additional considerations before IPLing your system

The following is a list of considerations to consider before IPLing your system. For information on these topics, see *z/OS Security Server RACF System Programmer's Guide*.

- Define RACF coupling facility structures.
- Create or update the database range table.
- Create or update the database name table or alter the master JCL. Note that if this step is not done, the system prompts the operator during IPL. The operator can then reply with the RACF database name.
- Update the RACF class descriptor table and the RACF router table.
- Identify the RACF address space as an MVS subsystem.
- Create or update the started procedures table or use the STARTED CLASS.
- Create exit routines and a naming convention table.

You might also want to consider activating the REXX RACVAR function, which is described in *z/OS Security Server RACF Macros and Interfaces*.

8.5.5.6.3.5 Other system considerations for initial installation

If you plan to make the change listed below, be sure to do so before you define your users, groups, and resources to RACF:

- Add TSO profiles to the UADS data set for any new TSO users by using the ADD subcommand of TSO/E ACCOUNT. See *z/OS TSO/E Administration*.

Note: RACF provides your installation with the option of placing TSO user logon information in the TSO segment of the RACF user profile.

8.5.5.7 Customization considerations for Wave 1E: The following sections describe considerations for customizing elements that are part of Wave 1E.

8.5.5.7.1 Runtime Library Extensions customization considerations

The following sections describe considerations for customizing Runtime Library Extensions.

8.5.5.7.1.1 Customization of the Runtime Library Extensions for CICS

To ensure that CICS can communicate with the Runtime Library Extensions, you must add a Runtime Library Extensions entry to the CICS System Definition (CSD). To do so, update the CICS System Definition (CSD) file using the program definitions in member CLB3YCSD in the Runtime Library Extensions data set SCLBJCL. This member contains the necessary input to the CICS System Definition (CSD) file utility program to define Runtime Library Extensions routines in the PPT. The group name for the Runtime Library Extensions routines is **CLB**.

Note: If you intend to use the Runtime Library Extensions under CICS, add the SCLBDLL data set to the DFHRPL DD concatenation in your CICS startup job stream and ensure that Language Environment is available under CICS (see 8.5.5.3.2, “Language Environment customization considerations” on page 172 for more information).

8.5.5.7.1.2 XL C/C++ Compiler customization considerations

The following topics describe areas you may consider for tailoring for the XL C/C++ compiler.

Tailor the TSO environment: If you want to use TSO or compile a program with the XL C/C++ Compiler, refer to Figure 47 on page 161 for information on the data sets, which must be concatenated. Modify the TSO/E logon PROC by concatenating the listed data sets to the corresponding DDNAMEs.

Tailor REXX EXECs

For information on tailoring REXX EXECs, refer to the *z/OS XL C/C++ User's Guide*.

Customized default options for XL C/C++ Compiler

For information about customizing default options for the XL C/C++ compiler, see *z/OS XL C/C++ User's Guide*.

8.5.5.7.2 Customization of the performance analyzer for CICS

To ensure that CICS/ESA can communicate with the Performance Analyzer, you must add Performance Analyzer entries to the CICS processing program table (PPT). To do so, update the CICS system definition (CSD) file using the program definitions in member CTVSCSD in the Performance Analyzer data set SCTVJCL. PTF UQ35263 must be installed to obtain the member. This member contains the necessary input to the CICS System Definition (CSD) file utility program to define the Performance Analyzer routines in the PPT. The group name for the Performance Analyzer routines is EQA.

Note: If you intend to use the Performance Analyzer under CICS, add the SCTVMOD data set to the DFHRPL DD concatenation in your CICS startup job stream and ensure that Language Environment is available under CICS (refer to 8.5.5.3.2, “Language Environment customization considerations” on page 172 for more information).

8.5.5.7.3 CIM customization considerations

The customization for element CIM has to be done after IPL of your target system. For detailed information on how to customize CIM for z/OS, refer to *z/OS Common Information Model User's Guide*.

8.5.5.7.4 RMF customization considerations

If you are a new RMF customer, skip the first two steps. These steps are optional for existing RMF customers.

1. Redefine the user reports for RMF, using the ERBRMFU utility.
2. Reinstall your user exits, ensuring that they run in 31-bit mode.
3. Customize the RMF Monitor III CLISTs.

If the RMF CLISTs and default naming conventions are not acceptable, you can modify the RMF CLIST ERBRMF3X, which invokes RMF, displaying the primary menu. This CLIST can be found in your RMF SERBCLS system library. Follow the instructions in the commented text to customize the CLIST to your local environment.

4. Refer to *z/OS RMF User's Guide*, for a description of all customization steps that are required for new RMF customers as well as for installations that are migrating from a previous release.

8.5.5.8 Customization considerations for Wave 1F: The following sections describe customizations considerations for Wave 1F.

8.5.5.8.1 BDT customization considerations

Perform the following steps to activate BDT; these steps are described in more detail in *z/OS BDT Installation*. All samples are in the SBDBTSAMP library.

- If a JES3 environment:
 - Add CONSOLE and SYSID statements to the JES3 initialization stream.
 - If installing SNA/NJE, add or modify the NJERMT statement in the JES3 INISH stream.
- Update SYS1.VTAMLST (see sample BDT\$VTAM) to define a Communications Server SNA Services application to support BDT.
- Allocate BDT and TQI data sets (see sample BDT\$ALOC).

- Run the BDTTQBCH utility program (see sample BDT\$TQFM) to format the:
 - TQI checkpointing and bitmap data sets
 - Message data set for each processor.
- Create the BDT initialization stream:
 - See sample BDT\$FTF for a JES2 or JES3 file-to-file only installation.
 - See sample BDT\$NJE for a JES3 SNA NJE only installation.
 - See sample BDT\$MIX for a JES3 file-to-file and SNA NJE installation.
- Create user exits, as described in *z/OS BDT Installation*. Assemble and link-edit the BDT user exits into the proper load libraries. If you are a migrating customer, you must reassemble all user exit routines.

8.5.5.8.2 DFSORT customization considerations

Refer to *z/OS DFSORT Installation and Customization* for more information and instructions on DFSORT customization.

8.5.5.8.2.1 Change DFSORT installation options

Starting from z/OS V1.10.0, you can change DFSORT installation options by creating and using ICEPRMxx members in concatenated PARMLIB. This method simplifies the management of DFSORT installation options, particularly in multisystem environments.

You can activate the ICEPRMxx members that you want to use by issuing an appropriate START ICEOPT command from the console, or by including a START ICEOPT command in an appropriate COMMNDxx member in PARMLIB. Before you activate your ICEPRMxx members by using a COMMNDxx member, it is recommended that you test the ICEPRMxx members by activating them from the console. ICEOPT issues messages to the console to indicate the status of your changes to the installation defaults, and errors that it detects. Be sure to review these console messages and the return code from ICEOPT.

It is recommended that you use ICEPRMxx members to change DFSORT installation options because they are easier to use and more flexible than the old method using the ICEMAC macro and SMP/E USERMODs. However, the old method is still supported.

In a multisystem environment, you can only activate ICEPRMxx parmlib members that contain DFSORT installation options in z/OS V1.10.0 or later. For z/OS V1.10.0 or later, the installation options in the activated ICEPRMxx members are merged with the ICEMAC installation options at run time. The activated ICEPRMxx members have no effect on the systems running z/OS V1.9.0, or earlier. For systems running z/OS V1.9.0, or earlier, you must use the ICEMAC macro and SMP/E USERMODs to change DFSORT installation options.

Give the user ID that is assigned to the ICEOPT started task READ access to the ICEPRMxx PARMLIB members. For example,

```
ADDSD 'SYS1.PARMLIB' UACC(NONE)
PERMIT 'SYS1.PARMLIB' CLASS(DATASET) ID(userid) ACCESS(READ)
```

See *z/OS DFSORT Installation and Customization*,

or information about ICEPRMxx members, the START ICEOPT command, ICEOPT messages and return codes, and the syntax for options that you can specify using the ICEPRMxx members.

Note: You can control who can issue the START ICEOPT command by using MVS Console Security. See *MVS Planning: Operations* for information about controlling who can issue the START ICEOPT command.

8.5.5.8.2.2 Change DFSORT SVC name

Sample jobs ICESVREC and ICESVAPP set the name of the SVC that DFSORT uses. You can change the default SVC name by either specifying an alternate routing code or assigning a user SVC number. With slight modification, you can use ICESVREC and ICESVAPP sample jobs in SICESAMP to create this SVC.

- To specify SVC 109 with the alternate routing code:
 - Install an SMP/E USERMOD that creates a copy of IGX00017 named IGX00038; then load it into LPA or MLPA.
 - In the sample job ICESVREC, change the name ICESVC to IGX00038.
 - Modify the DFSORT default installation options to specify SVC=(,ALT). You can perform this modification any time after you apply the DFSORT element by using the ICEPRMxx PARMLIB member (recommended), or by using the ICEMAC macro and an SMP/E USERMOD. See the “Changing the Installation Defaults” topic in *z/OS DFSORT Installation and Customization*.
- To assign a user SVC number:
 - Select an available type-3 SVC number nnn in the range 200-255.
 - Install an SMP/E USERMOD to create a copy of IGX00017 with a different name. For example, you could name the copy ICESVC.
 - Create or modify an IEASVCxx member of parmlib to add the SVC. If you used the name ICESVC for the copy of IGX00017, and chose 255 as the SVC number, the entry would look like this:

```
SVCPARM 255,REPLACE,TYPE(3),EPNAME(ICESVC)
```
 - Then load a copy of IGX00017 into LPA or MLPA.
 - Modify the DFSORT default installation options to specify SVC=nnn, where nnn is the SVC number that you selected. You can perform this modification any time after you apply the DFSORT element by using the ICEPRMxx PARMLIB member (recommended), or by using the ICEMAC macro and an SMP/E USERMOD. See the “Changing the DFSORT Installation Defaults” topic in *z/OS DFSORT Installation and Customization*.
- Load the initial program.

Note: DFSORT can be tested without making the SVC available as long as you do not write DFSORT SMF records (type 16 records).

Without the SVC available, DFSORT performance with input, output, or work data sets on cached DASD devices (for example, IBM 3990 Model 3) may be degraded. Always use the SVC if you will be running benchmarks.

The DFSORT SVC is available after it is loaded in LPA. You can load the SVC in LPA by using one of the following methods:

- Add the SVC load module to MLPA by specifying it in the IEALPAXx PARMLIB member that is used for IPL.
- On a supported release of z/OS, add the SICELPA library to the LPA list in the LPALSTxx PARMLIB member that is used for a cold start (CLPA) IPL.

For more information about loading modules in LPA, see *z/OS MVS Initialization and Tuning Guide*, *z/OS MVS Initialization and Tuning Reference*, and *z/OS MVS System Commands*.

8.5.5.8.2.3 Replacing IEBGENER with ICEGENER (optional)

You can achieve more efficient processing for jobs set up to use the IEBGENER system utility by using the ICEGENER facility of DFSORT. Qualifying IEBGENER jobs are processed by the equivalent (though not identical), but more efficient, DFSORT copy function. If, for any reason, the DFSORT copy function cannot be used (for example, when IEBGENER control statements are specified), control is automatically transferred to the IEBGENER system utility. DFSORT transfers control to IEBGENER using the name for IEBGENER from the environment installation module (ICEAM2 or ICEAM4) or time-of-day installation module (ICETD1-4) used for the run. The ICEGENER facility can be used either for selected IEBGENER jobs or automatically for all IEBGENER jobs.

You can invoke ICEGENER in one of the following ways:

- For selective use, substitute the name ICEGENER (or the alias SORTGENR) for the name IEBGENER in any jobs you choose.
- To make ICEGENER the system's default "IEBGENER", install an SMP/E USERMOD to create an alias of "IEBGENER" for ICEGENER. With slight modification, you can use the ICEGAREC and ICEGAAPP sample jobs in SICESAMP to create this alias. Then place the ICEGENER load module ahead of IEBGENER in the system's search order for programs. For example, you can place the ICEGENER load module with its new alias in LPA. All jobs and programs that call IEBGENER will then execute ICEGENER instead. If ICEGENER needs to call IEBGENER, it will do so automatically. For information about placing modules in LPA and Dynamic LPA, and about placing libraries ahead of the LINKLIB library in the link list, see *z/OS MVS Initialization and Tuning Reference*.

For notes and restrictions pertaining to the use of ICEGENER, see *z/OS DFSORT Installation and Customization*.

8.5.5.8.2.4 Make DFSORT programs available

After you install DFSORT, make its programs available on the system. To activate the ICEPRMxx members using the START ICEOPT started task command of DFSORT, ensure that the ICEOPT PROC of DFSORT is in PROCLIB. See the "System Planning Considerations" chapter in *z/OS DFSORT Installation and Customization* for information about using the START ICEOPT command.

To run DFSORT resident, complete the following actions:

- Load the modules from SORTLPA into LPA or Dynamic LPA.
- Add SICELINK to the link list.

To run DFSORT nonresident, perform either of these actions:

- Add SICELINK and SORTLPA (in this order) to the link list.

- Use a JOBLIB or STEPLIB for SICELINK and SORTLPA (in this order).

If you plan to record DFSORT SMF type-16 records or use IBM cached DASD devices, the DFSORT SVC must be accessible:

- Load the DFSORT SVC from SICELPA into LPA or MLPA.
- IPL to make the SVC available.

Notes:

1. For information about adding modules to LPA, Dynamic LPA, and the link list, and for information about assigning user SVC numbers, see *z/OS MVS Initialization and Tuning Guide* and *z/OS MVS Initialization and Tuning Reference*.
2. You can combine SORTLIB with SICELINK. If you combine these libraries, you will only need to supply a SORTLIB DD statement for tape work data set sort or Conventional merge applications that use dynamic linkedit of user exits. You will have to specify SORTLIB=SYSTEM as an installation default by using an ICEPRMxx member of PARMLIB (recommended), or by using the ICEMAC macro and an SMP/E USERMOD. See the “Changing the Installation Defaults” topic in *z/OS DFSORT Installation and Customization*.

8.5.5.8.2.5 Invoking DFSORT from a REXX CLIST

DFSORT can be invoked from a REXX CLIST. If DFSORT is available in the program search order, you can invoke DFSORT with:

```
ADDRESS LINKMVS ICEMAN
```

If DFSORT is not available in program search order, you can invoke DFSORT with:

```
"CALL 'SYS1.SICELINK(SORT)'"
```

SYS1.SICELINK is the name of your SICELINK library used for installation.

8.5.5.8.3 HCM customization considerations

For information about setting up TCP/IP communication between HCM on the workstations and HCD on the z/OS host or for information about downloading the workstation code, see *z/OS and z/VM HCM User's Guide*.

8.5.5.8.4 OSA/SF customization considerations

See the *z196, System z10, System z9 and Eserver zSeries* book for information on how to:

- Set up OSA/SF
 - Create started procedure
 - CreateStartup Profile
 - Create Configuration and Master Index file
 - What to do after OSA/SF is started
- Download and Install the OSA/SF GUI
- Start the OSA/SF GUI

- Customize OSAs Using the GUI or REXX EXECs

Note: When placing the OSA/SF SIOALMOD library in LNKLST it must be after the TCPIP SEZALOAD library.

8.5.5.9 Customization considerations for Wave 1G

8.5.5.9.1 Distributed File Service customization considerations

Before proceeding with the customization activities specific to the Distributed File Service, review 8.1.4.1, “Distributed File Service installation considerations” on page 82 to insure that the other elements used by DFS or SMB processing are installed and set-up.

Detailed steps to get the program into operational status are defined in *Distributed File Service SMB Administration*.

8.5.5.9.1.1 Customize the JCL procedures

Refer to Figure 45 on page 157 for more information on the distribution library DDNAME=SIOEPROC containing the JCL procedures for the Distributed File Service.

8.5.5.9.1.2 RACF updates for DFS/SMB/zFS

To use DFS/SMB and zFS, you must create RACF definitions. For detailed information about the required group, user, and started tasks, refer to one of the appropriate books:

- *z/OS Distributed File Service zFS Administration*
- *z/OS Distributed File Service SMB Administration*

If you wish to exploit hardware encryption capabilities for SMB password encryption, the OCSF Base component of the Cryptographic Service element must be operational. See 8.1.4.1, “Distributed File Service installation considerations” on page 82 for more information on hardware encryption relative to SMB support. To use OCSF, you must permit the user ID defined previously for the DFS/SMB server daemon (usually the user ID DFS) to use the OCSF services. See to 8.5.5.6.1, “Cryptographic Services OCSF customization considerations” on page 190 and *z/OS Open Cryptographic Services Facility Application Programming* for more information.

If ICSF is active, you need to PERMIT the DFS user ID READ access to the profiles in the CSFSERV general resource class. See 8.5.5.3.3, “Cryptographic Services ICSF customization considerations” on page 173 for references to the appropriate ICSF documentation that describes the CSFSERV resource class.

For details on RACF, see the following:

- *z/OS UNIX System Services Planning*
- *z/OS Security Server RACF Security Administrator's Guide*
- *z/OS Security Server RACF Command Language Reference*

8.5.5.9.1.3 *Running the dfs_cpfiles program*

The `dfs_cpfiles` program creates new file system `/etc/envar`, `ioepdcf`, and `CachelInfo` files that are needed to customize the SMB File/Print server support. The `dfs_cpfiles` program does not delete or replace any files that exist. The `dfs_cpfiles` program should be run now if SMB support will be used.

To invoke the `dfs_cpfile` program:

1. Log in as **root** on the local machine. In z/OS DFS, this means as a user with **UID = 0**.
2. While in the z/OS UNIX shell environment, invoke the z/OS Default Configuration Files Creation program by entering the following:

```
$ /usr/lpp/dfs/global/scripts/dfs_cpfiles
```

See *z/OS Distributed File Service SMB Administration* for more information about the `dfs_cpfiles` program.

8.5.5.9.1.4 *Additional DFS/SMB considerations*

- Authorized Libraries:

The DFS Server runs as an APF-authorized server when it is used as an SMB File/Print server. You must always insure that any DLLs or other libraries used by the DFS server are APF-authorized. Use the `exattr +a` command to APF-authorize a library.

- SMB Print Serving:

If you plan to use the SMB print serving capability, you must complete the installation and customization described in 8.5.5.9.3, “Infoprint Server Customization Considerations” on page 229. Be sure that the Infoprint Server DLLs that reside in `/usr/lpp/Printsrv/lib` are APF-authorized.

- SMB Password Encryption

To use SMB password encryption, you must specify the following statement in the `/etc/dfs/home/dfskern/envar` file created by the `dfs_cpfiles` program:

```
_IOE_SMB_CLEAR_PW=ALLOWED|NOTALLOWED
```

If you do have the hardware encryption capabilities of the Cryptographic Coprocessor Feature or do not wish to use hardware encryption for SMB password encryption, you can specify `_IOE_SMB_OCSF=OFF` in the `/etc/dfs/home/dfskern/envar` file.

If you will exploit hardware encryption capabilities provided by the Cryptographic Coprocessor Feature, you must use OCSF. Refer to 8.5.5.9.1.2, “RACF updates for DFS/SMB/zFS” on page 199 for information on how to permit the DFS/SMB server daemon to use OCSF services. Also, use of OCSF requires that the OCSF DLLs that reside in `/usr/lib` be APF-authorized.

8.5.5.9.1.5 *Installation verification and configuration considerations*

After installation verification, you will be instructed to perform configuration activities to define the files to be exported by the DFS server for access by SMB clients. Refer to 8.6.9.1, “Run the Distributed File Service Installation Verification Procedures” on page 284 for more information.

8.5.5.9.2 Library Server customization considerations

Before you can use Library Server, you must set certain defaults for your site. You do this by configuring both the Library Server and the IBM HTTP Server. When finished, you can run a simple test from a browser to verify Library Server is working. After you are up and running, you must be sure to set and maintain the proper security authorizations to Library Server objects.

Notes:

1. **Extended shelf support** (optional): In addition to regular BookManager bookshelves, which can only contain BookManager books, Library Server can support extended shelves, which can contain BookManager books and/or Adobe PDF files. Before enabling Extended Shelf Support, and any other PDF-related functions, XML Toolkit 1.10 (5655-J51) FMID HXML1A0 must be installed and configured. Enabling Extended Shelf Support in Library Server without first making XML Toolkit 1.10 available will result in a message indicating that XML Toolkit is not detected.

It is possible to have multiple versions of XML Toolkit installed on z/OS; any one of them could be configured as the system default. As such, you must ensure that **version 1.10** is installed and is the version that is available to Library Server. Making XML Toolkit available includes the possible use of a STEPLIB (for SIXML0D1), as described in the *XML Toolkit User's Guide*. That STEPLIB may be added to the IBM HTTP Server started task. However, it is only necessary if Library Server is unable to load XML Toolkit 1.10 from an HFS (or zFS) directory, or by using the system load module search order (see *z/OS MVS Initialization and Tuning Guide*). Library Server determines the HFS (or zFS) search order for loading XML Toolkit 1.10 according to the following calculation:

- a. If the EPHXERCECROOT keyword in the bookmgr.80 configuration file specifies an existing HFS (or zFS) directory that has a lib/ subdirectory, that directory is used.

For example, the following directory, which is specified in Library Server's bookmgr.80 file, can be used if directory /usr/lpp/ixm/IBM/xml4c-5_7/lib exists:

```
EPHXERCECROOT=/usr/lpp/ixm/IBM/xml4c-5_7
```

See 8.5.5.9.2.3, "Advanced customization parameters" on page 216 for details about EPHXERCECROOT.

- b. If the EPHXERCECROOT keyword in the bookmgr.80 configuration file specifies a **non-existent** HFS (or zFS) path, or if it specifies an existing directory that does **not** have a lib/ subdirectory, any xml4c path specified within the LIBPATH environment variable is used.

For example, the following directory, which is specified in the IBM HTTP Server's httpd.envvars file, could be used:

```
LIBPATH=./usr/lpp/ixm/IBM/xml4c-5_7/lib:other-directories
```

- c. If the EPHXERCECROOT keyword is not specified in the bookmgr.80 configuration file (or if it specifies an empty value), any xml4c library directory that is specified within the LIBPATH environment variable is used (see 1b).

However, if no xml4c library directory is specified within LIBPATH, the directory specified by the XERCECROOT environment variable is used. For example, the following directory, which is specified in the IBM HTTP Server's httpd.envvars file could be used:

XERCECROOT=/usr/lpp/ixm/IBM/xml4c-5_7

- d. If none of the EPHXERCECROOT, LIBPATH, or XERCECROOT values described in items 1a on page 201, 1b on page 201, or 1c on page 201 are specified, then the following default XML Toolkit 1.10 root directory value is used:

/usr/lpp/ixm/IBM/xml4c-5_7

If XML Toolkit can not be loaded from the HFS (or zFS) path as determined by any of the preceding steps, loading from the system load module search order or the SIXMLOD1 load library specified using STEPLIB in the started task for the IBM HTTP Server is attempted. If XML Toolkit 1.10 can not be loaded by any of these means, an end user error message is issued whenever a function that requires XML access runs.

Also, see the XKS_Validator.README file in the `../cgi-bin/` directory for information on how to manually create your own extended shelves, if you choose not to create them interactively with Library Server.

- 2. Shelf indexing support** (optional): The new Shelf Indexing support for Library Server requires Extended Shelf Support to be enabled (see Note 1 on page 201). The Shelf Indexer tool can be run through the Library Server Administration User interface or by a command line interface. For information on how to run the command line version of the Shelf Indexer tool, see the ShelfIndexer.README file in the `../cgi-bin/` directory.
- 3. InfoCenter support** (optional): InfoCenter support for Library Server requires Shelf Indexing Support to be enabled (see Note 2). A Java Runtime Environment using IBM 31-bit SDK for z/OS, Java Technology Edition, V6.0.1 (5655-R31, SDK6), or IBM 31-bit SDK for z/OS, Java Technology Edition, V7.0.0 (5655-W43, SDK7) must be configured using the PATH and LIBPATH environment variables, or using the Library Server advanced customization parameter of EPHJAVA_HOME in the bookmgr.80 configuration file. See section “Managing Your Library Server” in *Library Server: Getting Started* for details. It also requires configuring the Java Bridge Java Server included with Library Server.

Although the Java Bridge Java Server is usually started automatically by Library Server, there are times when it needs to be manually started (for example, when HJVA600 is not at a minimum of service release SR8). To do so, make a copy of the startjbs.sh script (shipped in the `../cgi-bin/` directory), and launch your copy of the script after having customized the values indicated within (HTTP_PORT_NUMBER, JBJS_PORT_NUMBER, LOG_FILE, PID_FILE and exported SERVER_HOST).

It is important to note that since Library Server does not support 64-bit Java, the JBJS_COMMAND variable set in startjbs.sh must launch a 31-bit version of Java, either as a result of the applicable HTTP Server environment settings, or by customizing the JBJS_COMMAND value to use a fully qualified path to the java command.

To ensure that the JVM for the Java Bridge Java Server has enough memory to initialize, it is recommended that a 1200MB region size be made available to the Library Server process in z/OS UNIX. To do so, specify MAXASSIZE=1258291200 in the BPXPRMxx system PARMLIB. Or, for an individual user ID, use the RACF ALTUSER command to specify ASSIZEMAX=1258291200 as the limit.

This 1200MB region size is based on specifying a maximum memory heap size of 1000MB (-Xmx1000m) on EPHJB_INDEX_JVM_ARGUMENTS, as recommended in 8.5.5.9.2.3, “Advanced customization parameters” on page 216. Any increase or reduction to that -Xmx specification will result in a corresponding increase or reduction to the 1200MB region size requirement.

It is important to note that the z/OS system default region size of 200MB in OMVS is generally insufficient for Library Server, and using that system default, or other insufficient region size, may cause initialization of the Java Bridge Java Server JVM to fail. If this happens, a connection error occurs and diagnostic instructions are written to the ephjbcgi log file (see the description of the EPHJBCGI_LOG_FILE" parameter, in 8.5.5.9.2.3, “Advanced customization parameters” on page 216).

Note that before any changes that are edited into the bookmgr.80 file can become fully-effective, any Java Bridge Java Server process that is running must be killed and then restarted, either automatically or manually, as described above.

4. **Java-applet-based Administration Interface** (optional): This new administrative interface for Library Server requires that the "Display Java-based administrative interface" option be enabled. A Java Runtime Environment using IBM 31-bit SDK for z/OS, Java Technology Edition, V6.0.1 (5655-R31, SDK6), or IBM 31-bit SDK for z/OS, Java Technology Edition, V7.0.0 (5655-W43, SDK7) must be configured using the PATH and LIBPATH environment variables, or using the Library Server advanced customization parameter of EPHJAVA_HOME in the bookmgr.80 configuration file. See section “Managing Your Library Server” in *Library Server: Getting Started* for details. It also requires configuring the Java Bridge Java Server included with Library Server.

Although the Library Server usually starts the Java Bridge Java Server automatically, there are times (for example, when HJVA600 is not at a minimum of service release SR8) when it needs to be manually started. To do so, make a copy of the startjajs.sh script (shipped in the ../cgi-bin/ directory), and launch your copy of the script after having customized the values indicated within (HTTP_PORT_NUMBER, JABS_PORT_NUMBER, LOG_FILE, PID_FILE and exported SERVER_HOST).

It is important to note that since Library Server does not support 64-bit Java, the JABS_COMMAND variable set in startjajs.sh must launch a 31-bit version of Java, either as a result of the applicable HTTP Server environment settings, or by customizing the JABS_COMMAND value to use a fully qualified path to the java command.

To ensure that the JVM for the Java Bridge Java Server has enough memory to initialize, it is recommended that a 1200MB region size be made available to the Library Server process in OMVS. To do so, specify MAXASSIZE=1258291200 in the BPXPRMxx system PARMLIB. Or, for an individual user ID, use the RACF ALTUSER command to specify ASSIZEMAX=1258291200 as the limit.

This 1200MB region size is based on specifying a maximum memory heap size of 1000MB (-Xmx1000m) on EPHJB_INDEX_JVM_ARGUMENTS, as recommended in 8.5.5.9.2.3, “Advanced customization parameters” on page 216. Any increase or reduction to that -Xmx specification will result in a corresponding increase or reduction to the 1200MB region size requirement.

It is important to note that the z/OS system default region size of 200MB in OMVS is generally insufficient for Library Server, and using that system default, or other insufficient region size, may

cause initialization of the Java Bridge Java Server JVM to fail. If this happens, a connection error occurs and diagnostic instructions are written to the ephjbcgi log file (see the EPHJBCGI_LOG_FILE parameter, as described in 8.5.5.9.2.3, "Advanced customization parameters" on page 216).

Note that before any changes that are edited into the bookmgr.80 file can become fully effective, any Java Bridge Java Server process that is running must be killed and then restarted, either automatically or manually, as described above.

5. **Personal bookcase support** (optional): The Personal Bookcase feature introduced with Library Server 3.4 includes an optional email password reminder function for the Personal Bookcase owners. To enable this function, the new MAILAGENT configuration keyword and value must be added to the bookmgr.80 file, as described in "Configuring without migration considerations" on page 213. Support for the Personal Bookcase feature itself is enabled by default and will operate without the password reminder function, if MAILAGENT is not configured. Personal Bookcase support might be disabled by using the Library Server Administrator User interface or by adding the new PERSONALBC keyword to the booksrv.80 file as described below in "Migration Considerations".

6. **Shared HFS limitation.** Refer to INFO APAR II14061 for details.

8.5.5.9.2.1 Library Server catalog for z/OS

The Library Server Catalog, a set of HFS files, contains additional information about books, PDF files, and InfoCenters, which is used to improve Library Server performance. The catalog information is collected by the Rebuild Catalog function, which can be run from the Library Server Administration page or in batch mode. See the *Library Server: Getting Started* softcopy book for an explanation of the Administration page. **It is necessary to rebuild the catalog after the installation and configuration of Library Server.** Subsequently, whenever there is a change to the books, shelves, PDF files, or InfoCenters known to Library Server, REBUILD CATALOG MUST BE RUN. For any changes to the directories (or their contents) on the Administration page, including adding, changing or removing directories, REBUILD CATALOG MUST BE RUN. If you choose to catalog books stored in MVS datasets, then for any changes to the QLSHELF= parameter (see page 215) including adding, changing, or removing bookshelf list datasets, the bookshelves they refer to, or the books referred to by the bookshelves, REBUILD CATALOG MUST BE RUN. Though you may choose NOT to catalog books in MVS datasets, the books in file system directories (especially those shipped with Library Server) MUST be cataloged. This can be done using the /H parameter of the batch catalog facility. See sample members EPHCATJC and EPHCATSC in the SEPHSAMP dataset for an explanation of Library Server batch catalog facility. See *Library Server: Getting Started* for information regarding the benefit of cataloging books in MVS datasets.

HFS and zFS directories: When job EPHISMKD was run as part of the Library Server installation, the directories shown in Figure 51 on page 205 were allocated in the root HFS or zFS for the target system. All references to subdirectories in the following sections assume the base paths listed in Figure 51 on page 205. If you change any of these path names for your site, use those names as your reference instead. Do not use DBCS characters, blanks, tabs or control characters in file system pathnames or file names that will be used with Library Server.

```
/usr/lpp/booksrv/  
/usr/lpp/booksrv/books/  
/usr/lpp/booksrv/books/IBM/  
/usr/lpp/booksrv/cases/  
/usr/lpp/booksrv/cases/IBM  
/usr/lpp/booksrv/cgi-bin/  
/usr/lpp/booksrv/cgi-bin/catalog/  
/usr/lpp/booksrv/cgi-bin/catalog/books/  
/usr/lpp/booksrv/cgi-bin/catalog/cases/  
/usr/lpp/booksrv/cgi-bin/catalog/docnums/  
/usr/lpp/booksrv/cgi-bin/catalog/shelves/  
/usr/lpp/booksrv/cgi-bin/IBM/  
/usr/lpp/booksrv/public/  
/usr/lpp/booksrv/public/bookmgr/  
/usr/lpp/booksrv/public/bookmgr/IBM/  
/usr/lpp/booksrv/public/bookmgr/frames/  
/usr/lpp/booksrv/public/bookmgr/libraryserver/  
/usr/lpp/booksrv/public/bookmgr/libraryserver/IBM/  
/usr/lpp/booksrv/public/bookmgr/lookat/  
/usr/lpp/booksrv/public/bookmgr/lookat/index_files/  
/usr/lpp/booksrv/public/bookmgr/notes/  
/usr/lpp/booksrv/public/bookmgr/pictures/  
/usr/lpp/booksrv/public/bookmgr/templates/  
/usr/lpp/booksrv/public/bookmgr/templates/IBM/  
/usr/lpp/booksrv/public/bookmgr/templates/template1/  
/usr/lpp/booksrv/public/bookmgr/templates/template2/  
/usr/lpp/booksrv/public/bookmgr/templates/template3/  
/usr/lpp/booksrv/public/IBM/  
/usr/lpp/booksrv/shelves/  
/usr/lpp/booksrv/shelves/IBM/  
/usr/lpp/booksrv/plugins/  
/usr/lpp/booksrv/plugins/IBM/  
/usr/lpp/booksrv/plugins/zosmf/  
/usr/lpp/booksrv/plugins/zosmf/com.ibm.gpmmessages.help.doc/  
/usr/lpp/booksrv/plugins/zosmf/com.ibm.tcp.ipsec.ipsec.help.doc/  
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmf.configguide.help.doc/  
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmf.infocenter.help.doc/  
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmf.onlinehelp.help.doc/  
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmf.programming.help.doc/  
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmf.capacityprov.help.doc/  
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmf.capacityprov.messages.  
help.doc/
```

Figure 51. Directories allocated by EPHISMKD during Library Server installation

/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.administration.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.applinks.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.classicinterfaces.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.commandlog.help.
doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.configuration.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.general.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.glossary.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.jobresources.help.
doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.linksuser.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.messages.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.multisysplex.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.notifications.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.performance.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.
problemdetermination.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.security.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.settings.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.software.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.troubleshooting.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfcore.welcome.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfdeployment.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfdeployment.messages.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfincidentlog.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfincidentlog.messages.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfispf.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfmessages.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfmondesktops.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfresourcemon.messages.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfsysplexstatus.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfworkflows.help.doc/

/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfworkflows.messages.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfworkloadmgmt.help.doc/
/usr/lpp/booksrv/plugins/zosmf/com.ibm.zosmfworkloadmgmt.messages.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.gpmmessages.help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.tcp.ipsec.ipsec.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmf.configguide.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmf.infocenter.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmf.onlinehelp.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmf.programming.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcapacityprov.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcapacityprov.
messages.help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.
administration.help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.applinks.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.
classicinterfaces.help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.
commandlog.help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.
configuration.help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.general.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.
jobresources.help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.links.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.linksuser.
help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.messages.
messages.help.doc/
/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.
multisysplex.help.doc/

`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.notifications.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.performance.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.problemdetermination.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.security.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.settings.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.software.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.troubleshooting.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfcore.welcome.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfdeployment.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfdeployment.messages.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfincidentlog.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfincidentlog.messages.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfispf.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfmessages.help.doc/`
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`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfresourcemon.messages.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfsysplexstatus.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfworkflows.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfworkflows.messages.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfworkloadgmt.help.doc/`
`/usr/lpp/booksrv/plugins/zosmf/indices/com.ibm.zosmfworkloadgmt.messages.help.doc/`

8.5.5.9.2.2 Configuring Library Server

IBM suggests the use of `/etc/booksrv/` as the directory for the Library Server configuration files. The Library Server configuration files are shipped as `bookmgr.conf` and `booksrv.conf` in the `../cgi.bin/` directory. All of the following examples refer to configuration files in the `/etc/booksrv/` directory and with

a file extension of 80, which refers to the default port number 80. You may use the appropriate directory and port for your installation as provided through our customization parameters. An explanation of each configuration parameter is provided in detail in “Configuring without migration considerations” on page 213.

An environment variable, `EPHConfigPath`, can be set to the name of the directory which will contain the Library Server configuration files. For example, setting `EPHConfigPath = /etc/booksrv/configs` (do not end path with a slash), will cause Library Server to first search `/etc/booksrv/configs/` for the configuration files. Setting an environment variable can be done in various ways. One way is to include the environment variable in the `/etc/httpd.envvars` file that is used by the HTTP Server. The search order for the configuration files is:

1. Directory specified by `EPHConfigPath` environment variable
2. Directory `/etc/booksrv/`
3. Directory `/etc/`
4. Current working directory (typically `/cgi-bin/`)

Note: Library Server cannot run without valid configuration files.

Configuring with migration considerations

The following changes were made to the sample Library Server configuration files from V3.1 to V3.2:

- **ICPATH=**
Added to `booksrv.80` for InfoCenter support only. This is a semicolon-delimited list of directories, each of which is the parent directory of a given configured InfoCenter. Each entry in this list has a corresponding entry in the `ICIDS=` and `INFOCENTERS=` lists.
Starting with Library Server V4.0, the value of each entry in `ICPATH=` is the fully-qualified name of the "root" plugin directory (or jar file) for a given configured InfoCenter. The "root" plugin is a child of the InfoCenter parent directory, and is typically distinguishable as the plugin which contains the "plugin_customization.ini" file for the InfoCenter. Please see “Migration actions” on page 210 for more information.
- **ICIDS=**
Added to `booksrv.80` for InfoCenter support only. This is a semicolon-delimited list of InfoCenter IDs, each of which applies to its corresponding entry in the `ICPATH=` and `INFOCENTERS=` list.
- **INFOCENTERS=** Added to `booksrv.80` for InfoCenter support only. This is a semicolon-delimited list of InfoCenter descriptive titles, each of which applies to its corresponding entry in the `ICPATH=` and `ICID=` lists.
- **VIRTUALPORT=**
Added to `bookmgr.80` (see page 213 for details).
- **EPHJB_SERVER_PORT=**, **EPHJAVA_HOME=**, **EPHJB_MAX_CONN_ATTEMPTS=**,
EPHJB_DELAY_BEFORE_RECONNECT=, **EPHJB_LISTENER_COUNT=**,
EPHJB_CONNECTION_TYPE=, **EPHJB_JVM_ARGUMENTS=**, and
EPHJB_INDEX_JVM_ARGUMENTS=
Added to `bookmgr.80` for InfoCenter support only; for more information, see 8.5.5.9.2.3, “Advanced customization parameters” on page 216.

The following changes were made to the sample Library Server configuration files from V3.2 to V3.3. For more information, refer to 8.5.5.9.2.3, "Advanced customization parameters" on page 216.

- NEWADMIN=
Added to booksrv.80
- ADMIN_APPLET_SERVER_PORT=
Added to bookmgr.80
- EPHJBCGI_LOG_FILE=
Added to bookmgr.80 (see page 216)
- IC_MAX_TOPICS_PER_BOOII=
Added to bookmgr.80 (see page 216)

The following changes were made to sample Library Server configuration files from V3.3 to V3.4:

- PERSONALBC=
Added to booksrv.80 as the indicator of whether or not the optional Personal Bookcase function is enabled. To disable Personal Book Case support (see page 212)
- MAILAGENT=
Added to bookmgr.80 as the means to enable the optional email password reminder function when the Personal Bookcase function is enabled (see page 214)
- EPHJB_SERVER_RESULT_FILE=
Added to bookmgr.80 (see 8.5.5.9.2.3, "Advanced customization parameters" on page 216).
- EPHXERCESCROOT=
Added to bookmgr.80 as a way to ensure that Library Server attempts to load XML Toolkit 1.10 from the correct HFS (or zFS) path, if applicable (see 8.5.5.9.2.3, "Advanced customization parameters" on page 216).

No changes were made to the sample Library Server configuration files from V3.4 to V4.0, however the meaning of the value for each entry associated with the ICPATH= keyword in booksrv.80 has changed as follows:

- Starting with Library Server V4.0, the value of each entry in ICPATH= is the fully-qualified name of the "root" plugin directory (or jar file) for a given configured InfoCenter. The "root" plugin is a child of the InfoCenter parent directory, and is typically distinguishable as the plugin which contains the "plugin_customization.ini" file for the InfoCenter. Please see "Migration actions" for more information.

Migration actions

- A simple approach to migration is to use your current (customized) configuration files, bookmgr.80 and booksrv.80, or your equivalent. Make the following changes to your current configuration files, if necessary:
 - Remove the line FOOTER= from bookmgr.80.
 - Add a line FRAMESDIR= to bookmgr.80 (see 8.5.5.9.2.3, "Advanced customization parameters" on page 216 for details for FRAMESDIR=).

- Add a line `FRAMES=0` to `booksrv.80`.
- Add a line `FOOTER=` to `booksrv.80` (the `FOOTER=` value should be set to the same value as it was in your `bookmgr.80` file).

Note: Library Server will use the `FOOTER=` value from `bookmgr.80` if `FOOTER=` is not found in `booksrv.80`. When Save Settings on the Administration panel is selected, the `FOOTER=` parameter will be copied from `bookmgr.80` to `booksrv.80`.

- Add a line `LIBCENTERDIR=` to `bookmgr.80` (see 8.5.5.9.2.3, “Advanced customization parameters” on page 216 for details for `LIBCENTERDIR=`).
- Add a line `VIRTUALPORT=` to `bookmgr.80` (see page 214 for details).
- Add the following lines to `bookmgr.80` (see “Updating `bookmgr.80`” on page 213 and 8.5.5.9.2.3, “Advanced customization parameters” on page 216 for details).

```
EPHJB_SERVER_PORT=
EPHJAVA_HOME=
EPHJB_MAX_CONN_ATTEMPTS=
EPHJB_DELAY_BEFORE_RECONNECT=
EPHJB_LISTENER_COUNT=
EPHJB_CONNECTION_TYPE=
EPHJB_JVM_ARGUMENTS=
EPHJB_INDEX_JVM_ARGUMENTS=
```

These parameters are ONLY needed for InfoCenter support.

- Add a line `NEWADMIN=1` to `booksrv.80` to use the new Java-based administrative interface of Library Server. If you do not want use the new administrative interface, specify `NEWADMIN=0` instead.

Note that starting in V3.4, when `NEWADMIN=1`, before launching the Java-applet-based administrative interface, Library Server will first check for the existence and compatibility of Java running at both the server and the client. The version of Java running on the client must be the same or greater than the version running on the server. It does this check by passing the Java version running at the client on the URL for the link to the Administration function on the Library Page. If Library Server determines that the Java versions are incompatible, or if the Administration URL does not contain the client Java version, the original (non-Java-applet-based) administrative interface is launched.

Because of the Java compatibility checking, for any direct external Administration links (for example, bookmarks) that do not contain the client version of Java, forcing the launch of the Java-applet-based administrative interface can be accomplished either using the following URL:

```
http://your.hostname/bookmgr-cgi/ephjbcgi/adminApplet
```

or by configuring the following redirect in your HTTP Server:

```
Redirect permanent /bookmgr-cgi/EPHBOOKS/ADMINISTRATION
http://your.hostname/bookmgr-cgi/ephjbcgi.exe/adminApplet
```

- If you use the new Java-based administrative interface, add a line `ADMIN_APPLET_SERVER_PORT=` to `bookmgr.80`. See 8.5.5.9.2.3, “Advanced customization parameters” on page 216 for details.

- If you use the new Java-based administrative interface or InfoCenter support is needed, add a line `EPHJBCGI_LOG_FILE=` to `bookmgr.80`. See 8.5.5.9.2.3, “Advanced customization parameters” on page 216 for details.
- If using InfoCenter support, and it is necessary to save a copy of the most recently generated HTML on the server, add an `EPHJB_SERVER_RESULT_FILE=` line to `bookmgr.80`. See 8.5.5.9.2.3, “Advanced customization parameters” on page 216 for details.
- If InfoCenter support is needed, add a line `IC_MAX_TOPICS_PER_BOOII=` to `bookmgr.80`. See 8.5.5.9.2.3, “Advanced customization parameters” on page 216 for details.
- If you want to disable Personal Bookcase support (new feature for V3.4), either use the Library Server Administrator interface or include a line `PERSONALBC=0` in the `booksrv.80` file. If you want to enable the Personal Bookcase email reminder function, configure the `MAILAGENT=` line in `bookmgr.80`, as described in “Configuring without migration considerations” on page 213.
- Add the `EPHXERCESCROOT=` line to `bookmgr.80` and specify the value for the XML Toolkit 1.10 HFS (or zFS) root path (see 8.5.5.9.2.3, “Advanced customization parameters” on page 216) for details). This parameter applies only to extended shelf, InfoCenter, and shelf indexing support.
- The migration actions primarily involve modifying and/or copying your existing (customized) configuration files, note files, Library Center files and configured InfoCenters. Using your existing files, rather than creating new ones, preserves your configuration settings and notes, and lets you avoid having to redo administrative tasks. Therefore, as you prepare to migrate, do not delete or alter your existing configuration files or any files in the notes directory, unless you do not intend to use them with the new level of Library Server.
 - Note Files - Migrating the notes in the notes directory will make them available to the Library Server. If you do not migrate them, they will not appear in the books for which they were entered. To migrate book notes, copy all the files from your existing notes directory to the new one. The default directory for saving book notes is `/usr/lpp/booksrv/public/bookmgr/notes/`. You can override this default by specifying a directory on the `NOTEDIR` parameter of the `bookmgr.80` configuration file.
 - Library Center Files - Migrating the files in the `libraryserver` directory will make them available to the Library Server. If you do not migrate them, the related Library Centers will not appear when selecting Browse Library Centers on the Library Server Library Page. To migrate the Library Centers, copy all of the files from your existing `libraryserver` directory to the new one. The default directory for Library Centers is `/usr/lpp/booksrv/public/bookmgr/libraryserver/`. You can override this default by specifying a directory on the `LIBCENTERDIR` parameter of the `bookmgr.80` configuration file.
 - InfoCenters - Follow these steps:
 1. Migrate your current customized `booksrv.80` as described previously.
 2. Using the Library Server Administrative Interface for managing InfoCenters, delete any existing InfoCenter configuration entries.
 3. Using the Library Server Administrative Interface for managing InfoCenters, add back (i.e. create new) any previously deleted InfoCenter configuration entries, using for each location field the value as described under `ICPATH=` in “Configuring with migration considerations” on page 209 (i.e. the fully-qualified “root” plugin directory name, or jar file name, for each given InfoCenter).

4. Using the Library Server Administrative Interface for managing InfoCenters, for each reconfigured InfoCenter, use "Prepare InfoCenter Plugins" to prepare its plugins for subsequent creation of the InfoCenter search index
 5. If it is desired to configure the z/OS MF Infocenter that is packaged with Library Server, use the Library Server Administrative Interface for managing InfoCenters to configure it, using as its ID, Title and Location, the ICIDS=, INFOCENTERS= and ICPATH= keyword values, respectively, from the installed `/usr/lpp/booksrv/cgi-bin/booksrv.conf` file (since its plugins are already prepared prior to packaging, it is not necessary to re-index the Prepare InfoCenter Plugins).
 6. Using the Library Server Administrative Interface for managing InfoCenters, for each reconfigured InfoCenter, use "Receive InfoCenter Plugins" to copy/catalog all the prepared InfoCenter plugin objects (for example, TOC files and plugin card files) into the Library.
 7. Using the Library Server Administrative Interface for managing InfoCenters, for each reconfigured InfoCenter, use "Create InfoCenter Search Index" to create the search index which enables searching across all the plugins for the InfoCenter.
- Customers who migrate from earlier versions of BookServer to Library Server and have directories `/usr/lpp/booksrv/bkshelf/`, and `/usr/lpp/booksrv/bkcase/` specified on the Administration Page should remove them. The `bkshelf` and `bkcase` samples are not shipped with Library Server for z/OS. Customers are free to copy these directories from an earlier version to Library Server for z/OS, if desired.
 - Directory `/usr/lpp/booksrv/books/` continues to be shipped with Library Server for z/OS. The directory `/usr/lpp/booksrv/books/` will be automatically included in rebuild catalog processing and the books therein will be cataloged. The directory `/usr/lpp/booksrv/books/` will no longer need to be specified under book collections on the Administration Page.

Configuring without migration considerations

To configure Library Server, you must customize parameters in Library Server configuration files located in `/etc/booksrv/`. First copy `../cgi-bin/bookmgr.conf` to `/etc/booksrv/bookmgr.80`. Only change the contents of `/etc/booksrv/bookmgr.80`. Do not change the contents of `../cgi-bin/bookmgr.conf`. The mode setting on this file should be 644.

Note: 80 is the default port setting for IBM HTTP Server. IBM HTTP Server configuration allows for port numbers other than 80 to be specified. Contact your IBM HTTP Server administrator (Webmaster) or systems programmer for the correct port number to use. Specify the correct port number as the file extension, instead of 80, when copying `../cgi-bin/bookmgr.conf` to `/etc/booksrv/bookmgr.80`.

Updating bookmgr.80

Update the following statements in `/etc/booksrv/bookmgr.80` Do not use DBCS characters, blanks, tabs or control characters in any of the following parameters.

- EPHXERCECROOT= (optional)

This parameter points to the root directory of XML Toolkit 1.10, as installed in the HFS (or zFS) filesystem. It is used to ensure that Library Server loads XML Toolkit 1.10 from the correct path. This is especially important if XML Toolkit 1.10 is not the installed system default, or when the

XERCECSCROOT or LIBPATH environment variables specified in `/etc/httpd.envvars` need to point to a different version of XML Toolkit, as needed by another application. (Note 1 on page 201 describes the relationship between the EPHXERCECSCROOT configuration keyword, and the XERCECSCROOT and LIBPATH environment variables.)

If the SIXMLOD1 load library is installed and STEPLIBed in the IBM HTTP Server started task, an HFS (or zFS) XML Toolkit path need not be specified by the EPHXERCECSCROOT keyword (nor by the XERCECSCROOT and LIBPATH environment variables) for Library Server.

- `HOSTNAME=your.hostname` (optional)

Replace *your.hostname* with the fully qualified domain name or IP address of your server machine.

You may also specify `HOSTNAME=SERVER_NAME` or `HOSTNAME=(blank)`, in which case the `SERVER_NAME` environment variable is used. Another option is to specify `HOSTNAME=$HTTP_HOST`. In this case, the `HTTP_HOST` environment variable is used. The value of `HTTP_HOST` is the name of the server where Library Server is running as it is known to the browser at the client workstation. `HTTP_HOST` should be used when Network Configuration is such that Library Server is known by more than one name. One example is when a firewall is used to separate the internet from your organization's intranet.

- `VIRTUALPORT=` (optional)

This parameter specifies the port number used for the URLs on the Library Server pages, when the number used by the User's web browser is different from the value of the `SERVER_PORT` environment variable. `SERVER_PORT` will not contain the number used by the User's web browser when the network configuration is similar to the one where `HOSTNAME` requires a value. A proxy or firewall may remap the port number as well as the `HOSTNAME` from the internet to the intranet. `VIRTUALPORT` supports networks that are configured to use one, and only one, alias for the port number.

- `CLIB=EPH.EPHCLIB` (optional, but required for vector graphics)

Replace `CLIB=EPH.EPHCLIB` with the `SEPHCLIB` dataset name for your system.

- `MAILAGENT=` (optional, but required for email notification)

`MAILAGENT` must be configured to enable the email reminder function of the Personal Bookcase feature. `MAILAGENT` can be configured to specify an email address, the value "sendmail", or the node and job of the SMTP as would be configured to customize the `SMTPNOTE` exec shipped by Communication Server for z/OS.

When the SMTP function of Communication Server for z/OS is configured and used, `MAILAGENT` should specify the SMTP node and job. For example, in the following statement, `SMTPJOB` should be concatenated to `SMTPNODE` with a period (.).

```
MAILAGENT=SMTPNODE.SMTPJOB,
```

The TSO transmit command will be used to send the password reminder message using the SMTP server.

When the UNIX sendmail command is enabled and preferred, configure `MAILAGENT` to specify "sendmail", as shown:

```
MAILAGENT=sendmail
```


When neither SMTP nor sendmail is available, the password reminder function can be enabled by configuring an email address, as shown:

```
MAILAGENT=somebody@us.ibm.com.
```

In this case, the person monitoring the specified email address would manually recover the password and reply to the email that was sent to request password recovery.

For more information on retrieving and recovering the passwords and the Personal Bookcase feature, see *Library Server: Getting Started*.

- EPHXERCECROOT= (optional)

Add the value for the XML Toolkit 1.10 HFS (or zFS) root path (see 8.5.5.9.2.3, “Advanced customization parameters” on page 216). This parameter applies only to extended shelf, InfoCenter, and shelf indexing support.

- EPHJB_SERVER_PORT= (optional)

The Java Bridge Java Server component, which implements the InfoCenter-related and Admin Applet-related functions of Library Server, communicates with the C++ executable through a local TCP/IP connection. The specified port is the port on which the Java Bridge Java Server listens for requests.

Never use any value that might be used in URLs. Never use the same value as VIRTUALPORT.

The default TCP/IP port number which the Java Bridge Java Server listens on is 15195. This number must not be used by any other applications. In particular, it must not be the same port as used by any webserver or the port number specified by VIRTUALPORT. Additional authority is required when the value is below 1024.

- GDDMGDF=EPH.ADMGDF (optional, but required for vector graphics)

EPH.ADMGDF is the default high level qualifier (HLQ) used to create temporary ADMGDF data sets. Replace with the HLQ for your site. A global security definition must be set to write access for this HLQ. This is not a fully qualified dataset name.

- QLSHELF=EOY.BKLSHELF (optional, but required to access BookManager READ/MVS data sets)

EOY.BKLSHELF is the default BookManager READ/MVS Bookshelf List dataset name. The BookManager READ/MVS Bookshelf List datasets contain the dataset names and descriptions of BookManager READ/MVS bookshelves used by your site.

Replace the default with the name or names for your site. The BookManager READ/MVS Bookshelf List data set names can be found in the EOXVOPTS member used in BookManager READ/MVS under the QLSHELF parameter.

Separate each data set name with a semicolon (;). Do not surround data set names with single quotes. They are considered fully qualified dataset names.

Do this: EOY.BKLSHELF;NEXT.BKLSHELF

Don't do this: EOY.BKLSHELF;'NEXT.BKLSHELF'

- GDDMSYM=GDDM.SADMSYM

GDDM.SADMSYM is the default GDDM 3.2 symbol set data set name. Replace with the data set name for your site.

- GDDMMOD=GDDM.SADMMOD

GDDM.SADMMOD is the default GDDM 3.2 load library data set name. Replace with the data set name for your site.

8.5.5.9.2.3 Advanced customization parameters

The bookmgr.80 parameters described below are optional and considered advanced features, unless Library Server is installed into a READONLY HFS. Advanced Customization is required to run in a READONLY HFS in order to specify writable directories for the non-writable default directories. It is suggested that you first install the product as-is. After you have this installation working and become familiar with the configuration you can modify these parameters to suit your needs. The publication *Library Server: Getting Started* contains the step-by-step procedures to activate the functions of Library Server.

Whenever you specify a directory in one of the following parameters, you must specify the full path to the directory (note that directory path names are case-sensitive).

Note: Do not use DBCS characters, blanks, tabs or control characters in any of the following parameters.

- ADMIN_APPLET_SERVER_PORT= (optional)

This parameter specifies the TCP/IP port on which the RMI processing thread listens for requests from Administrative Applet. Never use the same value as that of the EPHJB_SERVER_PORT or VIRTUALPORT parameter. If no value is specified, the default 14042 is used.

- EPHJBCGI_LOG_FILE= (optional)

This parameter specifies the fully qualified HFS file name to which the ephjbcgi C++ executable logs messages. If no value is specified, the default stderr is used.

- EPHJB_SERVER_RESULT_FILE= (optional)

This parameter specifies the fully qualified HFS (or zFS) file name to which the Java-based InfoCenter support code writes a copy of the HTML it has generated to be served to the browser client. If no value is specified, this file is not written.

- IC_MAX_TOPICS_PER_BOOII= (optional)

This parameter specifies the maximum allowable InfoCenter topics per InfoCenter Plugin Index file, which is created by the Prepare InfoCenter Plugins function. The value for this parameter is 0 (which means unlimited) in the sample bookmgr.80. This parameter can be used to tune the indexing speed and search performance for InfoCenters.

- EPHJAVA_HOME= (optional)

This parameter is a fully qualified path to JRE when you run Java Bridge Java Server. If it is not found, the PATH environment variable is used.

- EPHJB_MAX_CONN_ATTEMPTS= (optional)

This parameter specifies the number of times ephjbcgi.exe tries to connect to Java Bridge Java Server. If no value is specified, the default is 3.

- EPHJB_DELAY_BEFORE_RECONNECT= (optional)

This parameter specifies the time in ms that ephjbcgi.exe waits before trying to reconnect. If no value is specified, the default is 5 ms.

- EPHJB_LISTENER_COUNT= (optional)

This parameter specifies the number of clients that can wait to connect to Java Bridge Java Server. If no value is specified, the default is 15.

- EPHJB_CONNECTION_TYPE= (optional)

This parameter specifies transport mechanism between ephjbcgi.exe and Java Bridge Java Server. If no value is specified, the default is TCP/IP. Only TCP/IP is supported currently.

- EPHJB_JVM_ARGUMENTS= (optional, but recommended)

This parameter specifies the extra arguments to be passed to the JVM of the Java Bridge Java Server. Arguments are case sensitive and multiple arguments must be separated with blanks. The Java Bridge Java Server must be tuned for transactional performance. It is suggested that you use the following specification:

```
EPHJB_JVM_ARGUMENTS=-Xms4m -Xmx200m
```

- EPHJB_INDEX_JVM_ARGUMENTS= (optional, but recommended)

This parameter specifies the extra arguments to be passed to the JVM that is used for preparing and indexing InfoCenter plugins. Separate multiple arguments with blanks. Arguments are case sensitive. The indexing JVM must be tuned for long-run performance. However, the Generational/Concurrent garbage collection policy must be used because indexing creates large numbers of short-lived objects. It is suggested that you use the following specification:

```
EPHJB_INDEX_JVM_ARGUMENTS=-Xms200m -Xmx1000m -Xms0512k -Xss512k  
-Xgcpolicy:gencon
```

- LOGDIR=

This parameter controls the location of the following types of files.

Log Type	File Name
BOOK access log	bookmgr.log
Diagnostic output log	bookmgr.dbg
Site customized Library page header	library.htm
Site customized header	bmheader.htm
Site customized footer	bmfooter.htm
Java Bridge Java Server Log	jbjs.log
Advanced Linguistic Search PDF indexing log	logwrt.dbg
Indexing debug log for each InfoCenter plugin preparation and indexing job that is submitted from the Library Server Administration interface	index_jobPPP.log (PPP is the process ID of an indexing job)

If used, all the files must reside in the same directory, which is specified with the LOGDIR= parameter. If you have not specified a directory for LOGDIR=, the default directory is the ../cgi-bin/ subdirectory. To specify your own directory, enter the fully qualified path name of a directory. The directory must already exist. Do not end the path name with a forward slash (for example, use LOGDIR=/bookserver not LOGDIR=/bookserver/). The initial mode setting for the directory should be 755.

To use a customized Library page header, copy the appropriate `../cgi-bin/library.samp` file to the directory specified on the `LOGDIR=` parameter (or the default directory), renaming it to `library.htm`. If you do not want to use a customized Library page header, then you must not place a `library.htm` into the `LOGDIR=` directory (or the default directory).

Note: Use of a Library page header may have a slight performance impact.

A customized header can be displayed at the top of most pages. To use a customized header, copy file `../cgi-bin/custhead.htm` to the directory specified on the `LOGDIR=` parameter (or the default directory), renaming `custhead.htm` to `bmheader.htm`. Customize `bmheader.htm` as desired. Directions for implementing a customized header are contained in `../cgi-bin/custhead.htm`. If you do not want to use a customized header, then you must not place a `bmheader.htm` into the `LOGDIR=` directory (or the default directory).

Note: Use of a customized header may have a slight performance impact.

A customized footer can be displayed at the bottom of all pages. To use a customized footer, copy file `../cgi-bin/custfoot.htm` to the directory specified on the `LOGDIR=` parameter (or the default directory), renaming `custfoot.htm` to `bmfooter.htm`. Customize `bmfooter.htm` as desired.

Directions for implementing a customized footer are contained in `../cgi-bin/custfoot.htm`. If you do not want to use a customized footer, then you must not place a `bmfooter.htm` into the `LOGDIR=` directory (or the default directory).

Note: Use of a customized footer may have a slight performance impact.

- **NOTEDIR=**

This parameter specifies the directory to store notes about BOOKs. These notes are created by Library Server users (see *Library Server: Getting Started*). Therefore, the notes directory must have read, write, and search (execute) access for users. The initial mode setting for this directory should be 755. If no directory is specified, the default is the `../public/bookmgr/notes/` subdirectory. To specify your own directory, enter the fully qualified path name of a directory. The last subdirectory in the path name must be "notes." The directory must already exist. Do not end the path name with a forward slash (for example, `NOTEDIR=/u/yourdir/notes` not `NOTEDIR=/u/yourdir/notes/`).

- **PICDIR=**

This parameter specifies the directory to use for building and storing pictures from BookManager BOOKs. If no value is specified, the default is the `../public/bookmgr/pictures/` subdirectory. When a Library Server client requests display of a picture from a BOOK, Library Server reformats or extracts the picture into a web-ready image file, which is placed in this directory, so the client can access it. Once displayed, the pictures may be left in the directory, to speed future retrieval. The directory may be cleared from the Library Server Administration page, which is documented in the *Library Server: Getting Started*. The specified directory must be readable, writable, and searchable by Library Server users. Therefore, the initial mode setting for the directory should be 755. To specify your own directory, enter the fully qualified path name of a directory. The directory must already exist. Do not end the path name with a forward slash (for example, `PICDIR=/bookserver/pictures` not `PICDIR=/bookserver/pictures/`).

Note: If you specify this parameter, you must also provide a Pass Directive, as shown in Figure 54 on page 222. If you change the URL template within the Pass Directive, then you must also specify the PICURL= parameter described below.

- PICURL=

By default, graphics within a book are referred to by a URL prefixed with `/bookmgr/pictures`. To locate and serve the graphics, the HTTP Server uses the pass rule for `/bookmgr/*`. To use a URL prefix for graphics other than `/bookmgr/pictures/`, specify PICURL. PICURL specifies a relative URL used by the web browser. Do not end the URL address name with a forward slash (for example, use `PICURL=/yoururl/pictures` not `PICURL=/yoururl/pictures/`).

Note: If you specify this parameter you must add a Pass rule statement in the `/etc/httpd.conf` file, as shown in the following example. This parameter may be used in conjunction with the PICDIR directory setting.

```
Pass /yoururl/pictures/* /bookserver/pictures/*
```

- CATALOG=

This parameter identifies the directory to build the catalog of documents in. If no value is specified, the default is the `../cgi-bin/catalog/` subdirectory. The catalog does not contain the document text, it contains brief identifying information about the document. The catalog is used to find documents, when a client does a search for a document name, document number, or title. The catalog can be rebuilt from the Administration page, as documented in *Library Server: Getting Started*. In addition, if an uncataloged BOOK is selected by a client on the collection display for the directory containing the book, then the BOOK is automatically added to the catalog. The catalog directory must be readable, writable, and searchable by Library Server users. Therefore, the initial mode setting for the directory should be 755. To specify your own directory, enter the fully qualified path name of a directory. The directory must already exist. Do not end the path name with a forward slash (for example, `CATALOG=/yourdir/catalog` not `CATALOG=/yourdir/catalog/`).

- LANGUAGE=

This is the language in which the Library Server user interface is displayed. The default language is English (ENU). To specify another language, change ENU to one of the languages in Figure 52. In addition, the code pages specified in the IBM HTTP Server configuration file (`httpd.conf`) may need to be changed. Refer to Figure 52 for the correct settings. If a DBCS language (Japanese, Korean, Simplified Chinese, or Traditional Chinese) is selected, set `ENUExecs YES` in your IBM HTTP Server configuration file. If another application must be run without `ENUExecs YES`, then use an alternate IBM HTTP Server for that application.

To make the help text and the *Library Server: Getting Started* BOOK and PDF file available for the language selected, locate the BOOK and PDF files in the `../books/` directory with the suffix that matches the 3-character language code; then, change the suffix to `".boo"` and `".pdf"` for the BOOK and PDF files, respectively. For example, for DAN (Danish), locate `"ephnz100.dan"` and copy it to `"ephnz100.boo"` and locate `"ephnz100.pdan"` and copy it to `"ephnz100.pdf"`. After changing the suffix of the file, the Library Server catalog should be rebuilt to catalog these files.

Figure 52. Language and Code Page Specification

LANGUAGE=	Default FsCp	Default NetCp	Book File Name	PDF File Name
<i>Brazilian Portuguese</i>				
PTB	IBM-1047	ISO8859-1	ephuz100.ptb	ephuz100.pptb
<i>Danish</i>				
DAN	IBM-1047	ISO8859-1	ephnz100.dan	ephnz100.pdan
<i>English</i>				
ENU	IBM-1047	ISO8859-1	eph3z100.boo	eph3z100.pdf
<i>French</i>				
FRA	IBM-1047	ISO8859-1	ephqz100.fra	ephqz100.pfra
<i>German</i>				
DEU	IBM-1047	ISO8859-1	ephoz100.deu	ephoz100.pdeu
<i>Italian</i>				
ITA	IBM-1047	ISO8859-1	ephrz100.ita	ephrz100.pita
<i>Japanese</i>				
JPN	IBM-939	IBM-932C	ephyz100.jpn	ephyz100.pjpn
<i>Korean</i>				
KOR	IBM-933	IBM-949	ephzz100.kor	ephzz100.pkor
<i>Netherlands Dutch</i>				
NLD	IBM-1047	ISO8859-1	ephsz100.nld	ephsz100.pnld
<i>Norwegian</i>				
NOR	IBM-1047	ISO8859-1	ephtz100.nor	ephtz100.pnor
<i>Simplified Chinese</i>				
CHS	IBM-935	IBM-1381	ephwz100.chs	ephwz100.pchs
<i>Spanish</i>				
ESP	IBM-1047	ISO8859-1	ephpz100.esp	ephpz100.pesp
<i>Swedish</i>				
SVE	IBM-1047	ISO8859-1	ephvz100.sve	ephvz100.psve
<i>Traditional Chinese</i>				
CHT	IBM-937	IBM-950	ephxz100.cht	ephxz100.pcht

- **FRAMESDIR=**

This parameter specifies the directory to use for building and caching frames related files from BookManager BOOKs. If no value is specified, the default is the `../public/bookmgr/frames/` subdirectory. When a Library Server client requests display of a page from a BOOK, the frames table

of contents data is cached in this directory, so that the client can access it. The HTML is placed in this directory, so that the client can access it. The specified directory must be readable, writable, and searchable by Library Server users. Therefore, the initial mode setting for the directory should be 755. To specify your own directory, enter the fully qualified path name of a directory. The directory must already exist. Do not end the path name with a forward slash, for example, `FRAMESDIR=/var/booksrv/frames` NOT `FRAMESDIR=/var/booksrv/frames/`. If you specify `FRAMESDIR`, you must provide the appropriate pass directive in the IBM HTTP Server configuration file as shown in Figure 54 on page 222.

- `LIBCENTERDIR=`

This directory specifies the directory that will contain configured Library Centers. If no value is specified, the default is `../public/bookmgr/libraryserver`. The specified directory must be readable and searchable by Library Server users and must be writable by the Library Server Administrator. Therefore, the initial mode setting for the directory should be 755. To specify your own directory, enter the fully qualified pathname of the directory. The directory must exist. Do not end the pathname with a forward slash. For example, specify `LIBCENTERDIR=/var/booksrv/libraryserver` instead of `LIBCENTERDIR=/var/booksrv/libraryserver/`. If you specify `LIBCENTERDIR`, you must provide the appropriate pass directive in the HTTP Server configuration file, as described in Figure 55 on page 222.

Copying BOOKSRV.CONF: The `booksrv.conf` file is located in the `../cgi-bin/.` subdirectory. You must copy `../cgi-bin/booksrv.conf` to `/etc/booksrv/booksrv.80`. The mode setting on this file should be 666. This file will be updated by the Administration form.

Note: The `../cgi-bin/booksrv.conf` file contains the necessary configuration data (i.e. the applicable `ICPATH=`, `ICIDS=` and `INFOCENTERS=` values) for a copy of the z/OS MF InfoCenter that is packaged with Library Server. Since the plugins for this InfoCenter are already prepared it is not necessary for the administrator to use the "Prepare InfoCenter Plugins" function for the z/OS MF InfoCenter, prior to using the "Receive InfoCenter Plugins" and the "Create InfoCenter Search Index" administrative functions for managing InfoCenters.

Note: 80 is the default port setting for IBM HTTP Server. IBM HTTP Server configuration allows for port numbers other than 80 to be specified. Contact your IBM HTTP Server for z/OS administrator or systems programmer for the correct port number to use. Specify the correct port number as the file extension when copying `../cgi-bin/booksrv.conf` to `/etc/booksrv/booksrv.80`.

8.5.5.9.2.4 HTTP Server customization considerations

You must configure your HTTP server so it knows which requests to accept from a browser, how to respond (either by running a CGI script or by sending a document), and where to find requested resources.

The `AddType` directives describing the file extensions of ".bin" and ".jar" must be defined (or defaulted) as having binary encoding. The file extension of ".txt" must be defined or defaulted as having text encoding.

The HTTP Server must have the proper `DefaultFsCp` and `DefaultNetCp` for the language set, as described in 8.5.5.9.2.3, "Advanced customization parameters" on page 216. Refer to Figure 52 on page 219 for the correct configurations. Use of "`DefaultNetCp IBM-850`" should be avoided because doing so may cause mapping errors by the HTTP Server. If `DefaultFsCp` is set to anything other than IBM-1047, you

must also set `ENUExecs YES` in the HTTP Server configuration file. If you do not configure the code page specifications correctly, the Create New InfoCenter function in the Library Server Admin Applet will consistently fail with the `Invalid ID edit` error when it attempts to save changes.

If you have a large number of documents and/or directories containing them, you may need to increase the value of `MaxContentLengthBuffer`, `OutputTimeout`, and `ScriptTimeout` in the HTTP Server configuration file.

All customers must add the `exec` and `pass` directives shown in Figure 53 to the HTTP server configuration file `httpd.conf`. For more information about this file, see *z/OS HTTP Server Planning, Installing, and Using*. Sample member `EPHHTTPD` of the `SEPHSAMP` dataset contains these directives.

<i>Figure 53. Directives to Add to HTTP Server Configuration File</i>		
Directive	URL Template	HFS Directory (created in job EPHISMKD)
<code>exec</code>	<code>/bookmgr-cgi/bookmgr.cmd*</code>	<code>/usr/lpp/booksrv/cgi-bin/EPHBOOKS*</code>
<code>exec</code>	<code>/bookmgr-cgi/bookmgr.exe*</code>	<code>/usr/lpp/booksrv/cgi-bin/EPHBOOKS*</code>
<code>exec</code>	<code>/bookmgr-cgi/*</code>	<code>/usr/lpp/booksrv/cgi-bin/*</code>
<code>pass</code>	<code>/bookmgr/*</code>	<code>/usr/lpp/booksrv/public/bookmgr/*</code>
<code>pass</code>	<code>/libraryserver/*</code>	<code>/usr/lpp/booksrv/public/bookmgr/libraryserver/*</code>
<p>Note:</p> <ul style="list-style-type: none"> The <code>exec</code> and <code>pass</code> directives show the default locations for the CGI script and documents. If you change the default paths, be sure to change the directives accordingly. The first two <code>exec</code> directives maintain compatibility with BookServer V2.1 and BookServer V2.2 URLs and bookmarks. All Library Server <code>exec</code> and <code>pass</code> directives must be inserted in the HTTP Server configuration before the existing <code>'pass /*'</code> directive. This will prevent an HTTP 404 error. 		

If you are specifying a `PICDIR=` parameter (as described in 8.5.5.9.2.3, “Advanced customization parameters” on page 216), you must provide the appropriate `pass` directive. This `pass` directive must precede the `/bookmgr/*` `pass` directive shown in Figure 53. The sample `pass` directive shown in Figure 54 would be used if your `PICDIR=` specifies `/var/booksrv/pictures`.

<i>Figure 54. Sample Pass Directive for Specifying PICDIR Paramater</i>		
Directive	URL Template	HFS Directory
<code>pass</code>	<code>/bookmgr/pictures/*</code>	<code>/var/booksrv/pictures/*</code>
<p>Note: You may change the URL template for this <code>pass</code> directive if you also specify the new URL template in the <code>PICURL=</code> parameter on page 219</p>		

If you are specifying a `FRAMESDIR=` parameter (as described in 8.5.5.9.2.3, “Advanced customization parameters” on page 216), you must also provide the appropriate `pass` directive. This `pass` directive must precede the `/bookmgr/*` `pass` directive shown in Figure 53. The sample `pass` directive shown in Figure 54 would be used if your `FRAMESDIR=` specifies `/var/booksrv/frames`.

Figure 55. Sample Pass Directive for Specifying FRAMESDIR Paramater

Directive	URL Template	HFS Directory
pass	/bookmgr/frames/*	/var/booksrv/frames/*

If you are specifying LIBCENTERDIR= parameter (as described in 8.5.5.9.2.3, “Advanced customization parameters” on page 216), you must also provide the appropriate pass directive. This pass directive must replace the /libraryserver/* pass directive shown in Figure 53 on page 222. The sample pass directive shown in Figure 56 would be used if your LIBCENTERDIR= specifies /var/booksrv/libcenter.

Figure 56. Sample Pass Directive for Specifying LIBCENTERDIR Parameter

Directive	URL Template	HFS Directory
pass	/libcenter/*	/var/booksrv/libcenter/*

To make the exec and pass directive changes take effect, restart the HTTP Server.

These directives operate as follows:

- The exec directives are used to specify templates for requests to which the server will respond by running a CGI script.

For example, using the exec directives listed in Figure 53 on page 222, if your server receives the request /bookmgr-cgi/EPHBOOKS/library, it will locate the CGI script EPHBOOKS in /usr/lpp/booksrv/cgi-bin/ and run it with library passed as an input parameter.

- The pass directives are used to specify templates for requests to which the server will respond by sending a document.

The pass directive listed in Figure 53 on page 222 would cause the server to respond to any request beginning /bookmgr/ by sending a document from /usr/lpp/booksrv/public/bookmgr/. Anything following /bookmgr/ would also be used to identify the document. For example, your server would respond to the request /bookmgr/library.gif with the document in file /usr/lpp/booksrv/public/bookmgr/library.gif.

8.5.5.9.2.5 Updating Library Server directories

Whenever you create, change, or delete directories that house Library Server books, bookshelves, or bookcases, you must update the Library Server Administration page to reflect the changes.

1. Go to the Administrative Web page at the following URL (replace *your.hostname* with the domain name or IP address of your server).

`http://your.hostname/bookmgr-cgi/EPHBOOKS/administration`

Depending on the value that you specify for the NEWADMIN keyword in the booksrv.80 configuration file, you get either the new Java-applet-based administrative interface (NEWADMIN=1) or the old non-Java-applet-based administrative interface (NEWADMIN=0).

To use the new Java-applet-based administrative interface, refer to the explanation of the NEWADMIN= configuration keyword in 8.5.5.9.2.2, “Configuring Library Server” on page 208.

2. Enter your administration password. The initial password is BOOKMGR (uppercase). You must change this to a different password.
3. Update the directory path names that are displayed in the list boxes to reflect the actual changes that you made.
4. If you use the non-Java-applet-based administrative interface, click **Save Settings** to save the changes to the booksrv.80 file. If you use the Java-applet-based administrative interface, the changes are saved automatically to the booksrv.80 file.
5. Run Rebuild Catalog.

8.5.5.9.2.6 *BookRead*

BookRead, an API provided with Library Server, is required for z/OS UNIX System Services "man command" to function.

BookRead requires the use of the members installed in the SEPHTAB dataset. If the SEPHTAB dataset is other than EPH.SEPHTAB, BookRead must be given the appropriate HLQ or fully qualified dataset name. Originally, the EPHWP00 member of SYS1.PARMLIB was used to specify the HLQ or fully qualified dataset name. A sample of EPHWP00 is provided in the SEPHSAMP dataset. Although EPHWP00 continues to be supported, IBM recommends use of an alternative method to provide BookRead with the name for the SEPHTAB dataset. An environment variable, EPHBookReadConfig, should now be used to specify a directory name for the file, bookread.conf. The file bookread.conf must contain either the HLQ of the SEPHTAB dataset or DSN=(the fully qualified dataset name). BookRead will search for the name of the SEPHTAB dataset in the following order:

- If the environment variable EPHBookReadConfig exists, and the bookread.conf file in the directory specified in the variable exists, the HLQ or the fully qualified dataset name will be used.
- If EPHBookReadConfig or bookread.conf do not exist in the directory specified in EPHBookReadConfig, BookRead will check for file /etc/booksrv/bookread.conf. The HLQ or fully qualified dataset name in /etc/booksrv/bookread.conf will be used.
- If bookread.conf is not found as explained above, BookRead will check for SYS1.PARMLIB(EPHWP00). If found, the HLQ or fully qualified dataset name in EPHWP00 will be used.
- If none of the above methods provides an HLQ or fully qualified dataset name for the SEPHTAB dataset, EPH.SEPHTAB will be used.

Note: BookRead must have access to the members of the SEPHTAB dataset to function.

8.5.5.9.2.7 Setting security authorizations Warning: Any Library Server recommendations or examples of access bit (mode) settings (for example, 644 for files and 755 for directories) contained in this Program Directory or the sample jobs are to be used only as initial test settings. The objective of these initial settings is to allow full access to all functions of Library Server for the IVP process and initial testing. They are not intended as recommendations for production or pilot program security and these may introduce security exposures. The remainder of this section explains access requirements.

The installation's security staff must review all security before allowing the product to leave the initial test phase. Library Server does not recommend specific security settings, except as described above. Library Server support does not provide evaluations of site security arrangements.

The following information should be used by the installation's security staff to assist in their security review:

- Library Server provides a simple password mechanism to protect the Administration pages. These pages may be displayed without the password. The password is stored in `/etc/booksrv/booksrv.80`.
- Other than the Library Server Administration password mentioned above, security for Library Server should be implemented using the IBM HTTP Server security and authorization features in combination with your security product (for example, RACF). Refer to *z/OS HTTP Server Planning, Installing, and Using* for information about security and authorization facilities provided by the IBM HTTP Server.
- Library Server itself does not employ the concept of "user ID"; however, the IBM HTTP Server may do so. If so configured, the HTTP Server prompts the end user for a username and password the first time the server is accessed from a given browser instance. A valid system logon user ID and password for the target system is needed to satisfy this authentication request. Additionally, depending on the Library Server function being attempted, a similar authentication request from the Java server may also need to be satisfied by the end user using system logon credentials.
- By default, all Library Server-supplied HFS files are contained within the Library Server directory structure. While the Library Server product may be installed in any directory desired, the names of the subdirectories under the primary Library Server directory must not be changed, except as provided for by the parameters of `/etc/booksrv/bookmgr.80` (see 8.5.5.9.2.3, "Advanced customization parameters" on page 216 for more information).
- Except for the dataset named in the `CLIB=` parameter of `/etc/bookmgr.80` (see below), Library Server does not require access to any of the distributed 'EPH.**' MVS datasets for normal operation. `BookRead`, and therefore the z/OS UNIX System Services **man** command, requires access to the `EPH.SEPHTAB` dataset. All other datasets are used only for installation and maintenance activities.
- Directories used to store data created by the running Library Server need read, write, and execute access.

For a directory, the execute access bit actually controls searching the directory, not executing its contents; the execute bit of a file controls whether the file can be executed or not. Files used to store data created by the running Library Server need read and write access.

- Unlike most of the traditional Library Server functions to which the above security information applies, the Java-Applet-based administration functions, InfoCenter-related administration functions, and InfoCenter-related end user functions run on the persistent Java Bridge Java Server. Thus, to perform these functions, the user ID under which the Java Bridge Java Server runs (not the end user's user ID) requires adequate authority. Because the Java Bridge Java Server does all its processing under the user ID that originally started it, each end user has the same authority to perform these functions. You can restrict access to the aforementioned administrative functions by authenticating access to the following Library Server Administration pages (replace *your.hostname* with the domain name or IP address of your server).

`http://your.hostname/bookmgr-cgi/ephjbcgi.exe/admiapplet`
`http://your.hostname/bookmgr/admiapplet.jar`

Access requirements by file, for general use of Library Server:

- All use of Library Server requires:
 - Read, execute access to the `../cgi-bin/` directory and its contents
 - Read access to files `/etc/booksrv/bookmgr.80` and `/etc/booksrv/booksrv.80`

- Only read access is ever required to `/etc/booksrv/bookmgr.80` during normal operation of Library Server.

This file cannot be updated using the Administration panel; it may only be changed by logging onto an MVS user ID and editing it.

- To use the Administration panel to change settings or to change the administration password, Library Server requires:
 - Read, write access to file `/etc/booksrv/booksrv.80`.
- To use Java-based Administrative interface, Library Server requires:
 - Read and execute access to a Java 1.6 JVM or Java 1.5 JVM.
- To access InfoCenter-related functions for administrative or display purposes, Library Server requires:
 - Read and execute access to a Java 1.5 JVM or Java 1.5 JVM.

In addition to the above, specific functions of Library Server require additional access as follows:

- To use the Administration panel to process documents, shelves, cases, indexes, InfoCenter plugins, catalog, etc., Library Server requires:
 - Read, write, execute access to the following directories:

```

.../shelves/ 1
.../plugins/ 1
.../cases/ 1
.../books/ 1
.../cgi-bin/catalog/ 2
.../cgi-bin/catalog/books/ 2
.../cgi-bin/catalog/cases/ 2
.../cgi-bin/catalog/docnums/ 2
.../cgi-bin/catalog/shelves/ 2

```

- Read, write access to the contents of the above directories
- Read and write access to file `/etc/booksrv/booksrv.80`
- Indexing PDF files requires write access to the PDF file itself.
- Read, write, execute access to the InfoCenter directories specified on the Manage InfoCenters page, as documented in *Library Server: Getting Started*, and all subdirectories, including the authority to create new files and subdirectories.

Note: Only the user ID under which the Java Bridge Java Server is running needs this access.

- Read access to the files within the InfoCenter directories and their subdirectories.

Note: Only the user ID under which the Java Bridge Java Server is running needs this access.

- For searching, displaying and navigating BookManager Books, Library Server requires:
 - Read, write access to the `../cgi-bin/bookmgr.log` ² file, if Log Book Access Requests has been selected on the Administration panel.
 - Read, write, execute access to the following directories: ²

```

.../cgi-bin/catalog/
.../cgi-bin/catalog/books/
.../cgi-bin/catalog/cases/
.../cgi-bin/catalog/docnums/
.../cgi-bin/catalog/shelves/

```

Cataloging a book or PDF file involves creating or updating one new file in each directory. Library Server automatically catalogs a book when an uncataloged BOOK is requested from the collection page.

- Read, write access to all files within the following directories (unless all book files were previously cataloged):²

```
.../cgi-bin/catalog/  
.../cgi-bin/catalog/books/  
.../cgi-bin/catalog/cases/  
.../cgi-bin/catalog/docnums/  
.../cgi-bin/catalog/shelves/
```

- Read, execute access to all Library Server directories.¹
- Read access to all other files within the Library Server directory structure.¹
- Read, execute access to the InfoCenter directories that are specified on the Manage InfoCenters page and all subdirectories.

Note: Only the user ID under which the Java Bridge Java Server is running needs this access.

- Read access to the files within the InfoCenter directories and their subdirectories.

Note: Only the user ID under which the Java Bridge Java Server is running needs this access.

- If some book or PDF files are stored in MVS datasets instead of in HFS, read access is required to those MVS datasets containing the Books, PDF files, shelves, indexes, and bookshelf lists (bookshelf list datasets must be identified with the QLSHELF= parameter in the /etc/booksrv/bookmgr.80 file.)
- If the books contain graphics **or you have migrated book datasets that you want Library Server to automatically recall**, the following additional access is required:
 - Read, write, execute access to the ../public/bookmgr/pictures/² directory.

This directory is used for work files required to extract or convert graphics embedded in BOOKs into a format understandable by Web browsers, and for caching previously-converted graphics.

- Read, write access to all files in ../public/bookmgr/pictures/.²
- Read, execute access to the MVS dataset named in the CLIB= parameter of /etc/bookmgr.80.²
- Write access to the HLQ specified on the GDDMGDF parameter of /etc/bookmgr.80.(2)
- If a Library Center is displayed, the following additional access is required.
 - Read, execute access to the ../public/bookmgr/libraryserver/² directory and its sub-directories.
- To create a Library Center, the following access is required.
 - Read, write, execute to the ../public/bookmgr/libraryserver/² directory and its sub-directories.
- If the option to present frames-based EUI for books is selected on the Administration panel:
 - Read, write, execute access to the ../public/bookmgr/frames/² directory.

¹ The default directories for books, bookshelves, plugins and bookcases are ../books/, ../shelves/, ../plugins/, and ../cases/. Additional directories may be specified on the Administration panel. All additional directories, and their contents, require the same access as the default directories and contents. Refer to the *Library Server: Getting Started* softcopy book for more information about organizing your Library Server library.

² This directory path may be changed, using parameters in the /etc/booksrv/bookmgr.80 file.

This directory holds the workfiles required to render frames-based HTML for books in the Web browser.

- Read, write access to all files in `../public/bookmgr/frames/` ²
- To add (normally available to all users) notes, or delete (requires Administration password) notes, the following is required:
 - Read, write, execute access to `../public/bookmgr/notes/` ²
 - Read, write access to all files within `../public/bookmgr/notes/` ², in addition to the access required for searching and displaying books (see previous item)

Selecting Generate Diagnostic Output on the administration panel (see *Library Server for z/OS*) will write certain Library Server information to the various log files under the directories specified by LOGDIR= (2) (for example, `../cgi-bin/bookmgr.dbg` and `../cgi-bin/jbjs.log`). Some of this information, such as the administration password, might compromise the security of Library Server.

Notes:

1. Setting an EPHDEBUG=ON environment variable in the IBM HTTP Server's `httpd.envvars` file causes logging of certain Library Server information to the `bookmgr.dbg` file; it also logs pre-configuration processing information to `stderr` (usually the `cgi-error` log file of the IBM HTTP Server). With EPHDEBUG=ON, this behavior occurs regardless of whether the Generate Diagnostic Output option was selected on the administration panel.
2. If you are using any vendor security products, such as ACF2 or Top Secret, contact Vendor Products or visit the web site for information about Vendor product compatibility with z/OS.

<http://www-03.ibm.com/systems/z/os/zos/software/index.html>

8.5.5.9.2.8 Additional site customization

You can set other site options by using the Library Server Administration form at the following URL; replace *your.hostname* with the domain name or IP address of your server.

<http://your.hostname/bookmgr-cgi/EPHBOOKS/administration>

To use the new JAVA-applet-based administrative interface, see the explanation of the NEWADMIN= configuration keyword in 8.5.5.9.2.2, “Configuring Library Server” on page 208.

Note: If you have selected 'Produce running IBM footer' on the Administration form, you have the option to change the `ibm.com` link found in the footer. To change it to point to your own Page (`bmrouter.htm`), copy the appropriate `../public/bookmgr/custrout.htm` file to the `/usr/lpp/booksrv/public/bookmgr/` directory as file `bmrouter.htm`. The mode setting on this file should be 644. Edit the file `bmrouter.htm`, as desired.

The backdrop used on the toolbar for the Library Server document navigation pages (in both framed and unframed format) contains the IBM logo. If it is desired not to display the IBM logo on these pages, the `../public/bookmgr/tooldrop.gif` file should be saved and replaced with another backdrop image file which is also called `../public/bookmgr/tooldrop.gif`. If a simple, empty backdrop is sufficient, copy `../public/bookmgr/odot.gif` to `../public/bookmgr/tooldrop.gif`.

8.5.5.9.2.9 Performance guidelines

The following is a list of general guidelines for improving performance of z/OS UNIX and Library Server. Your MVS system programmer should implement these recommendations.

- Update PARMLIB to give the IBM HTTP Server server a higher service priority. For more information, see *z/OS HTTP Server Planning, Installing, and Using*
- If you are using a data set migration product, ensure that ONLY books and PDF files are migrated. Never migrate bookshelf datasets or bookshelf list datasets.
- Refer to *z/OS HTTP Server Planning, Installing, and Using* for more information about performance. Check the settings for ServerPriority, MaxActiveThreads, and MinActiveThreads.
- If enabling Extended Shelf Support and Shelf Indexer Support, see the notes in 8.5.5.9.2, “Library Server customization considerations” on page 201. See XML Toolkit documentation for performance information.
- It is strongly recommended that the filesystem (HFS or zFS) containing an InfoCenter not be shared when you prepare and index the plugins for that InfoCenter.
- Avoid setting the HEAPCHK ON Language Environment run-time option using the the CEE_RUNOPTS environment variable, especially when indexing InfoCenters.
- Although PDF files in Variable Blocked MVS datasets present performance issues in Library Server, copying them to Fixed Blocked MVS datasets to improve performance is discouraged because resultant padding may corrupt the PDF. If possible, it is recommended that PDF files intended for use in the Library Server library be stored as HFS or zFS files, instead of as MVS datasets.
- Do not enable/create the Library Page header (library.htm) unless it is really needed. Refer to 8.5.5.9.2.3, “Advanced customization parameters” on page 216.
- Do not enable the header (bmheader.htm) or footer (bmfooter.htm) unless it is really needed. Refer to 8.5.5.9.2.3, “Advanced customization parameters” on page 216.
- Because the preparation and indexing of InfoCenter plugins is highly resource intensive, do not start more than one such job at a time.
- Specify adequate storage limits for the indexing and Java Bridge JVMs, as described in 8.5.5.9.2.3, “Advanced customization parameters” on page 216 and in Note 3 on page 202 and Note 4 on page 203.
- Avoid setting the RPTOPT ON Language Environment run-time option using the CEE_RUNOPTS environment variable (for example, in /etc/httpd.envvars). Doing so would typically write a report to the IBM HTTP Server logs for every Library Server transaction.
- Ensure that Language Environment CEE dumps are targeted to a writable directory by specifying an appropriate dump target. This can be accomplished by setting the _CEE_DMPTARG environment variable (for example, by specifying _CEE_DMPTARG=/tmp in /etc/httpd.envvars).

8.5.5.9.3 Infoprint Server Customization Considerations

Detailed steps to get the program into operational status are defined in *z/OS Infoprint Server Customization*.

8.5.5.9.3.1 Initialize NetSpool Message Log Data Set

If you are using NetSpool, you may continue to use your existing message log data set, or you may record messages in the common message log. If you are customizing NetSpool for the first time, use of the common message log is recommended. If you want to also use the optional NetSpool message log data

set, SYS1.SAMPLIB member APIMIJCL can be used to allocate and initialize the NetSpool message log data set. Refer to *z/OS Infoprint Server Customization* for information on using the common message log.

8.5.5.9.3.2 Initialize IP PrintWay basic mode Operational Data Sets

This step is required **only** for IP PrintWay basic mode. If you are using (or migrating to) IP PrintWay extended mode, you do not need these data sets.

For IP PrintWay basic mode, the transmission queue and message log data sets must be allocated and primed. The following jobs are provided in SYS1.SAMPLIB to perform this function:

ANFDEAL	Allocates IP PrintWay transmission queue data set
ANFQINIT	Initializes IP PrintWay transmission queue data set
ANFMIJCL	Allocates and initializes IP PrintWay message log data set

If you used IP PrintWay in a previous z/OS release, you may use your existing transmission queue and message log data sets.

8.5.5.9.3.3 Customize the UNIX environment for Infoprint Server

The customization steps described in this section are sufficient for a default configuration. Only the lpd and printer inventory daemons are started in the default configuration. If you want to use any of the following functions, additional customization is required:

- Infoprint Central
- Infoprint Server subsystem
- IP PrintWay Extended Mode
- IPP Server
- NetSpool
- SNMP subagent
- Transform manager

Refer to *z/OS Infoprint Server Customization* for additional customization for these functions.

1. Create the configuration files for the Infoprint Server daemons:

A sample job is provided in SYS1.SAMPLIB(AOPCPETC) to copy the sample configuration files from /usr/lpp/Printsrv/samples to /etc/Printsrv. Review the comments in the job to determine which configuration files are required for your installation, and then run the job to create the configuration files.

The defaults provided in the sample aopd.conf file will start the printer inventory manager and the LPD. If you want to modify any of the defaults, refer to *z/OS Infoprint Server Customization*. If you are migrating from a previous level of Infoprint Server, and/or you are using NetSpool or IP PrintWay Extended Mode, you must update the aopd.conf file to start the appropriate daemons.

Note: Infoprint Server will default to search for its configuration file in /etc/Printsrv/aopd.conf. If you change the name or directory for this file, see *z/OS Infoprint Server Customization* for information on how to configure your environment.

2. Modify /etc/profile to update the following environment variables:

- PATH

Add `/usr/lpp/Printsrv/bin` to the PATH environment variable.

Note: The `/usr/lpp/Printsrv/bin` directory must occur **before** `/bin` in the PATH environment variable so the Print Interface and IP Printway extended mode version of the `lp`, `lpstat`, and `cancel` commands will be invoked.

- LIBPATH

Add `/usr/lpp/Printsrv/lib` to the LIBPATH environment variable.

- MANPATH

Add `/usr/lpp/Printsrv/man/%L` to the MANPATH environment variable.

Note: The `/usr/lpp/Printsrv/man/%L` directory must occur **before** `/usr/man/%L` in the MANPATH environment variable so the Print Interface and IP Printway extended mode version of the `lp`, `lpstat`, and `cancel` man pages will be displayed.

- NLSPATH

Add `/usr/lpp/Printsrv/%L/%N` to the NLSPATH environment variable.

Infoprint Server may optionally use additional environment variables to set defaults for operation. Refer to *z/OS Infoprint Server Customization* for detailed information on the usage of these parameters.

3. Review the `aopstart EXEC` for possible updates. For security reasons, Infoprint Server daemons use some variables only if they are set in the `aopstart EXEC`. Daemons do not use the same variables set in the `/etc/profile` file. For information about how to set variables in the `aopstart EXEC`, refer to *z/OS Infoprint Server Customization*.

8.5.5.9.3.4 Establish security for Infoprint Server

1. Define or update RACF profiles for Infoprint Server security.

A sample CLIST is provided in `SYS1.SAMPLIB(AOPRACF)` that can be used to define the security environment for Infoprint Server. This CLIST must be modified before it is run. All commands are commented out by default. The CLIST can be used to perform the following functions:

- Define two RACF groups for print administrators and operators. The default names for these groups are:

AOPADMIN RACF group for administrators who maintain the Printer Inventory.

AOPOPER RACF group for operators who will control starting and stopping the Infoprint Server daemons.

Note: You may use one RACF group for both `AOPADMIN` and `AOPOPER` if your installation's security policy does not require a distinction between operators and administrators. For more information on security considerations for Infoprint Server, refer to *z/OS Infoprint Server Customization*.

- Create a RACF profile in the `PRINTSRV` class named `AOP.ADMINISTRATOR` to control who has access to the printer inventory. You must name this profile `AOP.ADMINISTRATOR`. Alternatively, you can use your existing `AOPADMIN` profile in the `FACILITY` class. Refer to *z/OS Infoprint*

Server Customization, for information about why it is desirable to use the PRINTSRV class profile rather than the previously-defined FACILITY class profile.

- Define the AOPSTART and AOPSTOP procedures in the STARTED class and define a user ID to be associated with these started procedures.

2. Customize permissions:

Run the aopsetup shell script to define permissions, specifying the names of the operator group and administrator group you defined in the previous step. To run the aopsetup shell script, you must run it from a user ID that has UID=0 or has read access to the BPX.SUPERUSER facility class.

Note: The aopsetup shell script requires access to the directory defined as base-directory in the aopd.conf configuration file. The default for base-directory is /var/Printsrv. Therefore, you must have access to the /var/Printsrv directory before you can run aopsetup. If you have your target system's /var file system mounted to your driving system, you may run aopsetup from your driving system. If you do not have access to the target system's /var from your driving system, you must run aopsetup from the target system. If you want to run aopsetup from the driving system, refer to the comments in the aopsetup shell script for information on the proper syntax to invoke the script.

To run the aopsetup shell script using the default names listed in the previous step, enter:

```
/usr/lpp/Printsrv/bin/aopsetup AOPOPER AOPADMIN
```

You can run aopsetup from an rlogin shell, from an OMVS session, or using BPXBATCH.

8.5.5.9.3.5 Make updates to the Communications Server IP Profile

Print Interface requires the use of TCP port 515 in a default configuration. Ensure dataset hlq.PROFILE.TCPIP does not reserve port 515 for another application. You may need to ensure the ports listed below are not reserved, if you want to use these functions of Infoprint Server:

SNMP agent/sub-agent	ports 161 and 162
IPP server	port 631

See *z/OS Communications Server: IP Configuration Reference* for more information.

8.5.5.9.3.6 Customize IP PrintWay and NetSpool

If you are using the IP PrintWay or NetSpool components of Infoprint Server, additional customization is required.

- For NetSpool, logical printers must be defined to VTAM with APPL definition statements.
- For IP PrintWay Basic Mode, the functional subsystem must be defined to JES.
- For IP PrintWay Extended Mode, job selection criteria must be defined in the printer inventory.

Refer to *z/OS Infoprint Server Customization*, for instructions on customizing IP PrintWay and NetSpool. If you are migrating from previous levels of Infoprint Server, see *z/OS Migration* for migration considerations.

8.5.5.9.3.7 Customize HTTP Server for Infoprint Central

If you want to use the print management functions provided by Infoprint Central for the web, you must customize the HTTP Server, and update the httpd.conf and httpd.envvars files to include configuration

information for Infoprint Server. See *z/OS Infoprint Server Customization* for instructions on customizing the HTTP Server for use with Infoprint Server.

8.5.5.9.3.8 Customize Distributed File Service for SMB printing

If you want to use the SMB file/print server to send print data to Print Interface and IP Printway extended mode, make the following modifications to `/etc/dfs/home/dfskeyn/envar`:

- LIBPATH

Add `/usr/lpp/Printsrv/lib` to the LIBPATH environment variable.

8.5.5.9.3.9 Download client code to workstation

The Infoprint Port Monitor allows Windows users to print to any z/OS printer defined in the Printer Inventory, using standard print-submission methods from Windows applications that support printing. The Infoprint Port Monitor is located in a subdirectory of the `/usr/lpp/Printsrv/win/` directory, depending on locale. It is downloaded to the workstation using FTP. The directory locations for each NLV are shown below:

English	<code>/usr/lpp/Printsrv/win/En_US/</code>
Japanese	<code>/usr/lpp/Printsrv/win/Ja_JP/</code>

Refer to *z/OS Infoprint Server User's Guide* for instructions to download the client code to the workstation.

8.5.5.9.4 Network File System customization considerations

Detailed steps to get the program into operational status are defined in *z/OS Network File System Guide and Reference*. Omitting these steps will prevent successful operation of the program.

8.5.5.10 Customization for Wave 2: Once you have successfully SMP/E APPLY'd JES2, JES3 and SDSF, you must customize the elements.

8.5.5.10.1 SDSF Customization considerations:

Note: When running SDSF in a JES3 environment, you must define SDSF security by using SAF to create the profiles and to activate the classes that are used by SDSF. See *z/OS SDSF Operation and Customization* for details.

SDSF can be run from the link list, link pack area, a steplib, or TSOLIB command. To run SDSF from a steplib, add the SISFLOAD data set as a steplib to your TSO logon procedure and as a steplib to the server JCL. Note that because the SISFLOAD data set must be authorized, any libraries concatenated to your steplib must also be authorized. If you plan to run the SDSF server, you must also add the SISFLINK data set to your LNKLISTxx member of SYS1.PARMLIB.

8.5.5.10.2 JES2 Initialization considerations: You will need to update the following PARMLIB and PROCLIB members prior to IPL of the new JES2 system:

- LNKLISTxx to include libraries SHASLNKE and SHASMIG

- Logon procedures used for IPCS setup to include the JES2 libraries SHASMIG, SHASPARM, and SHASPNLO
- PROGxx to APF-authorize libraries SHASLNKE and SHASMIG
- JES2 cataloged procedures to include the library SHASLNKE, if the procedures contain a STEPLIB and the library names have been changed.

For details on how to create or update the initialization deck, see z/OS JES2 Initialization and Tuning Reference.

8.5.5.10.3 JES3 Initialization considerations: You will need to update the following PARMLIB and PROCLIB members prior to IPLing the JES3 system:

- LNKLSTxx to include JES3 libraries SIATLIB, SIATLINK, and SIATMIG (if STEPLIBs are not used in the JES3 cataloged procedures or you are using the JES3 DLOG facility).
- LPALSTxx to include JES3 library SIATLPA
- PROGxx to APF-authorize libraries SIATLIB, SIATLINK, SIATMIG, and SIATLPA.
- JES3 cataloged procedures to include the libraries SIATLIB, SIATLINK, and SIATMIG if the procedures contain a STEPLIB and the library names have been changed.
- Logon procedures used for IPCS setup to include JES3 libraries SIATCLI0, SIATMSG0, SIATPNL0, and SIATTBL0.
- IFAPRD00 to include JES3. Ensure the correct program number is specified.

JES3 enforces the system name (specified in member IEASYMxx or IEASYSxx in PARMLIB) for the current system matches a name specified on the NAME parameter of a MAINPROC statement in your JES3 initialization deck.

For details on how to create or update the initialization deck, see z/OS JES3 Initialization and Tuning Reference.

8.6 Step 6: Verify installation of Wave 0, Wave 1 and Wave 2

After you have successfully completed the following steps, you should verify the installation of the Wave 0, Wave 1 and Wave 2 elements:

- SMP/E APPLYed the Wave 0, Wave 1 and Wave 2 elements,
- Performed the Post-APPLY work, and
- Finished the minimal customization documented in 8.5, “Step 5: Customize Wave 1 and Wave 2” on page 138,

The Wave 0, Wave 1 and Wave 2 installation verification procedures (IVPs) should be run from your **target** system, unless specifically noted.

8.6.1 IPL the z/OS system

Attention

Do not IPL the new release in a production environment until you have tested the new release with a simulated production load that includes all applications and all non-IBM products, which ensures service level agreements can be met.

Do not IPL in a shared resource environment unless you have installed service for any applicable toleration and coexistence PTFs on lower z/OS releases that will coexist with z/OS V2.1.0. To identify the required coexistence PTFs that must be installed on lower z/OS releases, receive the latest HOLDDATA and run the SMP/E MISSINGFIX command with a fix category (FIXCAT) of "IBM.Coexistence.z/OS.V2R1." See *z/OS Migration* for information about identifying service required for coexistence.

Do not IPL the z/OS V2.1.0 system with a root file system used with previous z/OS releases. Invoking programs contained in previous file systems, may result in unpredictable behavior.

Starting with z/OS V2.1, you cannot use earlier levels of JES2, JES3, or SDSF. Do not IPL the z/OS V2.1 system with older levels of JES2 or JES3 used with previous z/OS releases.

8.6.1.1 File system execution: When a z/OS system is loaded with the initial program, the root file system must be mounted in read-only mode during execution. After the Wave 1 elements were installed during SMP/E APPLY processing, customization of some elements requires updates to the target system /etc and /var file systems. These updates must have been completed at this point.

8.6.1.2 BPXISETS and BPXISETD: Before IPLing, you will need to convert the /etc and /var directories to symbolic links. First unmount the HFS or zFS data sets on the /etc and /var directories. Use the BPXISETS REXX exec found in SAMPLIB to convert the /etc and /var directories to symbolic links. To submit the REXX exec in the background, you can use the BPXISJCL provided in SAMPLIB.

If, for any reason, you require the /etc or /var symbolic links to be removed and the /etc or /var directories recreated, use the BPXISETD REXX exec from SAMPLIB. Again, the BPXISJCL job can be used to submit this in the background.

Ensure the separate HFS or zFS data sets for your target /tmp and /dev directories are created in preparation to IPL your z/OS V2.1.0 system. The BPXPRMxx member should contain the following mount statements:

```
ROOT  FILESYSTEM('root_FS_data_set')
      TYPE(xxx)  MODE(RDWR)

MOUNT FILESYSTEM('etc_FS_data_set')
      MOUNTPOINT('/etc')
      TYPE(xxx)  MODE(RDWR)

MOUNT FILESYSTEM('var_FS_data_set')
      MOUNTPOINT('/var')
      TYPE(xxx)  MODE(RDWR)

MOUNT FILESYSTEM('tmp_FS_data_set')
      MOUNTPOINT('/tmp')
      TYPE(xxx)  MODE(RDWR)

MOUNT FILESYSTEM('dev_FS_data_set')
      MOUNTPOINT('/dev')
      TYPE(xxx)  MODE(RDWR)
```

Figure 57. Mount statements required in BPXPRMxx

Notes:

1. 'root_FS_data_set' and 'etc_FS_data_set' are the file systems in which z/OS V2.1.0 was just installed.
2. 'var_FS_data_set' is the file system that you created in 6.2, “Step 1: Separating File System Data Sets for z/OS V2.1.0” on page 33.
3. 'tmp_FS_data_set' and 'dev_FS_data_set' are the file systems that you just created.
4. On the ROOT and MOUNT statements shown in Figure 57, change TYPE(xxx) to the appropriate TYPE, such as TYPE(HFS) or TYPE(ZFS), that is applicable to your installation.

If the z/OS Font Collection element was installed in a separate file system, ensure the BPXPRMxx PARMLIB member that will be used during IPL of the z/OS V2.1 target system has a MOUNT statement to mount the file system in which z/OS Font Collection is installed.

To IPL the system, ensure you use the target SYSRES from the Wave 1 installation. In addition, the z/OS V2.1.0 HFS or zFS data sets, in which you installed Wave 0 and Wave 1 elements, should be used as the root file system and the file system mounted on /etc directory when IPLing the system.

Be sure that you have synchronized your security databases; see 8.1.1, “Set up User and Group IDs Required for Installation” on page 76.

If you needed to define a user ID alias table for your security setup be sure to add the USERIDALIASTABLE keyword in your BPXPRMxx parmlib member specifying your table location. See *z/OS UNIX System Services Planning* for details.

z/OS V2R1 runs on the following IBM servers: z196, z990, z900, z890, z800, z9 BC, and z9 EC. The only architecture mode supported is z/Architecture. To understand the issues involved in running in 64-bit mode, see *z/OS MVS Initialization and Tuning Reference* and *z/OS MVS Programming: Assembler Services Guide*. You must specify CLPA to create the link pack area. z/OS V1R8 and higher support the latest specialty engine, the System z9 Integrated Information Processor (zIIP). This is a specialty engine for running database workloads.

If your system is a z900 or z800 server and you are running RMF with the intention to monitor devices other than tape and DASD, you must IPL with the CMB system parameter and describe the number of extra measurement blocks required. One extra measurement block is required for each extra device number to be monitored. See *z/OS MVS Initialization and Tuning Reference* for more information on this parameter.

IEA299I may be received during system initialization. This message is issued only if a conditional resource initialization module (RIM) is not found. Processing continues because z/OS Version 2 Release 1 is not dependent on the function of the indicated RIM. However, subsystems, program products, or applications might require conditional RIMs. Check the installation procedures for any subsystem that fails for mention of the indicated RIM. Any RIMs shipped by these products must reside in the SYS1.NUCLEUS library.

The following messages might be issued one or more times, depending on which products you have installed and which I/O device types are defined to your system during IPL:

```
IEA093I MODULE IEANUC01 CONTAINS UNRESOLVED WEAK EXTERNAL REFERENCE <name>.
```

References to modules with any of the following names can be ignored:

```
AOMATTN  AOMATTNT  CBRATTN  IARYGGTS  IECTATEN  IECTCATN
IECTCQSC  IEDQATTN  IFFIOM   IRDVATT1  ISTZFMAA  ISTZFMAB
IXCIOATX
```

```
IEA093I MODULE IGGDDT01 CONTAINS UNRESOLVED WEAK EXTERNAL REFERENCE <name>.
```

All such messages for unresolved external references in IGGDDT01 can be ignored. For more information, see APAR I103282.

```
IEA093I  MODULE IGC116 CONTAINS UNRESOLVED WEAK EXTERNAL REFERENCE IGX03007.
```

8.6.2 Verify installation of z/OS Version 2 Release 1 Wave 0, Wave 1 and Wave 2 FMIDs

To verify that the z/OS Version 2 Release 1 elements are installed, you should make at least the following **minimal checks**:

- Initialize the system.
- Initialize JES.
- Submit a job and check its output. (You can run the BCP installation verification job provided in member IVPJOBS in your SAMPLIB data set.)
- If CICS or IMS is installed, initialize a region and sign on to a terminal.

For **more complete checks**, you can perform the following tasks:

- Run critical production jobs.
- Run a mixture of jobs, for example:
 - Jobs that produce large amounts of SYSOUT
 - Jobs that submit other jobs to the internal reader
 - Jobs with many SYSOUT data sets
 - Jobs with many DD statements
 - Jobs that perform dynamic allocations
- Test NJE lines.
- Test RJE/RJP lines.
- Send output to JES- and PSF-controlled printers.
- Issue TSO/E LOGON, TRANSMIT, RECEIVE, SUBMIT, STATUS, CANCEL, and LOGOFF commands.
- Ensure all exit routines and local modifications perform correctly.
- Communicate with all networks without IP.
- Test critical functions in applications.
- Check for completeness of accounting records.
- Test all non-IBM product functions.
- Ensure that performance goals stated in service level agreements can be met.

To verify JES3 is installed, you should make at least the following minimal checks:

Attention

- For JES3, if you are in a global/local complex, each system must be a member of the same sysplex.
- Do not IPL the new release in a production environment until you have tested the new release with a simulated production load that includes all applications and all non-IBM products, and ensures service level agreements can be met.

Minimal check:

- Initialize the system.
- Initialize JES.

Note: For JES3, you should see at least the following message:

```
*IAT3100 JES3 v.r.m SYSTEM COLDSTART ON yy.ddd
```

- Submit a job.
- Check the job's output.

More complete checks:

- Perform all the JES3 restarts (for example, COLD, HOT, HOT with ANALYSIS, WARM, WARM with REPLACE). All restarts should be performed with various jobs in different stages of execution (for example, OUTSERV, C/I, MAIN).
- Bring up a JES3 global/local environment. Verify all systems connect properly. Submit jobs to all processors and verify the jobs run successfully.

- In the global/local environment, perform a DSI to switch global processors. Verify both processors connect properly. Once the DSI is complete, submit jobs to run on each processor. Verify the jobs run to completion.
- Perform a DSI again to switch the global back to the original processor.
- Bring up a C/I FSS address space if you plan to use one in production. Verify jobs run successfully through the C/I FSS.
- Run a mixture of jobs, for example:
 - Jobs that produce large amounts of SYSOUT
 - Jobs that submit other jobs to the internal reader
 - Jobs with many SYSOUT data sets
 - Jobs with many DD statements
 - Jobs that perform dynamic allocations
 - Jobs that use or create dynamic output descriptors
 - DJC net jobs
- Test miscellaneous JES3 functions:
 - Inquiry and Modify commands
 - Dump Core utility
 - Display DSP
- Test NJE lines.
- Test RJE/RJP lines.
- Send output to JES- and PSF-controlled printers.
- Issue TSO/E LOGON, TRANSMIT, RECEIVE, SUBMIT, STATUS, CANCEL, and LOGOFF commands.
- Ensure all exit routines and local modifications perform correctly.
- Run all production jobs.
- Communicate with all networks.
- Test critical functions in applications.
- Check for completeness of accounting records.
- Test all non-IBM product functions.
- Ensure performance goals stated in service level agreements can be met.

Figure 58 (Page 1 of 3). Checklist for the IVPs

Check Box	Section, Step Description	Your Notes
	8.6.2.1, "IVP jobs for Wave 0" on page 241	
<input type="checkbox"/>	8.6.2.1.1, "Run the High Level Assembler Installation Verification Procedure" on page 241	
<input type="checkbox"/>	8.6.2.2, "Run the BCP and ISPF Installation Verification Procedure" on page 241	
	8.6.3, "IVP jobs for Wave 1A" on page 244	
<input type="checkbox"/>	8.6.3.1, "Run the Language Environment Installation Verification Procedure" on page 244	
	8.6.4, "IVP jobs for Wave 1B" on page 244	

Figure 58 (Page 2 of 3). Checklist for the IVPs

Check Box	Section, Step Description	Your Notes
☐	8.6.4.2, "Run the DFSMS Installation Verification Procedure" on page 248	
☐	8.6.4.7, "Run the z/OS UNIX System Services Setup Verification Procedures" on page 266	
	8.6.5, "IVP jobs for Wave 1C" on page 266	
☐	8.6.5.1, "Run the BookManager/Build Installation Verification Procedure" on page 266	
☐	8.6.5.2, "Run the BookManager READ Installation Verification Procedure" on page 267	
☐	8.6.5.3, "Run the FFST Installation Verification Program" on page 269	
☐	8.6.5.4, "Run the GDDM Installation Verification Procedures" on page 269	
☐	8.6.5.5, "Run the ICKDSF Installation Verification Procedure" on page 276	
	8.6.6, "IVP jobs for Wave 1D" on page 276	
☐	8.6.4.1, "Run the Communications Server IP Services Installation Verification Procedures" on page 244	
☐	8.6.8.2, "Run the High Level Assembler Toolkit Installation Verification Program" on page 283	
	8.6.7, "IVP jobs for Wave 1E" on page 277	
☐	8.6.7.1, "Run the Runtime Library Extensions Installation Verification Procedures" on page 277	
☐	8.6.7.2, "Run the XL C/C++ Installation Verification Procedures" on page 277	
☐	8.6.7.4, "Run the RMF Installation Verification Procedure" on page 279	
☐	8.6.6.1, "Run the Security Server (RACF) Installation Verification Procedures" on page 276	
	8.6.8, "IVP jobs for Wave 1F" on page 279	
☐	8.6.8.1, "Run the DFSORT Installation Verification Procedures" on page 279	
☐	8.6.10.1, "Run the installation verification procedure for SDSF" on page 287	
	8.6.9, "IVP jobs for Wave 1G" on page 284	

Figure 58 (Page 3 of 3). Checklist for the IVPs

Check Box	Section, Step Description	Your Notes
<input type="checkbox"/>	8.6.9.1, "Run the Distributed File Service Installation Verification Procedures" on page 284	
<input type="checkbox"/>	8.6.9.2, "Run the Library Server Installation Verification Procedures" on page 285	
<input type="checkbox"/>	8.6.9.3, "Run the Infoprint Server Installation Verification Procedures" on page 285	
<input type="checkbox"/>	8.6.9.4, "Run the Network File System Installation Verification Procedures" on page 286	

8.6.2.1 IVP jobs for Wave 0

The following sections describe IVP jobs for Wave 0.

8.6.2.1.1 Run the High Level Assembler Installation Verification Procedure

1. Assemble the Verification Program

HLASM provides a sample job, ASMWIVP, found in the SASMSAM1 library. This job is provided to verify the element has installed correctly. This job assembles the source statements in member ASMASAMP found in the SASMSAM1 library.

2. Run the Verification Program (optional)

The program being assembled is not intended to be run; however, if it is run, it sets a return code of zero and returns to the caller.

8.6.2.2 Run the BCP and ISPF Installation Verification Procedure

Because the BCP and ISPF are used to verify some of the installation verification procedures in Wave 1A, the BCP and ISPF should be verified now rather than in 8.6.8, "IVP jobs for Wave 1F" on page 279.

To verify the BCP was installed properly, you should run IVPJOBS found in your SAMPLIB library. Refer to the comments in the job for instructions, expected condition codes, and expected output.

Note: The command statement labeled "LISTACTV" issues a Console Management "DISPLAY ACTIVE, LIST" COMMAND. It will also generate a WTO which should be responded to immediately. The system will not accept any new work until the operator has replied to the IEFC166D message.: The system will not process any more work until this system prompt is responded to.

8.6.2.2.1 ISPF

Log on to TSO using a LOGON procedure that includes the z/OS V2.1.0 ISPF data sets. The data sets are allocated to the appropriate DDs, as are documented in Figure 47 on page 161.

Enter `ISPSTART nlslang` at the TSO/E READY prompt (where *nlslang* is the language you are using). The IBM-supplied default is ENGLISH. The ISPF Primary Option Menu is displayed with the ISPF logo in a pop-up window. The logo contains a copyright date, as shown in Figure 59 on page 242.

```

Licensed Materials - Property of IBM
5650-ZOS Copyright IBM Corp. 1980, 2013.
US Government Users Restricted Rights -
Use, duplication or disclosure restricted
by GSA ADP Schedule Contract with IBM Corp.

```

Figure 59. ISPF Copyright Logo

Enter the command `PANELID` on the Option line. The panel ID `ISP@MSTR` should appear in the upper left corner of the screen.

Enter `X` on the Option line to return to TSO/E READY.

Enter `ISPF nlslang` or `PDF nlslang` at the TSO/E READY prompt (where *nlslang* is the language you are using). The IBM-supplied default is ENGLISH.

The ISPF Primary Option Menu is displayed with the ISPF logo in a pop-up window. The logo contains a copyright date, as shown in Figure 59.

Execute the steps listed in Figure 60 to verify the basic ISPF functions have been properly installed. After entering the command `PANELID`, the panel name appears in the upper left corner of the screen.

<i>Figure 60 (Page 1 of 2). Installation Verification Functions</i>		
In command line of panel...	Enter	Panel displayed
ISPF Primary Option	PANELID	ISR@PRIM
ISR@PRIM	0	ISPISMMN
ISPISMMN	=1	ISRBRO01
ISRBRO01	=2	ISREDM01
ISREDM01	=3.1	ISRUDA1
ISRUDA1	=3.2	ISRUDA2/ISRUDA2S*
Note: *ISRUDA2S if SMS is active.		
ISRUDA2/ISRUDA2S	=3.3	ISRUMC1
ISRUMC1	=3.4	ISRUDLP
ISRUDLP	=3.12	ISRSSNEW
ISRSSNEW	=3.13	ISRSEPRI
ISRSEPRI	=3.14	ISRSFSPR
ISRSFSPR	=4.1	ISRFPO1

Figure 60 (Page 2 of 2). Installation Verification Functions

In command line of panel...	Enter	Panel displayed
ISRFP01	=5.1	ISRJP01
ISRJP01	=6	ISRTSO
ISRTSO	=7	ISPYXD1
ISPYXD1	=X;9	ISRDIIS
ISRDIIS	=11	ISRWORK
ISRWORK	=10	FLMDMN

8.6.2.2.2 ISPF SCLM

This procedure allocates, assembles, and link-edits a test ISPF SCLM project and then uses this project to save and build an assembler source module. To execute this procedure, you need the following information:

- **A high-level qualifier to be used to define the temporary project definition.**

This forms the prefix for the data sets allocated by this procedure. You can use your user ID as the high-level qualifier (*hlq*). Seven data sets will be allocated:

- *hlq*.PROJDEFS.ACCTDB
- *hlq*.PROJDEFS.BLDLIST
- *hlq*.PROJDEFS.INFO
- *hlq*.PROJDEFS.LOAD
- *hlq*.PROJDEFS.OBJ
- *hlq*.PROJDEFS.SOURCE
- *hlq*.PROJDEFS.SYSPRINT

These data sets must not previously exist. A minimum of nine 3390 DASD tracks are required for the allocation. At the end of the procedure you are given the option to delete these data sets.

- **The name of the SCLM macro library.**

The SMP/E DDDEF for SISPMACS points to this data set.

- **A volume serial for a VSAM data set.**

The volume used for the allocation of the *hlq*.PROJDEFS.ACCTDB data set.

- **The location of the High Level Assembler module ASMA90.**

This location will be either in normal MVS search sequence (STEPLIB, LINKLST, LPA, etc.) or the High Level Assembler data set name (SASMMOD1).

After you have obtained the required information, follow these steps to perform the installation verification:

1. From the ISPF Primary Option Panel, select Option 10, SCLM.
2. From the SCLM panel, select Option 6, TSO or SCLM Commands.
3. Enter the command: FLMIVP
4. Answer the prompts with the information gathered during preparation.

5. At this point, the procedure will:

- Allocate the necessary data sets. (If the data set allocation fails, diagnose the problem, take corrective action, and then rerun the FLMIVP procedure.)
- Create, assemble, and link-edit the SCLM project definition
- Test the installation by executing SAVE and BUILD commands
- Indicate if the installation test passed or failed. If the test failed, the messages reported to the screen and the contents of the *hlq.PROJDEFS.SYSPRINT* and *hlq.PROJDEFS.BLDLIST* data sets can be used to determine the cause of the failure. If you cannot determine the cause of the failure, contact the IBM Support Center.
- Prompt you to determine if the data sets should be deleted or retained.

If errors occur during the SCLM installation verification procedure, use the FLMIVPC EXEC to delete the data sets allocated by FLMIVP.

8.6.3 IVP jobs for Wave 1A

There are currently no installation verification procedures for the following elements in Wave 1A:

- Communications Server SNA Services
- TIOC
- Cryptographic Services ICSF
- System SSL

8.6.3.1 Run the Language Environment Installation Verification Procedure: To verify that Language Environment is installed properly, run CEEWIVP in your SCEESAMP library. If the z/OS XL C/C++ compiler uses 64-bit virtual memory, ensure that MEMLIMIT > 0. The actual value of MEMLIMIT might vary with each customer. See the comments in the job for instructions, expected condition codes, and expected output.

Note: As of z/OS V1R8, the IPA Link step of the z/OS XL C/C++ compiler uses 64-bit virtual memory, which requires sufficient storage above the 2 GB bar (2 GB address line). For information about using MEMLIMIT to ensure that sufficient storage above the 2 GB bar is available for the IPA Link step, see 8.6.7.2, “Run the XL C/C++ Installation Verification Procedures” on page 277.

8.6.4 IVP jobs for Wave 1B

8.6.4.1 Run the Communications Server IP Services Installation Verification Procedures

Before beginning the installation verification procedures for Communications Server IP Services, SNA(VTAM) must be started in order for Communications Server IP Services to initialize successfully. To start VTAM from the MVS operator console, issue the following command:

```
S VTAM_procname,,,(LIST=start_list_id)
```

Expected results: The following messages will be displayed on the MVS operator console:

```
IST020I VTAM INITIALIZATION COMPLETE FOR CSV2R1
IST1349I COMPONENT ID IS 5695-11701-210
```

Before beginning the installation verification procedures for Communications Server IP Services, verify you have all the required values as listed beginning on page 176.

1. Set up TSO user's TCPIP.DATA

On the TSO user ID from which the IVP will be executed, the SYSTCPD DD card of the TSO logon procedure must point to the data set specified by *TCPIP_DATA_name*. Either change the TSO logon procedure (and log off and on again), or do the following steps to override the SYSTCPD definition for the rest of the TSO logon session:

- In TSO ready mode or from TSO option 6, drop the existing definition by entering the following command:

```
FREE FI(SYSTCPD)
```

- Establish the new SYSTCPD definition with this command:

```
ALLOC FI(SYSTCPD) DS('TCPIP_DATA_name')
```

2. Start the SYSLOG daemon

- From the MVS operator console, issue:

```
S SYSLOGD_procname
```

- Expected results:

```
FSUM1248 SYSLOGD_procname INITIALIZATION COMPLETE
```

3. Start TCP/IP

- From the MVS operator console, issue

```
S TCPIP_procname
```

- Expected results:

The following messages will be displayed on the MVS operator console:

```
EZZ4202I Z/OS UNIX - TCP/IP CONNECTION ESTABLISHED FOR TCPIP_procname
```

```
EZB6473I TCP/IP STACK FUNCTIONS INITIALIZATION COMPLETE
```

```
EZAIN11I ALL TCPIP SERVICES FOR PROC tcpproc_name ARE AVAILABLE.
```

4. Start the FTP daemon

- From the MVS operator console, issue

```
S FTPD_procname
```

- Expected results:

- The *FTPD_procname* task will end after forking another task. The forked task (for example, FTPD1), will remain running.

- The following message will be displayed on the MVS operator console:

EZY2702I SERVER-FTP: INITIALIZATION COMPLETED AT nn:nn:nn ON mm/dd/yy

5. Test the following commands from TSO:

- Issue:

```
ping loopback
```

- Expected results:

```
CS VyRx: Pinging host LOOPBACK (127.0.0.1).  
Ping #1 response took n.nnn seconds.
```

- Issue

```
netstat home
```

- Expected results:

```
MVS TCP/IP NETSTAT CS VyRx TCPIP NAME:  
TCPIP_procname hh:mm:ss
```

Home address list:

Address	Link	Flg
-----	----	---
127.0.0.1	LOOPBACK	P

Note: If you are using the sample profile without any changes, then you will not see the 'P' under the Flg header.

6. Set up environment variables required in the z/OS UNIX Shell

- Set the following environment variables in the z/OS UNIX Shell for the user ID on which the IVP will be executed. From the z/OS UNIX shell, issue the following commands:

```
export X_SITE="//'dyn_alc_hlq.HOSTS.SITEINFO'"  
export X_ADDR="//'dyn_alc_hlq.HOSTS.ADDRINFO'"  
export RESOLVER_CONFIG="//'TCPIP_DATA_name'"
```

7. Test commands from the z/OS UNIX shell

- The following steps may require superuser authority to execute.
- Ensure you have write access to your local directory. Then, in the z/OS UNIX shell, copy the verification shell script to your local directory. For example:

```
cp /usr/lpp/tcpip/samples/ivp.scp /your_target_directory/ivp.scp
```

- Run the shell script, directing output to a file.

```
ivp.scp > ivp.out
```

- The following tests are done by the shell script. The script will display the expected results and the actual results.


```
oping loopback
onetstat -h
```

- Review the `ivp.out` file, ensuring the actual results match the expected results.

8. Test the following commands from the MVS operator console

- Issue the following DISPLAY command:

```
display tcpip,TCPIP_procname,netstat,home
```

- Expected results:

```
EZZ2500I NETSTAT CS VxRy TCPIP_procname
```

```
HOME ADDRESS LIST:
```

ADDRESS	LINK	FLG
127.0.0.1	LOOPBACK	P

```
1 OF 1 RECORDS DISPLAYED
```

9. Run the IVPFTP batch job to verify that FTP has been correctly set up

- This job will get a sample file, `FTPTESTP`, from the `target_lib_hlq.SEZAINST` partitioned dataset and store it into the `/tmp` directory. It will then get the file from the `/tmp` directory `hfs` and store it in the `IVP_configuration_dsn` partitioned data set as `FTPTESTG`.
- Copy IVP test job to your chosen JCL dataset: `target_lib_hlq.SEZAINST(IVPFTP)` to `IVP_jcllib_dsn(IVPFTP)`
- Fill in any required parameters on the `//JOB` statement.
- Change the `//SYSFTPD` DD card to set the DSN variable to `IVP_configuration_dsn(FTCDATA)`, or accept the default of `'TCPIVP.TCPPARMS(FTCDATA)'` for the FTP client `FTP.DATA` file.
- Change the `//SYSTCPD` DD card to set the DSN variable to `TCPIP_DATA_name`, or accept the default of `'TCPIVP.TCPPARMS(TCPDATA)'`.
- Change the input values for `'userid password'` to match the TSO user ID and password to be used for the FTP client. For example:

```
USER1 USER1PW
```

- Change the `PUT` statement to specify the appropriate `SEZAINST` dataset for sample dataset to be moved: `'tcpip'` to `target_lib_hlq`.
- Change the `GET` statement to specify the appropriate location for the retrieved dataset: `'TCPIVP.TCPPARMS'` to `IVP_configuration_dsn` (or accept the default of `'TCPIVP.TCPPARMS'`)
- Submit batch `IVPFTP`

Expected results:

- The job should complete with condition code zero.
- The `/tmp` directory should contain a file called `ftpctestp`.
- The `IVP_configuration_dsn` should contain member `FTPTESTG`.
- Both the new file and the new partitioned dataset member should contain the one line:

```
The File Transfer Protocol is working!!!
```

8.6.4.2 Run the DFSMS Installation Verification Procedure: To test the successful installation of DFSMS, run the following IVPs found in SAMPLIB:

DFPS1IVP DFPS2IVP DFPS3IVP DFPX1IVP DFPX2IVP DFPX3IVP

Note: The members with the prefix 'DFPS' use SMS managed volumes and datasets. The members with the prefix 'DFPX' use non-SMS managed volumes and datasets.

8.6.4.2.1 DFSMSdtp OAM Installation Verification Procedure: It is recommended that you run the OAM Installation Verification Program (CBRSAMIV) at initial installation and at migration. CBRSAMIV verifies that OAM object support is successfully installed and operational. It ensures that the proper environment exists for applications to utilize the OSREQ Macro Application Programming Interface (API).

For detailed information about how to run the IVP program (CBRSAMIV) and invoke the OSREQ API, refer to *z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support*.

8.6.4.3 DFSMSrmm Installation Verification Procedures

DFSMSrmm Samples Provided in SAMPLIB

- EDGIVPPM Sample Parmlib for Use in the IVP
- EDGIVP1 IVP Job 1 to Initialize Tape Volumes
- EDGIVP2 IVP Job 2 to Use Tape Volumes

This topic helps you prepare for and run the DFSMSrmm installation verification procedures (IVP). You can use the IVP to ensure that the DFSMSrmm functional component has been successfully installed by SMP/E and can be activated on your system. The IVP does not test all the functions in DFSMSrmm but validates that the key interfaces are in place.

8.6.4.3.1 Preparing to run the IVP: Before you run the IVP, you need to activate some of DFSMSrmm's functions. This topic lists and describes the steps you should perform to set up DFSMSrmm for the IVP. Chapter 2, *Implementing DFSMSrmm in z/OS DFSMSrmm Implementation and Customization Guide* contains all the steps needed to install DFSMSrmm.

If this is first time you are setting up DFSMSrmm, follow all the steps described in this topic. If your system has previously been set up for use with DFSMSrmm, you might not need to perform all the steps listed here. Evaluate your installation setup to determine which steps you can omit.

1. Install DFSMSrmm with SMP/E.

Ensure that DFSMS including DFSMSrmm is SMP/E applied.

Once you have used SMP/E to install DFSMSrmm, IPL your system without performing any implementation tasks and have DFSMSrmm take no part in removable media management. The ability to run without DFSMSrmm is especially helpful if you are running another tape management product in production.

2. Update SYS1.PARMLIB members.

For detailed instructions, see "Step 5: Updating SYS1.PARMLIB Members" in *z/OS DFSMSrmm Implementation and Customization Guide*. At a minimum, you should update IEFSSNxx. Also update IFAPRDxx member in SYS1.PARMLIB to enable DFSMSrmm".

3. Update the procedure library.

Refer to "Step 8: Updating the Procedure Library" in *z/OS DFSMSrmm Implementation and Customization Guide* for detailed instructions. Use member EDGDFRMM of SYS1.SAMPLIB as a sample DFSMSrmm procedure.

4. Assign DFSMSrmm a RACF user ID.

Perform this step if you want to use a specific RACF user ID for DFSMSrmm during the IVP. When running on a system with RACF installed, assign DFSMSrmm a RACF user ID by adding a profile in the STARTED class as described in "Step 9: Assigning DFSMSrmm a RACF User ID" in *z/OS DFSMSrmm Implementation and Customization Guide*. You can use the DFSMSrmm procedure name that you created in Step 3 as the RACF user ID but any installation-selected RACF user ID is acceptable. As data sets are created for use by the DFSMSrmm procedure, add the RACF user ID to the access list for the data sets. "Table 6. Data Sets Requiring Access by the DFSMSrmm RACF User ID" in *z/OS DFSMSrmm Implementation and Customization Guide* lists the data sets that the DFSMSrmm procedure should be able to access.

If you are using an equivalent security product, review the RACF-related information to determine the changes that might be required to run DFSMSrmm with that product.

5. Define parmlib member EDGRMMxx.

Refer to "Step 10: Defining Parmlib Member EDGRMMxx" in *z/OS DFSMSrmm Implementation and Customization Guide* for detailed instructions. Use member EDGIVPPM of SYS1.SAMPLIB as a sample parmlib member.

6. Specify DFSMSrmm options.

Refer to *z/OS DFSMSrmm Implementation and Customization Guide* for information on tailoring the DFSMSrmm sample parmlib member EDGIVPPM to specify DFSMSrmm options for the IVP.

During the IVP, DFSMSrmm runs in record-only mode. DFSMSrmm records information about tape volumes, but does no validation. You can tailor EDGIVPPM to specify that DFSMSrmm run in warning mode or protect mode if you want DFSMSrmm to validate volumes.

If you are running the IVP on a system with no other tape management system you can select any mode: record-only, warning or protect. If there is a possibility of accidental use of the wrong tape volumes, we suggest that you run in protect mode. However, if you run the IVP on a system where others are using tape including the use of scratch tapes, be aware that DFSMSrmm rejects all scratch tapes not defined to it while running in protect mode. See "Defining System Options: OPTION" in *z/OS DFSMSrmm Implementation and Customization Guide* for information about DFSMSrmm modes of operation.

7. Create the DFSMSrmm control data set.

Refer to *z/OS DFSMSrmm Implementation and Customization Guide* for detailed instructions. You can use the sample JCL in member EDGJMFAL in SYS1.SAMPLIB to allocate a control data set. Ensure that the control data set name is the same as that specified in the parmlib member

EDGRMMxx that you created. Initialize the control data set by running the EDGUTIL utility. You can use the sample JCL in member EDGJUTIL in SYS1.SAMPLIB. Set the rack and bin count fields to 0.

8. Create the journal.

Refer to *z/OS DFSMSrmm Implementation and Customization Guide* for detailed instructions. You can use sample JCL in member EDGJNLAL in SYS1.SAMPLIB to allocate a journal data set.

9. Make the DFSMSrmm ISPF Dialog available to users.

Refer to *z/OS DFSMSrmm Implementation and Customization Guide* for detailed instructions.

10. Restart z/OS with DFSMSrmm implemented.

You are ready to start the system with DFSMSrmm implemented. Refer to *z/OS DFSMSrmm Implementation and Customization Guide* for information on conditions that determine if you need to IPL the system to restart z/OS with DFSMSrmm implemented. Perform this step so that the changes you made to IEFSSNxx and other parmlib members when you performed Step 2 take effect.

11. Start DFSMSrmm.

Refer to "Step 19: Starting DFSMSrmm" for detailed instructions. When you start DFSMSrmm, if it issues message EDG0103D, reply 'RETRY'. If you do not reply 'RETRY', DFSMSrmm will not record any tape usage activity.

DFSMSrmm is activated and you are ready to run the IVP.

8.6.4.3.2 Running the IVP: To run the IVP, perform these steps:

1. You need three tape volumes that do not have any data on them, and a single tape unit online to your system. Ask your tape librarian to externally label these volumes EDG000, EDG001, and EDG002 for your testing.

Ensure that the tape volumes you use are suitable for use with DFSMSrmm during the IVP. For example, if you have an existing tape management system, check that the volumes are either not managed by it or are designated for use with DFSMSrmm for testing.

2. Ensure that TSO help information has been correctly installed by entering this command from a TSO terminal:

```
HELP RMM
```

DFSMSrmm lists help information for the RMM TSO subcommand, including a list of subcommands, function, syntax, and operands.

3. Add some shelf locations to DFSMSrmm by entering this RMM TSO command from a TSO terminal:

```
RMM ADDRACK RMM000 COUNT(10)
```

4. Add some volumes to DFSMSrmm by using the DFSMSrmm ISPF dialog. Enter this command from a TSO terminal:

```
%RMMISPF
```

DFSMSrmm displays the DFSMSrmm ISPF dialog primary option menu as shown in Figure 61 on page 251.

```

Panel Help
-----
EDG@PRIM          REMOVABLE MEDIA MANAGER (DFSMSrmm) - z/OS V2R1
Option ==> VOLUME

0  OPTIONS      - Specify dialog options and defaults
1  USER        - General user facilities
2  LIBRARIAN   - Librarian functions
3  ADMINISTRATOR - Administrator functions
4  SUPPORT     - System support facilities
5  COMMANDS    - Full DFSMSrmm structured dialog
6  LOCAL      - Installation defined dialog
X  EXIT       - Exit DFSMSrmm Dialog

Enter selected option or END command.  For more info., enter HELP
or PF1.

```

Figure 61. DFSMSrmm Primary Option Menu

Enter **VOLUME** on the option line to display the DFSMSrmm Volume Menu, as shown in Figure 61. DFSMSrmm displays a panel, as shown in Figure 62.

```

Panel Help
-----
EDGPT000          DFSMSrmm Volume Menu
Option ==>

0  OPTIONS      - Specify dialog options and defaults
1  DISPLAY     - Display volume information
2  ADD         - Add a new volume
3  CHANGE     - Change volume information
4  RELEASE    - Delete or release a volume
5  SEARCH     - Search for volumes
6  REQUEST    - Request a volume
7  ADDSCR     - Add one or more SCRATCH volumes
8  CONFIRM    - Confirm librarian or operator actions
9  STACKED    - Add one or more stacked volumes

Enter selected option or END command.  For more info., enter
HELP or PF1.

```

Figure 62. DFSMSrmm Volume Menu

Select option 7, **ADDSCR**, and press **ENTER**. DFSMSrmm displays the DFSMSrmm Add Scratch Volumes panel shown in Figure 63 on page 252. Complete the details as shown in the panel and press **ENTER**:

```

Panel  Help
-----
EDGPT230          DFSMSrmm Add Scratch Volumes
Command ==>

Volume . . . . . EDG000      Pool . . . . .
                        or
Volume type . . . . PHYSICAL Rack . . . . . RMM000
Media name . . . . . 3480
Vendor . . . . .           Media information .
Storage group . . . .      Location name . . . SHELF

Count . . . . . 3          ( Default is 1 )

Description . . . .
Account number . . .
Assigned date . . . 2007/340  YYYY/DDD      MVS use . . . . YES
Assigned time . . . 02:14:38                VM use . . . . NO
Create date . . . . 2007/340                IRMM use . . . .
Create time . . . . 02:14:38

Media type . . . . . CST
Label . . . . . SL      ( AL, NL or SL )
  Current version      Label version number( for example 3 )
  Required version     Label version number( for example 4 )
Density . . . . . 3480 ( 1600, 3480, 6250 or * )
Initialize . . . . . YES ( Default is YES )

Press ENTER to ADD one or more SCRATCH volumes, or END command
to CANCEL.

```

Figure 63. DFSMSrmm Add Scratch Volumes Panel

DFSMSrmm displays the message 3 volumes added in the right hand corner of the screen.

Exit the DFSMSrmm ISPF dialog by entering =X on the command line.

5. Initialize tape volumes by editing and submitting the JCL in member EDGIVP1 in SYS1.SAMPLIB.
Mount the three tape volumes requested by this job in the sequence EDG002, EDG001, and EDG000.

Ensure that the job completes with a return code of zero and the expected messages in EDGIVP1 are in the job output.
6. Write data to tape volumes by editing and submitting the JCL in member EDGIVP2 in SYS1.SAMPLIB.
Mount the three tape volumes requested by this job in the sequence EDG000, EDG001, and EDG002.
Use the three volumes initialized in Step 5.

Ensure that all steps of the job complete with a return code of zero. Message IEC502E is issued when the job finishes with the second volume, EDG001. Check that the message in the SYSLOG contains the text RACK=RMM001 on the right hand side as follows:

```
IEC502E RK ddd,EDG001,SL,jjjjjjjj,WRITE22 - RACK=RMM001
```

7. To display data set information that is recorded by DFSMSrmm, enter these RMM TSO subcommands:

```
RMM LISTDATASET 'RMMIVP.TEST1' VOLUME(EDG000) SEQ(1)
RMM LISTDATASET 'RMMIVP.TEST2' VOLUME(EDG000) SEQ(2)
RMM LISTDATASET 'RMMIVP.TEST3' VOLUME(EDG001) SEQ(1)
RMM LISTDATASET 'RMMIVP.TEST4' VOLUME(EDG001) SEQ(2)
RMM LISTDATASET 'RMMIVP.TEST4' VOLUME(EDG002) SEQ(1)
```

DFSMSrmm displays data set information, as shown in Figure 64 on page 254.

```

Data set name : 'D008210.TEST.DATASET'
Volume serial : RFA030      Physical file sequence number : 1
Owner . . . . : D008210      Data set sequence number . . . : 1
                                   More: +
Job name . . . : D008210J
Step name . . . : WRITEJ1      Record format . . . . : F
Program name :                Block size . . . . . : 80
DD name . . . :                Logical record length: 80
Create date . . : 2012/331     YYYY/DDD Block count . . . . . : 5
Create time . . : 05:40:18     Data set size (KB) . . : 1
System id . . . : EZU35        Physical size (KB) . . : 8
                                   Compression . . . . . : 0.13
                                   Total block count . . . : 0
Expiration date: 2012/336     YYYY/DDD Percent of volume . . : 0
Set by . . . . : CMD_DEF      Device number . . . . : 1D01
Original . . . :              YYYY/DDD
LASTREF extra days: 0

Last job name . . : D008210J      Last DD name . . . . : SYSUT2
Last step name . . : WRITEJ1      Last device number . . : 1D01
Last program name: IEBGENER
Date last read . . : 2012/331     VRS management value :
Date last written: 2012/331     Management class . . :
Closed by Abend. . : NO          Data class . . . . . : DCMED13
Deleted . . . . : NO            Storage class . . . . : SCVTS01
Catalog status . . : UNKNOWN     Storage group . . . . :
VRS retained . . . : NO         Retention date . . . . :
VRSEL exclude. . . : YES

Primary VRS details:(Use MATCHVRS primary command to display
matching VRSEs)
VRS name. . . :
Job name. . . :                VRS type . . . . . :
Subchain name:                Subchain start date :

Secondary VRS details:
Value or class :
Job name . . . :
Subchain name. . :                Subchain start date :

Security name. . :                BES key index . . . . : 0
Classification . . :

Last Change information:
Date . . . . . : 2012/331     Time.: 04:42:49     System : UNCM0050
User change date:                Time.: 04:42:49     User ID: *OCE

```

Figure 64. Sample Data Set Information

To cleanup after running the IVP or to prepare to rerun the IVP, issue these commands to remove information from the DFSMSrmm control data set.


```
RMM DELETEVOLUME EDG000 FORCE
RMM DELETEVOLUME EDG001 FORCE
RMM DELETEVOLUME EDG002 FORCE
RMM DELETERACK RMM000 COUNT(10)
```

When you have completed running the IVP, you can return the three volumes to your tape library.

8.6.4.4 DFSMShsm Installation Verification Procedures: The DFSMShsm installation verification procedure (IVP) is an optional procedure that verifies that the DFSMShsm product is correctly installed and can be started and stopped using a minimum of DASD resources.

When the System Modification Program/Extended (SMP/E) installs the DFSMShsm product modules onto an MVS system, it places the ARCIVPST member into SYS1.SAMPLIB. This ARCIVPST member is the job that you run for the IVP procedure.

Note: If you have not performed an initial program load for your MVS system with the CLPA (clear link pack area) option, do it before you run DFSMShsm.

8.6.4.4.1 Setup requirements: The following information is required to run the DFSMShsm IVP:

- The catalog, with its associated alias, which must be defined before attempting to run the IVP.
- The name of the IVP user ID.
- A high-level qualifier for the data sets that are required by the IVP.
- A volume serial number and unit type of a device containing one free cylinder for a temporary user catalog.
- A name for a temporary user catalog for the migration control data set (MCDS).
- The name of the system master catalog.
- The job control parameters for each job. (Usually this is defined as HSM.)
- The volume serial number and unit type of a device containing one free cylinder for a temporary MCDS.
- The version of JES (either JES2 or JES3) on the system.

Note: In an SMS environment, no consideration is given to whether data sets allocated by the IVP are SMS or non-SMS managed.

8.6.4.4.2 Steps for running the Installation Verification Procedure: The following steps are used to prepare for and run the DFSMShsm installation verification procedure:

1. Edit the job ARCIVPST inserting the correct parameters in the job statement. See "HSMIVP" in *z/OS DFSMShsm Implementation and Customization Guide* for a listing of ARCIVPST.
2. After the edit, run the job in ARCIVPST. The result of this job is a partitioned data set named DFSMSHSM.IVP.CNTL, containing the member HSMIVP1. The partitioned data set is allocated on one cylinder of SYSDA.
3. Edit member HSMIVP1 in the DFSMSHSM.IVP.CNTL data set. Globally change the HSMIVP1 parameters by substituting the values determined in 8.6.4.4.1, "Setup requirements." For a listing of HSMIVP1 parameters, see "HSMIVP1" in *z/OS DFSMShsm Implementation and Customization Guide*.
4. Run the HSMIVP1 job to create the following:

- A user catalog
- An MCDS VSAM data set
- A startup procedure DFSMSHSM in SYS1.PROCLIB

Note: If a startup procedure named DFSMSHSM already exists in the SYS1.PROCLIB data set, it will be overwritten.

- Members ARCCMD00, HSMIVP2, and UCLINCHK in the partitioned data set DFSMSHSM.IVP.CNTL

Rule: If the HSMIVP1 job is submitted while you are editing member HSMIVP1, you must exit the edit so that the HSMIVP1 job can update the partitioned data set DFSMSHSM.IVP.CNTL.

5. After job HSMIVP1 has completed, start DFSMSHsm by typing the command **S DFSMSHSM** from the system console.
6. Review the console messages created as IVP output. Scan the console for messages ARC0001I and ARC0008I informing you that DFSMSHsm has started and that initialization has completed. See Figure 65 on page 257 for an example of the console screen. For a description of the messages, use LookAt or see *MVS System Messages*.
7. Run job UCLINCHK.

The job attempts actions which fail if DFSMSHsm is correctly installed; you should expect to receive message SYSTEM ACTION AGAINST A MIGRATED DATA SET FAILED or DATA SET IS NOT MIGRATED/BACKED UP and a return code of 12 from IDCAMS. You may also receive other error messages during the IDCAMS job, depending on your system environment:

```
IKJ56231I DATA SET HSM130.UCLINCHK NOT ALLOCATED, SYSTEM OR
INSTALLATION ERROR. DYNAMIC ALLOCATION REASON CODE IS X'000017FF'
```

```
IGD04001I UNEXPECTED CATALOG LOCATE PROCESSING ERROR - RETURN CODE 38
REASON CODE 4
```

```
IDC3003I FUNCTION TERMINATED, CONDITION CODE IS 12
```

Note: A request to mount volume "MIGRAT" is an error condition that indicates that UCLIN has not run or has not run correctly.

Do not progress to the next step until the UCLINCHK job has run with the result described in Step 7.

```

IEF196I IEF237I JES2 ALLOCATED TO SYSLOG01
SPSET  --WAITING FOR SYSLOG CLEANOUT
IEE042I SYSTEM LOG DATA SET INITIALIZED
IEF196I IEF285I  +MASTER+.SYSLOG.STC00002.D0000101.?      SYSOUT
IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT CLASS 9
IEF196I IEF237I 083D ALLOCATED TO SYS00101
IEF196I IEF285I  REG.LOAD                                KEPT
IEF196I IEF285I  VOL SER NOS= DFPTL3.
S DFPLVL
K S,DEL=RD,CON=N,RTME=001,L=01
CNZ0005I K REJECTED. REASON=CONSOLE IS NOT DEFINED
$HASP395 SPSET      ENDED
IEA989I SLIP TRAP ID=X33E MATCHED.  JOBNAME=*UNAVAIL, ASID=0034.
$HASP100 DFPLVL   ON STCINRDR
IEF695I START DFPLVL WITH JOBNAME DFPLVL IS ASSIGNED TO USER
IBMUSER , GROUP SYS1
$HASP373 DFPLVL  STARTED
DFPLVL V1.18 10/28/93. OWNER= PEDRO AT STLMVS3
***
***
***      LEVEL OF MVSRES IS S8AD2217 S21D701 ZV2R1 FX121128
12/03/12 13.50
***(IPL) LEVEL OF SYSRES IS S8AD2217 S21D701 ZV2R1 FX121128
12/03/12 13.50
***
$HASP395 DFPLVL   ENDED
IEA989I SLIP TRAP ID=X33E MATCHED.  JOBNAME=*UNAVAIL, ASID=0035.
S DFSMSHSM
$HASP100 DFSMSHSM ON STCINRDR
IEF695I START DFSMSHSM WITH JOBNAME DFSMSHSM IS ASSIGNED TO USER
IBMUSER , GROUP SYS1
$HASP373 DFSMSHSM STARTED
ARC0041I MEMBER ARCSTR00 USED IN DFSMSHSM.IVP.CNTL
ARC0036E I/O DISABLED FOR DFSMSHSM PROBLEM 273
ARC0036E (CONT.) DETERMINATION OUTPUT DATA SET, REAS= 1
ARC0020I *****
ARC0036E I/O DISABLED FOR DFSMSHSM PROBLEM 275
ARC0036E (CONT.) DETERMINATION OUTPUT DATA SET, REAS= 2
ARC0021I DFSMSHSM LOGGING FUNCTION DISABLED
ARC0020I *****
*ARC0035E DFSMSHSM JOURNAL IS PERMANENTLY DISABLED, 278
ARC0035E (CONT.) REASON=8
*ARC0860E JOURNAL SPACE MONITORING DISABLED - RC=24. 279
ARC0860E (CONT.) MIGRATION, BACKUP, FRBACKUP, DUMP, AND RECYCLE
HELD.

```

Figure 65 (Part 1 of 7). Example of a z/OS V2.1.0 DFSMSHsm Startup Screen (IVP)

```
ARC0001I DFSMSHSM 2.1.0 STARTING HOST=1 IN 280
ARC0001I (CONT.) HOSTMODE=MAIN
IEC130I BAKCAT DD STATEMENT MISSING
ARC0945I OPEN OF DDNAME=BAKCAT FAILED, VSAM REASON 282
ARC0945I (CONT.) CODE IS X'80'
*ARC0134I BACKUP CONTROL DATA SET NOT OPENED, BACKUP 283
ARC0134I (CONT.) WILL NOT BE ENABLED
IEC130I OFFCAT DD STATEMENT MISSING
ARC0945I OPEN OF DDNAME=OFFCAT FAILED, VSAM REASON 285
ARC0945I (CONT.) CODE IS X'80'
ARC0133I OFFLINE CONTROL DATA SET NOT OPENED, TAPE 286
ARC0133I (CONT.) SUPPORT WILL NOT BE ACTIVE
ARC6374E BCDS IS NOT DEFINED, AGGREGATE BACKUP AND 287
ARC6374E (CONT.) RECOVERY FUNCTIONS ARE DISABLED
ARC1700I DFSMSHSM COMMANDS ARE RACF PROTECTED
ARC0041I MEMBER ARCCMD00 USED IN DFSMSHSM.IVP.CNTL
ARC0100I SETSYS COMMAND COMPLETED
ARC0101I QUERY SETSYS COMMAND STARTING ON HOST=1
ARC0147I BUDENSITY=*, BUUNIT=3590-1, BU RECYCLE 292
ARC0147I (CONT.) PERCENTAGE=020%, MOUNT WAIT
ARC0147I (CONT.) TIME=015 MINUTE(S),
ARC0147I (CONT.) TAPESPANSIZE(0500)
ARC0419I SELECTVOLUME=SCRATCH, 293
ARC0419I (CONT.) TAPEDELETION=SCRATCHTAPE,
ARC0419I (CONT.) PARTIALTAPE=REUSE, DISASTERMODE=NO
ARC0259I TAPEDATASETORDER=PRIORITY
ARC0408I INPUT TAPE ALLOCATION=NOWAIT, OUTPUT TAPE 295
ARC0408I (CONT.) ALLOCATION=NOWAIT, RECYCLE TAPE
ARC0408I (CONT.) ALLOCATION=NOWAIT,
ARC0408I (CONT.) TAPEFORMAT=SINGLEFILE
ARC0417I TAPE INPUT PROMPT FOR BACKUPTAPES=YES
ARC0417I TAPE INPUT PROMPT FOR DUMPTAPES=YES
ARC0417I TAPE INPUT PROMPT FOR MIGRATIONTAPES=YES
ARC0442I TAPE OUTPUT PROMPT FOR TAPECOPY=NO, DUPLEX 299
ARC0442I (CONT.) BACKUP TAPES=NO, DUPLEX MIGRATION
ARC0442I (CONT.) TAPES=NO
ARC0410I TAPEMIGRATION=NONE(ROUTETOTAPE(ANY)), 300
ARC0410I (CONT.) MIGDENSITY=*, MIGUNIT=3590-1, ML2
ARC0410I (CONT.) RECYCLE PERCENTAGE=020%,
ARC0410I (CONT.) TAPEMAXRECALLTASKS=01, ML2 PARTIALS
ARC0410I (CONT.) NOT ASSOCIATED GOAL=010,
ARC0410I (CONT.) RECONNECT(NONE)
ARC0411I TAPESECURITY=PASSWORD, DEFERMOUNT
```

Figure 65 (Part 2 of 7). Example of a z/OS V2.1.0 DFSMSHsm Startup Screen (IVP)

```

ARC0412I RECYCLEOUTPUT BACKUP=**NONE**, 302
ARC0412I (CONT.) MIGRATION=**NONE**,
ARC0412I (CONT.) RECYCLETAKEAWAYRETRY=(NO,
ARC0412I (CONT.) MAXRETRYATTEMPTS=12, DELAY=0300)
ARC0840I MAXRECYCLETASKS=02, RECYCLE INPUT 303
ARC0840I (CONT.) DEALLOCATION FREQUENCY BACKUP=000
ARC0840I (CONT.) MIGRATION=000
ARC0149I MONITOR STARTUP NOSPACE NOVOLUME, MCDS(080), 304
ARC0149I (CONT.) BCDS( 0), OCDS( 0), JOURNAL( 0)
ARC0150I JOURNAL=NONE, LOG=NO, TRACE=NO, SMFID=NONE, 305
ARC0150I (CONT.) DEBUG=NO, EMERG=NO, JES=3,
ARC0150I (CONT.) SYSIDUMP=YES, RACFIND=YES,
ARC0150I (CONT.) ERASEONSCRATCH=NO, PDA=ON,
ARC0150I (CONT.) DSSXMMODE=(BACKUP=NO, CDSBACKUP=NO,
ARC0150I (CONT.) DUMP=NO, MIGRATION=NO, RECOVERY=NO)
ARC0151I DAYS=001, ML1DAYS=060, 306
ARC0151I (CONT.) PRIMARYSPMGMTSTART=(0000 NONE),
ARC0151I (CONT.) MAXMIGRATIONTASKS=0002,
ARC0151I (CONT.) INTERVALMIGRATION=YES,
ARC0151I (CONT.) MIGRATIONCLEANUPDAYS(0010 0030
ARC0151I (CONT.) 0003), SDSP=NONE, MIGRATION
ARC0151I (CONT.) PREFIX=DFHSM, SCRATCH EXPIRED DATA
ARC0151I (CONT.) SETS=NO, SECONDARYSPMGMTSTART=(0000
ARC0151I (CONT.) NONE)
ARC0267I MIGRATIONSUBTASKS=NO, 307
ARC0267I (CONT.) ADDITIONALMIGSUBTASKS=**
ARC0272I PRIMARY SPACE MGMT CYCLE LENGTH=01 DAYS, 308
ARC0272I (CONT.) CYCLE=Y, TODAY IS DAY=0, CYCLE
ARC0272I (CONT.) START DATE=05/04/05
ARC0272I SECONDARY SPACE MGMT CYCLE LENGTH=01 DAYS, 309
ARC0272I (CONT.) CYCLE=Y, TODAY IS DAY=0, CYCLE
ARC0272I (CONT.) START DATE=05/04/05,
ARC0272I (CONT.) ML1OVERFLOW(DATASETSIZE=002000000K,
ARC0272I (CONT.) THRESHOLD=080)
ARC0139I MAXINTERVALTASKS=02, ONDEMANDMIGRATION=NO, 310
ARC0139I (CONT.) ODMNOTIFICATIONLIMIT=00100,
ARC0139I (CONT.) MAXSSMTASKS(TAPEMOVEMENT=01, CLEANUP=02)
ARC0374I ACCEPTPSCBUSERID=NO
ARC0152I MAXRECALLTASKS=15, 312
ARC0152I (CONT.) RECALL=ANYSTORAGEVOLUME(LIKE),
ARC0152I (CONT.) MAXEXTENTS=00, CONVERSION=NO,
ARC0152I (CONT.) VOLCOUNT=**NONE*,
ARC0152I (CONT.) TAPERECALLLIMITS(TASK=00015,
ARC0152I (CONT.) TAPE=00020)

```

Figure 65 (Part 3 of 7). Example of a z/OS V2.1.0 DFSMShsm Startup Screen (IVP)

```

ARC0153I SCRATCHFREQ=9999, SYSOUT(CLASS=A, COPIES=01, 313
ARC0153I (CONT.) SPECIAL FORMS=NONE), SWAP=NO, PERMISSION=NO
ARC0153I (CONT.) EXITS=NONE, UNLOAD=NO, DATASETSERIALIZATION=DFHSM,
ARC0153I (CONT.) USECMS=NO,
ARC0418I TAPEUTILIZATION PERCENT=0097, 314
ARC0418I (CONT.) LIBRARYMIGRATION
ARC0418I TAPEUTILIZATION PERCENT=0097, LIBRARYBACKUP
ARC0418I TAPEUTILIZATION PERCENT=0097, UNIT=3480 316
ARC0418I (CONT.) CAPACITYMODE=**NONE**
ARC0418I TAPEUTILIZATION PERCENT=0097, UNIT=3480X 317
ARC0418I (CONT.) CAPACITYMODE=**NONE**
ARC0418I TAPEUTILIZATION PERCENT=0097, UNIT=3490 318
ARC0418I (CONT.) CAPACITYMODE=**NONE**
ARC0418I TAPEUTILIZATION PERCENT=0097, UNIT=3590-1 319
ARC0418I (CONT.) CAPACITYMODE=**NONE**
ARC0638I MAXDUMPTASKS=02, ADSTART=(0000 0000 0000), 320
ARC0638I (CONT.) DUMPIO=(1,4), VOLUMEDUMP=(STANDARD),
ARC0638I (CONT.) MAXDUMPRECOVERTASKS=01
ARC0274I BACKUP=NO, SPILL=NO, MAXDSRECOVERTASKS=02, 321
ARC0274I (CONT.) MAXDSTAPERECOVERTASKS=02
ARC0154I MAXBACKUPTASKS=02, ABSTART= (0000 0000 322
ARC0154I (CONT.) 0000), VERSIONS=002, FREQUENCY=000,
ARC0154I (CONT.) SKIPABPRIMARY=NO, BACKUP
ARC0154I (CONT.) PREFIX=DFHSM,
ARC0154I (CONT.) INCREMENTALBACKUP=ORIGINAL,
ARC0154I (CONT.) PROFILEBACKUP=YES, INUSE=(RETRY=NO,
ARC0154I (CONT.) DELAY=015, SERIALIZATION=REQUIRED)
ARC0269I DS DASD BACKUP TASKS=02, DS TAPE BACKUP 323
ARC0269I (CONT.) TASKS=02, DEMOUNTDELAY=0060,
ARC0269I (CONT.) MAXIDLETASKS=00, DS BACKUP MAX DASD
ARC0269I (CONT.) SIZE=000003000, DS BACKUP STD DASD
ARC0269I (CONT.) SIZE=000003000, SWITCHTAPES
ARC0269I (CONT.) TIME=0000, PARTIALTAPE=MARKFULL,
ARC0269I (CONT.) GENVSAMCOMPNames=YES
ARC1823I MAXCOPYPPOOL (FRBACKUP TASKS=0015, FRRECOV 324
ARC1823I (CONT.) TASKS=0015, DSS TASKS=0024),
ARC1823I (CONT.) FASTREPLICATION(DATASETRECOVERY=
ARC1823I (CONT.) NONE FCRELATION=EXTENT
ARC1823I (CONT.) VOLUMEPAIRMESSAGES=NO)

```

Figure 65 (Part 4 of 7). Example of a z/OS V2.1.0 DFSMSHsm Startup Screen (IVP)

```

ARC0375I CDSVERSIONBACKUP, 325
ARC0375I (CONT.) MCDSBACKUPPSN=DFHSM.MCDS.BACKUP,
ARC0375I (CONT.) BCDSBACKUPPSN=DFHSM.BCDS.BACKUP,
ARC0375I (CONT.) OCDSBACKUPPSN=DFHSM.OCDS.BACKUP,
ARC0375I (CONT.) JRNLBACKUPPSN=DFHSM.JRNL.BACKUP
ARC0376I BACKUPCOPIES=0001, 326
ARC0376I (CONT.) BACKUPDEVICECATEGORY=DASD,
ARC0376I (CONT.) LATESTFINALQUALIFIER=V0000000,
ARC0376I (CONT.) DATAMOVER=HSM
ARC0203I CSALIMITS=YES, CSA CURRENTLY USED=0 BYTES, 327
ARC0203I (CONT.) MWE=4, MAXIMUM=100K BYTES,
ARC0203I (CONT.) ACTIVE=90%, INACTIVE=30%
ARC0340I COMPACTION OPTIONS ARE: TAPEMIGRATION=NO, 328
ARC0340I (CONT.) DASDMIGRATION=NO, TAPEBACKUP=NO,
ARC0340I (CONT.) DASDBACKUP=NO,
ARC0340I (CONT.) TAPEHARDWARECOMPACT=NO
ARC0341I COMPACT PERCENT IS 40%
ARC0339I OPTIMUMDASDBLOCKING=YES, LOGGING LEVEL=FULL, 330
ARC0339I (CONT.) LOG TYPE=SYSOUT A
ARC6008I AGGREGATE BACKUP/RECOVERY PROCNAME = 331
ARC6008I (CONT.) DFHSMABR
ARC6009I AGGREGATE BACKUP/RECOVERY MAXADDRESSSPACE = 332
ARC6009I (CONT.) 01
ARC6366I AGGREGATE BACKUP/RECOVERY UNIT NAME = 3590-1
ARC6368I AGGREGATE BACKUP/RECOVERY ACTIVITY LOG 334
ARC6368I (CONT.) MESSAGE LEVEL IS FULL
ARC6371I AGGREGATE RECOVERY ML2 TAPE UNIT NAME = 335
ARC6371I (CONT.) 3590-1
ARC6372I NUMBER OF ABARS I/O BUFFERS = 01
ARC6373I ABARS ACTIVITY LOG OUTPUT TYPE = SYSOUT(A)
ARC6033I AGGREGATE RECOVERY UNIT NAME = 3590-1
ARC6036I AGGREGATE BACKUP OPTIMIZE = 3
ARC6036I AGGREGATE RECOVERY TGTGDS = SOURCE
ARC6036I AGGREGATE RECOVERY ABARSVOLCOUNT = *NONE*
ARC6036I AGGREGATE RECOVERY PERCENTUTILIZED = 080
ARC6036I AGGREGATE BACKUP/RECOVERY 343
ARC6036I (CONT.) ABARSDELETEACTIVITY = NO
ARC6036I AGGREGATE BACKUP/RECOVERY ABARSTAPES = STACK
ARC6036I AGGREGATE BACKUP ABARSKIP = NOPPRC, NOXRC
ARC1500I PLEXNAME=ARCPLEX0,PROMOTE PRIMARYHOST=NO, 346
ARC1500I (CONT.) PROMOTE SSM=NO,COMMON RECALL QUEUE
ARC1500I (CONT.) BASE NAME=*****,COMMON RECALL QUEUE
ARC1500I (CONT.) TAPEDATASETORDER=*****
ARC0468I EXTENDEDTOC=N

```

Figure 65 (Part 5 of 7). Example of a z/OS V2.1.0 DFSMShsm Startup Screen (IVP)

```

ARC0278I CLASSTRANSITIONS EVENTDRIVENMIGRATION=Y, 348
ARC0278I (CONT.) SERIALIZATIONEXIT=N
ARC0101I QUERY SETSYS COMMAND COMPLETED ON HOST=1
ARC0101I QUERY STARTUP COMMAND STARTING ON HOST=1
ARC0143I PARMLIB MEMBER=ARCCMD00, DFSMSHSM 351
ARC0143I (CONT.) AUTHORIZED USERID=DFHSM, HOSTID=1,
ARC0143I (CONT.) PRIMARY HOST=YES, LOGSW=NO,
ARC0143I (CONT.) STARTUP=YES, EMERGENCY=NO, CDSQ=YES,
ARC0143I (CONT.) CDSR=NO, PDA=YES, RESTART=NOT
ARC0143I (CONT.) SPECIFIED, CDSSHR=NOT SPECIFIED,
ARC0143I (CONT.) RNAMEDSN=NO, STARTUP PARMLIB
ARC0143I (CONT.) MEMBER=ARCSTR00
ARC0249I CELLS=(200,100,100,50,20),HOSTMODE=MAIN
ARC0101I QUERY STARTUP COMMAND COMPLETED ON HOST=1
ARC0101I QUERY CSALIMITS COMMAND STARTING ON HOST=1
ARC0203I CSALIMITS=YES, CSA CURRENTLY USED=0 BYTES, 355
ARC0203I (CONT.) MWE=4, MAXIMUM=100K BYTES,
ARC0203I (CONT.) ACTIVE=90%, INACTIVE=30%
ARC0101I QUERY CSALIMITS COMMAND COMPLETED ON HOST=1
ARC0007I THERE ARE NO VOLUMES IN THE DFSMSHSM GENE 357
ARC0007I (CONT.) RAL POOL
ARC0038I RESOURCE MANAGER SUCCESSFULLY ADDED. 358
ARC0038I (CONT.) RETURN CODE=00
ARC0008I DFSMSHSM INITIALIZATION SUCCESSFUL
HZS0002E CHECK(IBMHSM,HSM_CDSB_VALID_BACKUPS): 360
ARCHC0108E The number of Control Data Set backup copies that
DFSMSHsm is configured to maintain is below the critical level.
HZS0002E CHECK(IBMHSM,HSM_CDSB_BACKUP_COPIES): 361
ARCHC0108E The number of Control Data Set backup copies that
DFSMSHsm is configured to maintain is below the critical level.
*HZS0003E CHECK(IBMHSM,HSM_CDSB_DASD_BACKUPS): 362
ARCHC0111E One or more required control data set backup copies not
found.
F DFSMSHSM,STOP
ARC0016I DFSMSHSM SHUTDOWN HAS BEEN REQUESTED
ARC0002I DFSMSHSM SHUTDOWN HAS COMPLETED
IEF196I IEF237I 0801 ALLOCATED TO SYS00102
$HASP395 DFSMSHSM ENDED
IEA989I SLIP TRAP ID=X33E MATCHED. JOBNAME=*UNAVAIL, ASID=0035.
IEF196I IEF285I SYS2.LINKLIB KEPT
IEF196I IEF285I VOL SER NOS= MVSRES.
$HASP150 DFSMSHSM OUTGRP=1.1.1 ON PRT1 2 (2) RECORDS
$HASP150 DFSMSHSM OUTGRP=2.1.1 ON PRT1 3 (3) RECORDS
$HASP160 PRT1 INACTIVE - CLASS=AJ
S SPENDNOC,NAME=IVP,VERSION=R21X,WAIT1=45,WAIT2=15

```

Figure 65 (Part 6 of 7). Example of a z/OS V2.1.0 DFSMSHsm Startup Screen (IVP)

```

$HASP100 SPENDNOC ON STCINRDR
IEF695I START SPENDNOC WITH JOBNAME SPENDNOC IS ASSIGNED TO USER
IBMUSER , GROUP SYS1
$HASP373 SPENDNOC STARTED
$SPRT1
$HASP000 OK
SPENDNOC--Wait for writing and printing syslog
SPENDNOC--Seconds Wait1 45 and Wait2 15
K S,DEL=RD,CON=N,RTME=001,L=01
CNZ0005I K REJECTED. REASON=CONSOLE IS NOT DEFINED
W A

```

Figure 65 (Part 7 of 7). Example of a z/OS V2.1.0 DFSMSHsm Startup Screen (IVP)

8. After starting DFSMSHsm, ensure that you receive messages ARC0001I and ARC0008I, which indicate that the IVP has successfully completed.

Note that you can expect to see error messages that are issued because many data sets are not allocated until later in the DFSMSHsm installation when the starter set jobs are run.

9. Prevent extraneous error messages from occurring when you stop DFSMSHsm by putting the system in debug mode.

For example, if you specify `F DFSMSHSM,SETSYS DEBUG`, then DFSMSHsm operates in debug mode.

10. Stop DFSMSHsm

For example, if you specify `F DFSMSHSM,STOP`, DFSMSHsm stops with a message ARC0002I, which indicates DFSMSHsm has stopped successfully. See Figure 66 for an example of the shutdown screen.

```

F DFSMSHSM,STOP
ARC0016I DFSMSHsm SHUTDOWN HAS BEEN REQUESTED
ARC0002I DFSMSHsm SHUTDOWN HAS COMPLETED
$HASP395 DFSMSHSM ENDED
$HASP150 DFSMSHSM OUTGRP=1.1.1 ON PRT1 2 (2) RECORDS
$HASP150 DFSMSHSM OUTGRP=2.1.1 ON PRT1 7 (7) RECORDS
$HASP160 PRT1 INACTIVE - CLASS=AJ
$HASP250 DFSMSHSM IS PURGED

```

Figure 66. Example of DFSMSHsm Shutdown Screen

You can start the IVP again from the beginning at any time by returning to Step 5.

11. Run job HSMIVP2, which is a member of DFSMSHSM.IVP.CNTL, to remove the IVP temporary data sets from your system.
12. After running the IVP, you can delete member DFSMSHSM from the SYS1.PROCLIB data set and delete the DFSMSHSM.IVP.CNTL data set. They are no longer needed. The DFSMSHSM

configuration and the parameters in the ARCCMD00 member created by the IVP are used to determine if the product is correctly installed and can be started and stopped. They are not intended for use in a fully functional DFSMSHsm environment. Return to "How to Implement DFSMSHsm" in *z/OS DFSMSHsm Implementation and Customization Guide* for the next steps to take to implement DFSMSHsm.

8.6.4.4.3 IVP job listings: The following sections list, with editing instructions, the jobs involved in IVP.

8.6.4.4.3.1 HSMIVP: ARCIVPST is an IEBUPDTE job, HSMIVP, that creates the partitioned data set DFSMSHSM.IVP.CNTL. Be sure to change the job control statement before running this job. For an example listing of the HSMIVP job, refer to the samples provided in SYS1.SAMPLIB.

8.6.4.4.3.2 HSMIVP1: This job allocates data sets on your system for the DFSMSHsm IVP. For an example listing of the HSMIVP1 job, refer to the samples provided in SYS1.SAMPLIB. Note that you must ensure that you globally change the following values before submitting this job.

- ?UCATUNIT** Defines a unit type for the temporary user catalog.
- ?UCATVOL** Defines the volume serial number of the volume for the temporary user catalog.
- ?UCATNAM** Defines the name of the temporary user catalog for the MCDS.
- ?MCATNAM** Defines the name and password of the system master catalog.
- ?JOBPARM** Defines the job control parameters that are used for each job.
- ?HIQUAL** Defines the high-level qualifier for the data sets used by the IVP. Usually this is defined as HSM. This value must be between 1 and 7 characters; the first character must be alphabetic. This value must be different from the value that is specified for the high-level qualifier on the control data set. Ensure that this IVP parameter is unique so that it does not conflict with any other alias currently in use.
- ?CDSUNIT** Defines a unit type for the temporary MCDS.
- ?CDSVOL** Defines the volume serial number of the volume for the temporary MCDS.
- ?JESVER** Defines the version of JES on the system as either JES2 or JES3.

8.6.4.5 Run the DFSMS File System Installation Verification Procedure

To validate the DFSMS function that is installed in the file system, perform the following verification steps if DFSMS is installed in an HFS. Note that the confighfs script shown below is intended to be run with a mounted HFS file system; it is not intended to be run when a zFS file system is mounted.

1. Note that confighfs is located under the /usr/lpp/dfsms/bin directory
2. Invoke the following confighfs command under the z/OS UNIX shell after you have successfully applied the HDZ2210 FMID. (In this example, -l is the lowercase of the letter I.) Figure 67 on page 265 shows the expected output.

```
confighfs -l /
```

```

HFS Limits
Maximum virtual storage: _____ 32(MB)
Minimum fixed storage:  _____ 0(MB)

Statistics for file system OMVS.ROOT.HFS
( 03/29/00 3:07pm )
File system size: _____ 25848
                    _____ 100.96875(MB)
Used pages:        _____ 12037
                    _____ 47.019531(MB)
Attribute pages:  _____ 83
                    _____ 0.32421875(MB)
Cached pages:     _____ 27
                    _____ 0.10546875(MB)

Seq I/O reqs:     _____ 19
Random I/O reqs: _____ 0
Lookup hit:       _____ 76
Lookup miss:      _____ 53
1st page hit:    _____ 118
1st page miss:   _____ 19
Index new tops:  _____ 0
Index splits:    _____ 0
Index joins:     _____ 0
Index read hit:  _____ 323
Index read miss: _____ 17
Index write hit: _____ 31
Index write miss: _____ 0
RFS flags        _____ 82(HEX)
RFS error flags: _____ 0(HEX)
High foramt RFN: _____ 302B(HEX)
Member count:    _____ 945
Sync interval:   _____ 60(seconds)

```

Figure 67. Expected results from DFSMS installation verification

The example in Figure 67 assumes the root HFS at / belongs to (is owned by) the target system. If the target system has been added to a shared HFS in a sysplex environment, then the sysplex root HFS may be owned by another system. If the owning system is at a lower level, then an error can occur: ERRNO=134(86) REASON=11A204F6. For the purposes of the IVP, this reason code can be ignored.

In addition, Figure 67 assumes that an HFS is mounted. Do not run confighfs when a zFS file system is mounted because it will result in an error message.

If z/OS V2.1 is installed in a zFS root file system, the following command may be invoked under the z/OS UNIX shell to validate the product is installed in the zFS and is an example (it must be modified as required for your environment)

```
zfsadm aggrinfo -long OMVS.ZFS.ZOS21.ROOT
```

In the example above, OMVS.ZFS.ZOS21.ROOT, is zFS name. The output will display information about the file system.

8.6.4.6 Run the HCD Installation Verification Procedure: To verify that HCD is installed, you should at least make the following minimal checks.

1. Issue the 'D IOS,CONFIG' command and verify the resulting IOS506I message.
2. Invoke HCD. You will receive the primary task selection panel of HCD, Hardware Configuration. Verify that it says "z/OS V2.1 HCD" at the first line of the panel. Select "What's new in this release" from the primary task selection panel. Verify it says "What's New in This Release" at the heading of the panel. Finally, scroll forward. You will see:

What's New in This Release

This panel tells you what changes have been made in the present release. If you have not used HCD before, select Item 8, 'Getting Started with This Dialog' on the primary selection panel for "Overview of Changes".

For information on HCD support for new processor types and the enhanced capabilities of new processor models, select 'Query supported hardware and installed UIMs' on the primary selection panel and then 'List supported processors.'

For information on new functions and enhancements of the present HCD release, move your cursor to a highlighted topic, then press Enter. Pressing F12 on the panel describing the selected topic returns you to this panel to select another topic.

8.6.4.7 Run the z/OS UNIX System Services Setup Verification Procedures: Refer to the z/OS UNIX System Services setup verification procedure in *z/OS UNIX System Services Planning*.

8.6.5 IVP jobs for Wave 1C

There are currently no installation verification procedures for the following elements in Wave 1C:

- MICR/OCR
- TSO/E

8.6.5.1 Run the BookManager/Build Installation Verification Procedure: To run BookManager/Build (and the installation verification procedure), full function of Document Composition Facility (Release 4, 5748-XX9) is required. For detailed software requirement information, see *z/OS Planning for Installation*, Appendix B.

If BookManager/Build has been enabled (see 8.5.2.3, "IFAPRDxx considerations" on page 151) verify BookManager/Build has been installed properly by performing the following steps:

1. Log on to a user ID and start ISPF.
2. Select the BookManager/Build option from the ISPF panel you have previously customized. BookManager/Build logo information is displayed.
3. Press Enter and the BookManager/Build main panel is displayed.

4. Type 'EOY.SE0YSAMP(E0YSAMP)' in the **Other partitioned or sequential data set** field and press Enter. (The data set name might have been changed locally.)
5. Press Enter to confirm the output data set name.
6. The BUILD Options panel is displayed; press Enter.
7. The SCRIPT Command Options panel is displayed; press Enter.
8. The Job Statement Information Panel is displayed. Tailor the JCL to the user ID used to sign on to BookManager. Press **F6** to submit the job.
9. When the job ends, examine the condition codes and SYSOUT messages. If all condition codes are 0's and no error messages are displayed, you have successfully completed the BookManager/Build installation verification procedure.

8.6.5.2 Run the BookManager READ Installation Verification Procedure: To make the BookManager READ/MVS bookshelf available and to verify BookManager READ has been installed properly, perform the following steps. For more information on the panels described in this section, see *IBM BookManager READ/MVS: Displaying Online Books*.

1. Log on to a user ID and start ISPF.
2. Select the BookManager READ option from the ISPF panel you have previously customized in 8.5.5.3.7, "ISPF customization considerations" on page 173.
3. Press Enter.
A warning panel is displayed that indicates a failure opening the data set because there are no bookshelves currently available.
4. Press Enter. If your function key definitions are not showing at the bottom of the screen, type FKA on the command line and press Enter.
5. Select BOOKS on the menu bar; the BOOKS pull-down is displayed.
6. Select PERFORM FILE FUNCTIONS in the BOOKS pull-down. The PERFORM FILE FUNCTIONS window is displayed.
7. Select ADD in the FUNCTION TO PERFORM field; the ADD BOOKSHELF window is displayed.
8. Type the BookManager READ bookshelf data set name in the DATA SET NAME field and press Enter. This data set was created when the online books were copied from the SMP/E target libraries to sequential data sets. See 8.4.3.1, "Copy online books and dictionaries" on page 134 for more information about copying online books. If you used the data set names specified in the supplied sample JCL, type the following for the bookshelf data set name. Be sure to type single quotation marks immediately before and after the name, as shown:

```
'EOY.ENU.BOOKMGRR.BKSHELF'
```

Note: This value is the fully-qualified default data set name, as specified in the sample unload job. The ENU qualifier specifies English. The BOOKSHELF LIST DATA SET TO BE MODIFIED window is displayed. The DATA SET NAME field contains the data set name of your personal bookshelf list.

9. Replace the bookshelf list data set name in the DATA SET NAME field with the fully-qualified data set name of your site's system bookshelf list. This data set name is specified in the EOXVOPTS option QLSHELF. QLSHELF specifies the data set names that contain the list of bookshelves available to all users. At least one data set name must be specified in the QLSHELF variable. The EOXVOPTS member shipped with BookManager READ specifies:

```
QLSHELF = "'E0Y.BKLSHELF'"
```

Then press Enter. The BOOKSHELF LIST DATA SET TO BE MODIFIED window is removed and the bookshelf is added to the system bookshelf list.

10. Press PF5 to refresh the bookshelf list. The BookManager READ bookshelf is now in the list.
11. If you installed the BookManager READ bookshelf search index and books using the default data set names, go to 13. Otherwise, modify the BookManager READ bookshelf displayed before using it by following these procedures:
 - a. Type a slash (/) over the underscore to the left of the bookshelf name.
 - b. Select BOOKS on the menu bar.
 - c. Select PERFORM FILE FUNCTIONS. The PERFORM FILE FUNCTIONS window is displayed.
 - d. Select EDIT in the FUNCTION TO PERFORM field. It is assumed that you used the default data set names, except for a different high-level qualifier. If you chose completely different data set names, see the chapter on "Performing File Functions" in *IBM BookManager READ/MVS: Displaying Online Books, SC38-2034*.
 - e. Select CHANGE HIGH-LEVEL QUALIFIERS in the EDIT BOOKSHELF window. The CHANGE HIGH-LEVEL QUALIFIERS window is displayed.
 - f. Type E0Y.ENU in the FROM field. Type the new high-level qualifier(s) in the TO field.
Note: The ENU qualifier specifies English.
 - g. Press Enter; a confirmation window is displayed.
 - h. Select YES to accept the change and return to the EDIT BOOKSHELF window.
12. Press F12 twice to return to the bookshelf list.
13. Move the cursor to the bookshelf listed and press Enter. The bookshelf is displayed with the list of books on it. The cursor is next to the first book (*IBM BookManager READ/MVS: Getting Started*).
14. Press Enter to display the book.
15. Move the cursor to the command line, and type the following command: SEARCH on line
Then, press Enter. The LIST ALL TOPICS WITH MATCHES window is displayed. The cursor is next to the first entry.
16. Press Enter to see the selected topic.
17. Select BOOKS on the menu bar.
18. Select EXIT BOOKMANAGER in the BOOKS pull-down. A confirmation window is displayed.
19. Select YES in the confirmation window to exit BookManager.

The installation verification is complete.

Note: If you are also installing BookManager/Build, you should add its online bookshelf data set name to the system bookshelf list data set.

8.6.5.3 Run the FFST Installation Verification Program: FFST provides a program for execution to verify you have installed FFST correctly. Perform the following steps to ensure successful installation of FFST.

1. Start FFST with the procedure (EPWFFST) provided.
2. Execute the IVP provided. This is found in your SEPWSRC2 data set, member EPW12012. This job issues several EPW90xxl messages. See *FFST/MVS FFST/VM Operations Guide*, for detailed explanations.

This completes the testing of FFST.

8.6.5.4 Run the GDDM Installation Verification Procedures: The installation verification procedures for OS/390 GDDM consist of:

- Testing GDDM/MVS Base.
- Testing GDDM-PGF
- Testing GDDM-REXX.
- Testing GDDM Under CICS (if applicable):
 - Testing GDDM-PGF Under CICS
 - Testing the Print Utility ADMOPUC Under CICS
- Testing GDDM Under IMS (if applicable):
 - Testing GDDM-PGF Under IMS
 - Testing the Print Utility ADMOPUI Under IMS

8.6.5.4.1 Testing GDDM/MVS Base

Before performing the installation verification procedures, ensure the default User Control key is set. The default User Control key is PA3. If your keyboard does not have a PA3 key, or the PA3 key is already used by another application, set the User Control key to another value. To do this, add the following nickname user default specification to the external defaults file, or external defaults module:

```
ADMMNICK FAM=1,PROCOPT=((CTLKEY,type,value))
```

where `type` defines the type of key selected for entering User Control (1=PF key, 4=PA key), and `value` defines the number of the PF or PA key to be used. The line must start with a space in column 1.

For more information about nicknames and supplying user-default specifications, see *GDDM System Customization and Administration*.

For more information about User Control, see the *GDDM User's Guide*.

This is how to test that GDDM/MVS has been installed successfully for use under TSO:

1. Allocate the GDDM symbol and map data sets on your TSO session by typing:

```
ALLOC F(ADMSYMBL) DA('GDDM.SADMSYM') SHR REU
ALLOC F(ADMGDF) DA('GDDM.SADMGDF') SHR REU
```

If you also intend to use this step to test the GDDM TSO Print Utility, you must allocate the Master Print Queue data set:

```
ALLOC F(ADMPRTQ) DA('your-master-print-queue') SHR REU
```

2. Run the GDDM installation verification program:

```
CALL *(ADMUGC) 'FROM(ADMTEST)'
```

A picture should be displayed that shows the words 'Welcome to GDDM Version 3.2'. This picture is the ADMTEST ADMGDF from the SADMGDF data set being displayed by the ADMUGC conversion utility.

If the terminal does not support graphics, the following message will be displayed:

```
ADM0275 W GRAPHICS CANNOT BE SHOWN. REASON CODE 3
```

3. Go into GDDM User Control by pressing the User Control key.

The User Control panel should now be superimposed on the bottom of the display, using the language specified by the NATLANG external default.

While you are in this panel, you can also test the GDDM print utility if you have already customized it. For information about the print utility, see *GDDM System Customization and Administration*. To create a file for testing the GDDM print utility using GDDM User Control:

- a. Press **PF4** for the User Control output panel.
- b. Type the terminal ID of the printer to which you want to send the output, as defined to Communications Server SNA Services, or in your external defaults module.
- c. Press **PF4** to send the file to be printed. A highlighted message is displayed when the print has completed successfully.

4. Press **PF3** until you are back in TSO.

This completes the test of the graphic and alphanumeric functions of GDDM/MVS.

8.6.5.4.2 Testing GDDM-PGF

If GDDM-PGF has been enabled (see 8.5.2.3, "IFAPRDxx considerations" on page 151), verify GDDM-PGF has been installed properly by performing the following steps:

1. Use the commands suggested for a CLIST in Figure 68 on page 275 to call the Interactive Chart Utility (ICU).

When you start, the Home Panel of the ICU is displayed in the language specified in the NATLANG external default.

For information about using the ICU, you can access the built-in help facility by pressing the **PF1** key; you can also find more information in *GDDM-PGF Interactive Chart Utility*.

2. This is what you do:

- a. Type 0 to move to the Chart by Example panel.
- b. Type 1 on the Chart by Example panel to get data headings and titles for your chart.
- c. Type any number from 1 through 7 on the Chart by Example - Data panel to get the sample data supplied with the ICU.
- d. Display the data by pressing **PF5**, the Display key.
- e. Return to the Home panel by pressing **PF12**.
- f. Exit the ICU by pressing **PF9** twice.

This completes the tests of the graphic and alphanumeric functions of GDDM-PGF.

8.6.5.4.3 Testing GDDM-REXX

If GDDM-REXX has been enabled (see 8.5.2.3, “IFAPRDxx considerations” on page 151), verify GDDM-REXX has been installed properly by performing the following steps:

1. Allocate the GDDM map and symbol set data sets to your session by typing:


```
ALLOC F(ADMGDF) DA('GDDM.SADMGDF') SHR REU
ALLOC F(ADMSYMBL) DA('GDDM.SADMSYM') SHR REU
```
2. Type the command EXEC 'GDDM.SADMSAM(ERXMODEL)' from a terminal that can display graphics.
3. Press **ENTER**.

A picture is displayed, with the large characters “GDDM-REXX” near the top of the screen.
4. Press **ENTER** again or press the PF3 key to return to TSO.

8.6.5.4.4 Testing GDDM under CICS

This section describes how to verify the installation of GDDM under the CICS subsystem.

To test GDDM under CICS, you must have allocated the required GDDM VSAM data sets, defined them to CICS, and included them in the CICS startup JCL. You must also have defined GDDM to CICS in your CICS tables or CSD.

8.6.5.4.4.1 Testing GDDM/MVS Base under CICS

Before performing the installation verification procedures, ensure the default User Control key is set. The default User Control key is PA3. If your keyboard does not have a PA3 key, or the PA3 key is already used by another application, set the User Control key to another value. To do this, add the following nickname user default specification to the external defaults file, or external defaults module:

```
ADMMNICK FAM=1,PROCOPT=((CTLKEY,type,value))
```

where *type* defines the type of key selected for entering User Control (1=PF.key, 4=PA key) and *value* defines the number of the PF or PA key to be used. The line must start with a space in column 1.

For more information about nicknames and supplying user-default specifications, see *GDDM System Customization and Administration*.

For more information about User Control, see the *GDDM User's Guide*.

This is how to test GDDM/MVS has been installed successfully for use under the CICS subsystem:

1. Type the transaction name for the GDDM/MVS installation verification program: ADMA.
2. Press **ENTER**

A picture should be displayed that shows the words "Welcome to GDDM Version 3.2". This picture is the ADMTEST ADMGDF, which is stored in the ADMF data set.

3. Go into GDDM User Control by pressing the User Control key.

The User Control panel should now be superimposed on the bottom of the display, using the language specified by the NATLANG external default.

While you are in this panel, you can also test the GDDM print utility if you have already customized it. For information about the print utility, see *GDDM System Customization and Administration*. To create a print file for testing the GDDM print utility using GDDM User Control:

- a. Press **PF4** for the User Control output panel.
- b. Type the terminal ID of the printer to which you want to send the output, as defined in your TCT.
- c. Press **PF4** to send the file to be printed.

A highlighted message is displayed when the print has completed successfully.

4. Press **PF3** until you have left the transaction.

This completes the test of the graphic and alphanumeric functions of GDDM/MVS under CICS.

8.6.5.4.4.2 Testing GDDM-PGF under CICS

This is how to test GDDM-PGF has been installed successfully for use under the CICS subsystem:

1. Type the transaction name for the ICU: ADMC
2. Press **ENTER**.

The Home Panel of the ICU is displayed in the language specified in the NATLANG external default. For information about using the ICU, you can access the built-in help facility by pressing the **PF1** key; you can also find more information in *GDDM-PGF Interactive Chart Utility*.

3. This is what you do:
 - a. Type 0 to move to the Chart by Example panel.
 - b. Type 1 on the Chart by Example panel to get data headings and titles for your chart.
 - c. Type any number from 1 through 7 on the Chart by Example - Data panel to get the sample data supplied with the ICU.
 - d. Display the data by pressing **PF5**, the Display key.
 - e. Return to the Home panel by pressing **PF12**
 - f. Exit the ICU by pressing **PF9** twice.

This tests the graphic and alphanumeric functions of GDDM-PGF under CICS.

8.6.5.4.4.3 Testing the Print Utility ADMOPUC under CICS

To test the GDDM print utility ADMOPUC, use the tests in 8.6.5.4.4.1, “Testing GDDM/MVS Base under CICS” on page 271.

For information about setting up the print utility and how to select particular printers, see *GDDM System Customization and Administration*.

8.6.5.4.5 Testing GDDM under IMS: This section describes how to verify the installation of GDDM under the IMS subsystem.

8.6.5.4.5.1 Testing GDDM/MVS Base under IMS

1. Type the transaction name for the Image Symbol Editor: ADM ISSE
2. Press **ENTER**.

If you are not familiar with the Image Symbol Editor, there is a help facility you can view by pressing the **PF1** key. You can also find more information in *GDDM Using the Image Symbol Editor*.

When you start the transaction, the first panel of the Image Symbol Editor is displayed. It is called Step Selection.

This is what you do:

- a. Type the symbol set name ADMDHII. (note the final period), and choose option 2, Edit Symbol Set.
- b. Press **ENTER**.
The next panel, Symbol Selection, is displayed.
- c. Press **PF6**.

A different set of characters should be displayed on the same panel. (If GDDM message ADM0824 or ADM0825 is displayed, and some of the characters are displayed as “?”, this does not invalidate the test).

- d. Move the cursor to a nonblank character in the set of characters (not one in reverse-video).
- e. Press **ENTER**

The display should change to the Symbol Definition panel, and the pixel pattern of the chosen symbol should be displayed at the left of the screen. (If message ADM0824 or ADM0825 was displayed earlier, the symbol is the one that could not be displayed and not the “?” chosen).

- f. Leave the cursor where it is, and type the command TEST ON
- g. Press **ENTER**

If your device supports programmed symbols (PS), a small copy of the character should be displayed below and to the right of the pixel pattern. Otherwise, GDDM message ADM0861 is displayed, but this does not invalidate the test.

- h. Exit the Image Symbol Editor by pressing **PF3** three times.

This tests both the graphic and alphanumeric functions of GDDM.

If your workstation is capable of showing graphics, but does not have PS support, you can test the graphic functions of GDDM/MVS by running one of the sample programs, described in the *GDDM Base Application Programming Reference*.

8.6.5.4.5.2 Testing GDDM-PGF under IMS

This is how to test GDDM-PGF has been installed successfully for IMS:

1. Type the transaction name for the ICU: ADM CHART
2. Press **ENTER**.

The Home Panel of the ICU is displayed in the language specified by the NATLANG external default. For information about using the ICU, you can access the built-in help facility by pressing the **PF1** key; you can also find more information in *GDDM-PGF Interactive Chart Utility*.

3. This is what you do:
 - a. Type 0 to move to the Chart by Example panel.
 - b. Type 1 on the Chart by Example panel to get data headings and titles for your chart.
 - c. Type any number from 1 through 7 on the Chart by Example - Data panel to get the sample data supplied with the ICU.
 - d. Display the data by pressing **PF5**, the Display key.
 - e. If you have a printer, create a print file so you can later test the GDDM print utility (see 8.6.5.4.5.3, "Testing the Print Utility ADMOPUI under IMS"):
 - 1) Press **PF4**, the Print key.
 - 2) Type the LTERM name of the printer.
 - 3) Press **ENTER**.The message CHART SUCCESSFULLY OUTPUT is displayed.
 - f. Return to the Home panel by pressing **PF12**.
 - g. Exit the ICU by pressing **PF9** twice.

This completes the tests of the graphic and alphanumeric functions of GDDM-PGF under IMS.

8.6.5.4.5.3 Testing the Print Utility ADMOPUI under IMS

This is how to test the print utility ADMOPUI has been installed successfully for IMS. However, before you can start, you must have a GDDM file for it to print. If GDDM-PGF has been ENABLED, you can use the ICU to produce one; see 8.6.5.4.5.2, "Testing GDDM-PGF under IMS."

If GDDM-PGF has not been installed, you can create a print file using the IMS version of the sample program ADMUSP1. The source for this program is called ADMUSP11.

Find the program in the sample library SADMSAM, and compile and link-edit it as described in *GDDM Base Application Programming Guide*.

1. Give the LTERM name on the transaction invocation.

2. Assign the ADMPRINT transaction to a suitable class, and start it.

After you have created a print file, the print utility prints it asynchronously.

```
Suggested name: CHART

/* INTERACTIVE CHART UTILITY */
ALLOC F(ADMCDATA) DA(ADMCDATA) SHR REU
ALLOC F(ADMCDDEF) DA(ADMCDDEF) SHR REU
ALLOC F(ADMCFORM) DA(ADMCFORM) SHR REU
ALLOC F(ADMGDF) DA(ADMGDF) SHR REU
ALLOC F(ADMSYMBL) DA(ADMSYMBL 'GDDM.SADMSYM') SHR REU
CALL *(ADMCHART)
FREE F(ADMCDATA)
FREE F(ADMCDDEF)
FREE F(ADMCFORM)
FREE F(ADMGDF)
FREE F(ADMSYMBL)
```

Figure 68. Suggested CLIST for using the ICU

The ADMSYMBL allocation must not have concatenated data sets if you want to save symbol sets. Concatenated partitioned data sets cannot be accessed read/write.

You are advised to make both the system and the user's own symbol sets available to users of the ICU. This gives the users a wide choice of type faces from the system sets, and special symbols from their own.

8.6.5.4.6 What to Do If Any of the Installation Tests Fail

If any of the tests fail, the first thing you may see is an error message displayed on your screen. On the other hand, you may find that graphics are not displayed on your screen.

If you receive an error message, look it up in *GDDM Messages*. If it is a GDDM-OS/2 Link message, you can also use the online help.

If graphics cannot be shown on one or more of the terminals when you test GDDM or the telecommunication network, see *GDDM Diagnosis*.

If you cannot quickly identify the cause of the error, you may find it useful to read *GDDM Diagnosis*, which contains detailed information about diagnosing problems with GDDM and its components. Information about detailed diagnosis and the procedure for reporting errors can be found in *GDDM Diagnosis*.

8.6.5.5 Run the ICKDSF Installation Verification Procedure: SYS1.SAMPLIB(ICKVER) contains the ICKDSF Installation Verification Procedure. Copy ICKVER to a work data set. Edit and submit ICKVER to verify the installation of ICKDSF. The job may be executed against any **offline** device that is supported; it will not alter the volume in any way. Note that ICKDSF was placed in SYS1.LINKLIB by SMP/E. Note that ccuu specifies the address (in hexadecimal) of the device to be analyzed.

The following information messages will appear in the SYSPRINT data set due to the execution of the above job. The contents of these messages may vary slightly due to variations on your particular pack.

- VERIFY HEADER ON OUTPUT

```
ICKDSF - MVS/ESA DEVICE SUPPORT FACILITIES 17.0
ANALYZE UNIT(ccuu) NODRIVE SCAN CYLR(1,2)
ICK00700I DEVICE INFORMATION FOR ccuu IS CURRENTLY AS FOLLOWS:
PHYSICAL DEVICE = xxxx
STORAGE CONTROLLER = xxxx
STORAGE CONTROL DESCRIPTOR = xx
DEVICE DESCRIPTOR = xx
ADDITIONAL DEVICE INFORMATION = xxxxxxxx
TRKS/CYL = xx, # PRIMARY CYLS = xxxxx
ICK04000I DEVICE IS IN SIMPLEX STATE
ICK00091I ccuu NED= xxxx.xxx.xxx.xx.xxxxxxxxxxxxxx
ICK03091I EXISTING VOLUME SERIAL READ = xxxxxxxx
ICK01400I ccuu ANALYZE STARTED
ICK01408I ccuu DATA VERIFICATION TEST STARTED
ICK01405I ccuu ALL DATA 'MACHINE READABLE' WITHOUT ERRORS
ICK01406I ccuu ANALYZE ENDED
ICK00001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0
hh:mm:ss dd/mm/yy
```

The *Device Support Facilities User's Guide and Reference Release 17* has more information about using ICKDSF.

8.6.6 IVP jobs for Wave 1D

There are currently no installation verification procedures for the following elements in Wave 1D:

- Cryptographic Services
 - OCSF
 - PKI Services

8.6.6.1 Run the Security Server (RACF) Installation Verification Procedures

If Security Server (RACF) has been enabled (see 8.5.2.3, “IFAPRDxx considerations” on page 151), verify it has been installed properly by IPLing z/OS V2.1.0. If you receive message ICH520I stating z/OS SECURITY SERVER (RACF HRF7790) IS ACTIVE, RACF will have been installed and initialized successfully.

8.6.7 IVP jobs for Wave 1E

The following sections describe installation verification procedures for Wave 1E.

8.6.7.1 Run the Runtime Library Extensions Installation Verification Procedures

There is one IVP job you should run to ensure the Runtime Library Extensions was properly installed. The JCL can be found in your SCLBJCL library. Refer to the JCL for instructions and expected output.

Figure 69. IVP for Runtime Library Extensions

Job name	Job Description
CLB3JIV1	Verify the IO Streams Class Library and Complex Class Library installation

8.6.7.2 Run the XL C/C++ Installation Verification Procedures

If XL C/C++ has been enabled (see 8.5.2.3, “IFAPRDxx considerations” on page 151), verify the following C/C++ components have been installed properly:

- XL C/C++ Base Compiler
- C/C++ Host Performance Analyzer

Notes:

1. As of z/OS V1R8, the IPA Link step of the z/OS XL C/C++ compiler uses 64-bit virtual memory, which requires sufficient storage above the 2 GB bar (2 GB address line). You can set the MEMLIMIT system parameter to provide the required virtual storage above the 2 GB bar. Use the following checklist to ensure that sufficient storage above the 2 GB bar is available:
 - Increase the default size of the MEMLIMIT system parameter in the SMFPRMxx PARMLIB member to 3 GB.
 - Increase the MEMLIMIT value for z/OS UNIX System Services users through the RACF OMVS segment to 3 GB.
 - If you use the IEFUSI exit routine, ensure that the MEMLIMIT value is more than 3 GB.

For additional information about the MEMLIMIT system parameter, see *z/OS MVS Programming: Extended Addressability Guide*.

2. The CCNJIV1 and CCNJIV2 IVP jobs allocate one of the temporary data sets as a PDSE data set. You cannot allocate a PDSE data set to a VIO device type or to multiple volumes. Before you run these two IVP jobs, check the storage and data classes that allocate temporary data sets to verify if you can allocate temporary datasets as PDSE data sets. You can check the class by viewing the dataclas attributes in the panel that is displayed for option 4 of ISMF.

If you cannot allocate temporary data sets as PDSE data sets due to system configuration; for example, the device type is VIO or the volume count of SMS-managed data sets is greater than one, add the following code to the DFSMS DATACLAS routines:

```

FILTLIST CCPGM          /* IPALINK Note          */
INCLUDE(CCN*)          /* Desc: Bypass CCN* Programs */
IF
  ((&DATACLAS = '') &&
  (&PGM EQ &CCPGM)) THEN /* Bypass CCN* C/C++ Programs */
DO /* Example: CCNDRVR      */
  SET &DATACLAS = ' ' /* Bypass Dataclas      */
  WRITE 'DC IS BLANKED OUT' /* Write out a Message  */
  EXIT CODE(0) /* Exit Routine          */
END

```

8.6.7.2.1 Run the XL C/C++ Installation Verification Procedure

There are two IVP jobs you should run to ensure the C/C++ compilers were properly installed. The JCL can be found in your SCCNJCL library. Refer to the JCL for instructions and expected output.

Figure 70. IVPs for XL C/C++ Compilers

Job name	Job Description
CCNJIV1	Verify the XL C Compiler Installation
CCNJIV2	Verify the XL C++ Compiler Installation

8.6.7.2.2 Run the C/C++ Host Performance Analyzer Installation Verification Procedure

There is one IVP job you should run to ensure the C/C++ Host Performance Analyzer is properly installed (see Figure 71). The JCL can be found in your SCTVJCL library. Refer to the JCL for instructions and expected output. Ensure the following service has been applied to the C/C++ Host Performance Analyzer:

```

UQ07576 UQ07577 UQ08624 UQ16061 UQ16062 UQ23233
UQ23234 UQ35263 UQ47678 UQ58554 UQ78078 UQ78229

```

Figure 71. IVPs for C/C++ Host Performance Analyzer

Job name	Job Description
PROFFUNC	Sample JCL For Function Level Trace

8.6.7.3 Run the Common Information Model (CIM) Installation Verification

Procedure: To verify Common Information Model (CIM) is installed, run sample job, CFZIVP. The IVP job CFZIVP can be found in library SAMPLIB. Before you run the CIM IVP job, ensure that you have created and mounted a file system at the /var/wbem directory. For information about creating and mounting a file system at the /var/wbem directory, see *z/OS Common Information Model User's Guide*.

8.6.7.4 Run the RMF Installation Verification Procedure: If RMF has been enabled (see 8.5.2.3, “IFAPRDxx considerations” on page 151), verify RMF has been installed properly by performing the following steps:

- Test the new element level by issuing the START command for RMF with PARMLIB member ERBRMF02 and reply with the desired options or GO.
- Modify RMF to start one or more Monitor II background sessions, using member ERBRMF03. This member tests all Monitor II reports.
- Modify RMF to start a Monitor III data gatherer session, using member ERBRMF04, and then start a data reporter session.
- Request several reports on the Monitor III report screen to verify these functions are working.

Monitor I and II and the Monitor III gatherer will run without further attention until the sessions are over or until the next IPL.

For more information on starting RMF and available options, see *z/OS RMF User's Guide*.

8.6.8 IVP jobs for Wave 1F

There are currently no installation verification procedures for the following elements in Wave 1F:

- BDT
- HCM
- OSA/SF

Note: The ISPF installation verification procedures are described in 8.6.2.2, “Run the BCP and ISPF Installation Verification Procedure” on page 241.

8.6.8.1 Run the DFSORT Installation Verification Procedures: Once you have completed your configuration, you should review, modify, and run the following sample jobs to verify DFSORT is installed correctly.

- ICEJCLJ, to invoke DFSORT directly. Sorts and copies a data set.
- ICEINVJ, to invoke DFSORT from an assembler program. Sorts and copies a data set.
- ICETOOLJ, to invoke ICETOOL directly. Performs multiple operations which include listing your installation defaults, copying and sorting data sets, displaying statistics and printing reports.
- ICECSRTJ, if you use Locale Processing at your site, to verify data is sorted correctly using the Danish locale (LOCALE=DA_DK). To run this job, you must have the Language Environment element installed, and have the SCEERUN library available for the job to use.
- ICEGENJ, to invoke ICEGENER directly. Copies a data set.

8.6.8.1.1 ICEJCLJ and ICEINVJ verification

Verify the ICEJCLJ and ICEINVJ jobs each ran correctly by:

1. Checking the condition code for each step is 0.
2. Comparing the SORTOUT output of step PRTAFTER to Figure 72 on page 280, which shows what the first 20 records and last 10 records of the 360 output records look like.

```

*****000001*****ABCDEFGHIJKLMN*****
*****000037*****ABCDEFGHIJKLMN*****
*****000073*****ABCDEFGHIJKLMN*****
*****000109*****ABCDEFGHIJKLMN*****
*****000145*****ABCDEFGHIJKLMN*****
*****000181*****ABCDEFGHIJKLMN*****
*****000217*****ABCDEFGHIJKLMN*****
*****000253*****ABCDEFGHIJKLMN*****
*****000289*****ABCDEFGHIJKLMN*****
*****000325*****ABCDEFGHIJKLMN*****
*****000002*****BCDEFGHIJKLMNO*****
*****000038*****BCDEFGHIJKLMNO*****
*****000074*****BCDEFGHIJKLMNO*****
*****000110*****BCDEFGHIJKLMNO*****
*****000146*****BCDEFGHIJKLMNO*****
*****000182*****BCDEFGHIJKLMNO*****
*****000218*****BCDEFGHIJKLMNO*****
*****000254*****BCDEFGHIJKLMNO*****
*****000290*****BCDEFGHIJKLMNO*****
*****000326*****BCDEFGHIJKLMNO*****
.
.
.
*****000036*****9ABCDEFGHIJKLMNO*****
*****000072*****9ABCDEFGHIJKLMNO*****
*****000108*****9ABCDEFGHIJKLMNO*****
*****000144*****9ABCDEFGHIJKLMNO*****
*****000180*****9ABCDEFGHIJKLMNO*****
*****000216*****9ABCDEFGHIJKLMNO*****
*****000252*****9ABCDEFGHIJKLMNO*****
*****000288*****9ABCDEFGHIJKLMNO*****
*****000324*****9ABCDEFGHIJKLMNO*****
*****000360*****9ABCDEFGHIJKLMNO*****

```

Figure 72. Expected PRTAFTER SORTOUT Output from ICEJCLJ and ICEINVJ

8.6.8.1.2 ICETOOLJ verification: To verify that the ICETOOLJ job ran correctly, follow these steps:

1. Check that the condition code for each step is 0.
2. Check that “DFSORT V2R1” is shown in the heading of the DFLTS output of step TOOLRUN. See *z/OS DFSORT Installation and Customization* for an example of how the complete DFLTS output will look if you have not changed any DFSORT installation options. If you have changed DFSORT installation options, the output should reflect the options you selected. In either case, dates in your listing will differ from those in the example output.
3. Compare the DEPTSP output of step TOOLRUN to Figure 73 on page 281.

```

JOHN      BURT          IS IN DEPARTMENT J69
ANDY      GELLAI       IS IN DEPARTMENT J82
PAUL      LEE          IS IN DEPARTMENT J69
MIGUEL    MADRID       IS IN DEPARTMENT J69
JANICE    MEAD         IS IN DEPARTMENT J69
LEE       TOWNSEND     IS IN DEPARTMENT J82
WILLIAM   WARREN       IS IN DEPARTMENT J82
FRANK     YAEGER       IS IN DEPARTMENT J69
HOLLY     YAMAMOTO-SMITH IS IN DEPARTMENT J69

```

Figure 73. Expected TOOLRUN DEPTSP Output from ICETOOLJ

4. Compare the LIST1 output of step TOOLRUN to Figure 74. (Carriage control characters are shown in position 1; do not be concerned if you do not see them.)

```

1KEYS AND TOTALS          - 1 -

KEY          PD_TOTAL    ZD_TOTAL
-----
ABCDXYZ123      1041        579
BCDXYZ123A      -42         290
CDXYZ123AB      142         314
DXYZ123ABC      326         338
XYZ123ABCD     -615         363
YZ123ABCDX     -339         399
Z123ABCDXY     -63          435
123ABCDXYZ      213         471
23ABCDXYZ1      489         507
3ABCDXYZ12      765         543

MINIMUM          -615         290

```

Figure 74. Expected TOOLRUN LIST1 Output from ICETOOLJ

5. Compare the DEPTOT output of step TOOLRUN to Figure 75. (Carriage control characters are shown in position 1; do not be concerned if you do not see them.)

```

1(45,3,CH)          VALUE COUNT
J62                 0000000000000001
J69                 0000000000000006
J82                 0000000000000003
L92                 0000000000000005

```

Figure 75. TOOLMSG output

Note: The TOOLMSG output of step TOOLRUN shows the result of each ICETOOL operation requested.

8.6.8.1.3 ICECSRTJ verification: Verify the ICECSRTJ job ran correctly by:

1. Checking the condition code for each step is 0.
2. Comparing the SORTOUT output of step CSORT to Figure 76 on page 282.

Notes:

1. The ICECSRTJ sample job can be found in the SICESAMP target library.
2. The SCEERUN library (the Language Environment run-time library) must be in the link list or concatenated to STEPLIB to run the ICECSRTJ sample job.

a
A
b
B
c
C
d
D
e
E

Figure 76. Expected CSORT SORTOUT Output from ICECSRTJ

8.6.8.1.4 ICEGENER verification: You can use the sample job ICEGENJ supplied with the licensed program to verify the installation of the ICEGENER facility. Before performing the verification, you should review the comments in the sample job.

Examine the results of each step in the verification job to ensure the data has been copied correctly and the SYSOUT output was produced by the appropriate program (DFSORT copy or the IEBGENER utility).

If message ICE054I appears, showing a nonzero number of records in and records out, DFSORT did perform a copy application. You should be able to recognize the difference between the output produced by IEBGENER and any output produced by DFSORT because there is a distinct difference in the style between the two types of output.

The following steps each exercise a function of copying. Each step copies from the generated data set to a printed output (JES spool) file. If you see the data printed, you know a copy function was performed.

1. The job step called GEN creates (using the IEBDG utility program) the data to be copied by the rest of the steps.
2. The GCOPY1 step copies and prints the data created by GEN. Because the EXEC statement specifies PGM=ICEGENER, the ICEGENER facility is used and it selects DFSORT copy to perform the copy application. If the application runs correctly, the DFSORT messages will indicate DFSORT copied 360 records.

3. The BCOPY1 step copies and prints the data in a different manner to verify the different invocation path works. Because the EXEC statement specifies IEBGENER, the method used to perform the copy application depends on how you have installed the ICEGENER facility:
 - If you chose selective use of ICEGENER, the IEBGENER utility performs the copy application.
 - If you chose automatic use of ICEGENER, the ICEGENER facility selects DFSORT copy to perform the copy application.
4. The GCOPY2 step also copies and prints the data. Because the EXEC statement specifies PGM=ICEGENER, the ICEGENER facility is used. Because the SYSIN data set contains IEBGENER control statements, ICEGENER selects the IEBGENER utility to perform the copy application.

The following result indicates that the ICEGENER facility was not installed correctly:

- You receive an ABEND 163 and message ICE163A. Ensure that you use GENER=IEBGENR, the default. If you have an alias of IEBGENR for the ICEGENER facility, remove it.

If you later decide to discontinue automatic use of ICEGENER, see *z/OS DFSORT Installation and Customization* for information on how to do that.

The DFSORT SVC is called to write SMF records and to process data sets on cached DASD devices. If the SVC is not properly installed, a DFSORT application might result in:

- A system abend (56D or Fnn) when writing an SMF type-16 record.
- Degraded performance when using data sets on cached DASD devices.

In either case, message ICE187I is issued if the SVC is installed at the wrong level. If you are using a cached DASD device, message ICE191I is issued as a warning that performance might be degraded. However, the run continues successfully if there are no other errors. You can specify a SORTDIAG DD statement to cause an additional message, ICE816I, to be issued. This message shows the abend code resulting from an attempted SVC call.

You can use the abend code in ICE816I or the abend code resulting from the attempt to write an SMF type-16 record to determine the reason DFSORT failed to call the SVC correctly.

8.6.8.2 Run the High Level Assembler Toolkit Installation Verification Program: A sample job, ASMWTIVP from library SASMSAM2 is provided to verify the feature has installed correctly. Note that, in the following example, the high-level qualifier for library SASMSAM2 is the high-level qualifier for the sample target library, in which the High-Level Assembler Toolkit has been installed.

This job performs the following functions:

- Assembles test sample ASMTSAMP from library SASMSAM2.
- Link edits test sample ASMTSAMP from library SASMSAM2.
- Disassembles test module ASMTSAMP.
- Creates language extraction file.

ASMWTIVP uses TSO Batch to carry out its functions.

8.6.9 IVP jobs for Wave 1G

This section describes various installation verification procedures for Wave 1G.

8.6.9.1 Run the Distributed File Service Installation Verification Procedures

To ensure the installation of the Distributed File Service completed successfully, do the following:

1. Start the DFS started task:

```
S DFS,PARM='-nodfs'
```

View SYSLOG and look for the following message:

```
IOEP01103I DFS kernel initialization complete.
```

This indicates that the DFS server has started successfully. The server can be used as an SMB file/print server after additional configuration is performed (see below).

2. If the BPXPRMxx entry for zFS was made, determine if zFS is started. To do this, view SYSLOG and look for the following message:

```
IOEZ00055I ZFS kernel: Initialization Complete.
```

The following message in SYSLOG indicates a possible error:

```
nn BPXF032D FILESYSTYPE ZFS Terminated. Reply 'R' when  
ready to restart. Reply 'I' to ignore.
```

The possible cause is the started task could not initialize; contact the IBM Support Center for help.

Note: If a problem is detected during the installation verification, please ensure that all of the installation steps for the Distributed File Service have been completed. It may be helpful to review the installation and post installation steps that are summarized in the publication referenced for the post installation customization work described below.

You must now perform additional configuration work to enable the SMB file/print support or the ZFS support.

To use the SMB File/Print support, see the Post Installation Processing section in *z/OS Distributed File Service SMB Administration*.

To use the zFS support, refer to *z/OS Distributed File Service zFS Administration* to define zFS aggregates and file systems.

8.6.9.2 Run the Library Server Installation Verification Procedures

Once you have completed your configuration, you should verify Library Server works from a browser. You can run a simple verification test by using the sample welcome page in `../public/index.html`.

1. Copy `../usr/lpp/booksrv/public/index.html` to the `/usr/lpp/booksrv/public/bookmgr/index.html` directory. The mode setting on this file should be 644.
2. From a web browser, open the URL `http://your.hostname/bookmgr/` (replacing *your.hostname* with the domain name or IP address of your server). The `index.html` welcome page should display. If not, check the `AlwaysWelcome` parameter in the ICS configuration file (`httpd.conf`) is set to `On` and `index.html` is listed as one of the default welcome file names.
3. From a web browser, open the URL `http://your.hostname/bookmgr-cgi/EPHB00KS` (replace *your.hostname* with the domain name or IP address of your server). The Library Server library page should display.

8.6.9.3 Run the Infoprint Server Installation Verification Procedures

If Infoprint Server has been enabled (see Figure 43 on page 141), verify Infoprint Server has been installed properly by performing the steps described in this section. This installation verification procedure (IVP) assumes the customization described in 8.5.5.9.3, “Infoprint Server Customization Considerations” on page 229 has been completed, and the logon proc is set up as described in 8.5.4, “z/OS Version 2 Release 1 ISPF setup considerations” on page 161 so you have access to the Infoprint Server ISPF panels. The IVP described in this section verifies the Printer Inventory Manager and Print Interface components of Infoprint Server. No IVP is provided for the NetSpool or IP PrintWay components. You can perform a simple verification test by printing a file using the `lp` command.

1. Start the Printer Inventory Manager.

Start the Printer Inventory Manager by entering the following command from within z/OS UNIX System Services:

```
aopstart
```

Note: You must be connected to the RACF group AOOPER to successfully issue the `aopstart` command.

2. Define one or more printers using the Infoprint Server ISPF panels.

For detailed information on defining printers, refer to *z/OS Infoprint Server Operation and Administration*.

3. Ensure your `PATH` environment variable is correctly set with `/usr/lpp/Printsrv/bin` concatenated **ahead of** `/bin` before you attempt to enter the `lp` command.

4. Print a sample file to the printer you just defined. You can print the sample configuration file provided with Print Interface and IP Printway extended mode by entering the following command from within z/OS UNIX System Services (*printer_name* is the name of the printer that you defined in step 2):

```
lp -d printer_name /etc/Printsrv/aopd.conf
```

Note: The `lp` command will place the file on the JES spool. Either IP PrintWay or PSF must be configured, depending on the type of printer you defined, to send the file to the physical printer.

8.6.9.4 Run the Network File System Installation Verification Procedures

This installation verification procedure (IVP) assumes the customization described in the *z/OS Network File System Guide and Reference* has been completed. This includes the installation of the **mvslogin**, **mvslogout** (or **mvslogut**), and **showattr** commands on the clients which enable the client users to access the MVS system and to display system attributes. For the clients with PCNFSD support, the PCNFSD protocol enables the clients to access the MVS system without issuing the **mvslogin** and **mvslogout** commands. For details, refer to the same manual (section on "Installing the Client Enabling Commands" and appendix on "Using the PCNFSD Protocol").

In this step, you manually verify your system is installed correctly. Before you begin, perform the following sequence of steps:

1. Have the Network Controller (for example, IBM 3172 Controller) attached to your system.
2. Ensure the following have started correctly:
 - z/OS UNIX
 - Communications Server IP Services
 - PORTMAPPER, or RPCBIND if using IPv6
 - Network File System Server

For the server, the operator's console should display the following GFSA348I message:

```
GFSA348I z/OS NETWORK FILE SYSTEM SERVER
(HDZ221N) STARTED.
```

For the client, the operator's console should display the following GFSC700I message:

```
GFSC700I z/OS NETWORK FILE SYSTEM CLIENT
(HDZ221N) STARTED.
```

Use any of the Network File System clients to verify the operation of the server. This section contains an example of using the AIX client to verify the server is operational. See *z/OS Network File System Guide and Reference* for information about the supported Network File System clients.

8.6.9.4.1 Network File System Client Command sequence examples

Figure 77 on page 287 illustrates the command sequences used by an AIX Network File System client and the expected confirmation of operation. In the example, the following parameters are used:

- | | |
|----------------|--|
| <i>mvshost</i> | Specifies the nickname of the remote host where the Network File System is running. |
| <i>user01</i> | Specifies the MVS login user ID. See <i>z/OS Security Server RACF Security Administrator's Guide</i> for information on how to define a RACF user ID for the Network File System client user in order to access the Network File System. |
| <i>nfstest</i> | Specifies the MVS data set's high-level qualifier or is an alias of a user catalog. Usually, MVS data sets are RACF protected, unless RACF is not used at your site at all. Also <i>nfstest</i> should be specified in the EXPORTS file before the Network File System Server is started. Refer to the <i>z/OS Network File System Guide and Reference</i> (section on "Allocating and |

Modifying the Exports Data Set" and appendix on "Sample Exports Data Set"), for information on how to update the EXPORTS file.

```
$ mkdir /mvmdir
$ su
Password:
# mount mvshost:nfstest /mvmdir
# <enter "control and D" to exit super user mode>
$ mvslogin mvshost user01
Password required
GFSA973A Enter MVS password:
GFSA955I user01 logged in ok.
$ cat > "/mvmdir/testfile"
This is a string of text entered.
<enter "control and D" keys to finish entering the data>
$ cat "/mvmdir/testfile"
This is a string of text entered.
$
```

Figure 77. Example of AIX client command sequence

8.6.10 IVP jobs for Wave 2

The SDSF element provides an IVP job that is described in the following section.

8.6.10.1 Run the installation verification procedure for SDSF: If SDSF has been enabled (see 8.5.2.3, "IFAPRDxx considerations" on page 151), verify SDSF has been installed properly. To do so, you might want to access SDSF once through ISPF and once through TSO.

- If you made changes to your TSO logon procedure, log off the system and then log on again to execute the modified procedure. If you made changes to your ISPF initialization CLIST, exit ISPF and then reaccess it.
- Access SDSF

1. Accessing SDSF from ISPF:

If you used the ISPF sample panels to enable SDSF, select Option 13 from the ISPF Primary Options Menu, and Option 14 on the z/OS Applications panel. The SDSF Primary Option Menu should be displayed. You can display the panel name by entering PANELID on the COMMAND INPUT line. The panel name should be ISFPCU41.

If you did not use the ISPF sample panels, select the SDSF option from the ISPF panel you added it to. The SDSF Primary Option Menu, ISFPCU41, should be displayed. If the panel is not displayed, has only options LOG, DA, O, and H, or is garbled, check the modifications to the ISPF panel that the SDSF option was added and correct the problems before continuing.

2. Accessing SDSF from TSO:

From TSO, enter SDSF or ISF. The SDSF Primary Option Menu should be displayed.

8.6.11 Activate functions of JES2 and JES3

To activate specific functions of JES2, see the following books:

1. z/OS Planning for Installation
2. z/OS Introduction and Release Guide
3. z/OS JES2 Initialization and Tuning Guide
4. z/OS JES2 Initialization and Tuning Reference
5. z/OS JES2 Commands

To activate specific functions of JES3, see the following books:

1. z/OS Introduction and Release Guide
2. z/OS JES3 Initialization and Tuning Guide
3. z/OS JES3 Commands

8.7 Step 7: ACCEPT Wave 0, Wave 1 and Wave 2

The following sections contain detailed information about the ACCEPT process for Wave 0, Wave 1 and Wave 2.

8.7.1 Select which z/OS Version 2 Release 1 Wave 0 and Wave 1 FMIDs to install

Select which z/OS Version 2 Release 1 Wave 0 and Wave 1 FMIDs to ACCEPT by choosing the appropriate FMIDSETs that were defined in 6.5.3, “Elements in each Wave, Ripple, and FMIDSET” on page 37. The example shows the FMIDSETs being installed one at a time and must be repeated for each ripple by changing WAVE*n* to WAVE0, WAVE1A, WAVE1AL, WAVE1B, WAVE1C, and so forth. If desired, multiple ripples can be combined, but they must be run in order.

8.7.2 Do an SMP/E ACCEPT CHECK for Wave 0 and Wave 1 FMIDs and Service

Run an ACCEPT CHECK to identify any requisite service and additional holds (for example, HOLDSYS(DOC,EC)) that may need to be resolved before ACCEPT processing. Resolve any holds and RECEIVE and APPLY any requisite service identified by ACCEPT CHECK before the next step.

Figure 78 on page 289 shows a sample of an ACCEPT CHECK for the functions specified in the SELECT operand, plus all the APPLY'd PTFs that are applicable only to FMIDs listed in the FMIDSET of the FORFMID.

```

//CHECK JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vol1
//          DD DSN=ASM.SASMMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vol1
//SMPCSI  DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(dlibzone)
  OPTIONS(ZOSOPT) .
  UPGRADE.
  ACCEPT CHECK XZREQ
    FORFMID(ZV21Wn)
    SELECT(WAVEn)
    GROUPEXTEND(NOAPARS,NOUSERMODS)
    SOURCEID(ZOSV2R1,RSU*)
    /* see Note 4 below */
    FIXCAT(IBM.ProductInstall-RequiredService)
    /* see Note 4 below */
    BYPASS(HOLDSYSTEM,
    HOLDUSER,HOLDCLASS(UCLREL,ERREL,HIPER)) .
/*

```

Figure 78. SMP/E ACCEPT CHECK (All FMIDs and Service for z/OS Version 2 Release 1 Wave 0 and Wave 1)

Note: ZOSOPT is the option name for z/OS.

Required Updates

1. Update the *job parameters*.
2. Update the v2r1vol1 with the volume serial number for the MIGLIB and SASMMOD1 libraries that are the targets of the Wave 0 installation. This will allow you to access the z/OS V2.1.0 level of the Wave 0 elements using the STEPLIB DD statements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.
4. Update *dlibzone* to your dlib zone name.
5. Update WAVE*n* to change *n* to 0, 1A, 1AL, 1B, 1C, 1D, 1E, 1F or 1G. If you choose to perform the DUMMY DELETE option to remove the FMIDs of prior releases, you must ACCEPT Wave 1A and Wave 1C concurrently and then Wave 0 and Wave 1B concurrently because of the prereq requirements. Then continue with the ACCEPT of Wave 1AL, 1D, 1E, 1F, and 1G.
6. Update ZV21W*n* to change *n* to 0, 1A, 1AL, 1B, 1C, 1D, 1E, 1F or 1G. This FMIDSET includes FMIDs for all elements within the specific ripple.
7. The XZREQ operand only needs to be specified when cross-zone processing is required.

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDS before putting your system into production.

Any messages other than those listed in 6.7, "Step 6: Review general installation notes" on page 45 or those listed in the following sections need to be investigated.

Notes:

1. Adding the FMIDSET(ZV21Wn) in the FORFMID operand ensures the PTF service for all FMIDs (new, changed, and unchanged) will get accepted at the same time as the ripple for the new FMIDs is installed.
2. The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received and are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON THE ACCEPT
COMMAND BUT SINCE NO ZONES WERE APPLICABLE FOR CROSS-ZONE
REQUISITE CHECKING, THE XZREQ OPERAND WILL BE IGNORED.
```

```
GIM20501I ACCEPT PROCESSING IS COMPLETE. THE HIGHEST RETURN
CODE WAS 04.
```

3. While ACCEPTing this wave, there may be PTFs identified through ++ IF REQs which must also be ACCEPTed. It is possible that these PTFs, which must be installed, are for FMIDs which will be deleted in a subsequent ripple. In this case, you may have to add BYPASS(APPLYCHECK) in order to have the IF REQ'd PTFs ACCEPTed since the PTFs' FMIDs are no longer applicable in the target zone.
4. If you did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the ACCEPT. In such a situation, you must add the HIPER value to the SOURCEID operand; for example, SOURCEID(ZOSV2R1,RSU*,HIPER).

8.7.2.1 Additional messages expected during Wave 0 ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 0 returns a condition code of 0 or 4.

8.7.2.1.1 Messages expected during Binder ACCEPT CHECK: During the ACCEPT CHECK of the Binder, the following messages may be received; they are acceptable if they are the only reasons for the condition code 4.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD
HPM7790 BECAUSE IT IS NOT IN THE dlib ZONE
```

In the message text, xxxxxxxx will be one of the following LMODs. If these are the only cause of the condition code 4, it is acceptable.

```
AKJLKL01 ABLIST HEWLD HEWLKED IEWBFDAT IEWBIND
IEWBLINK IEWBXEP IEWTPORT
```

8.7.2.2 Additional messages expected during Wave 1A ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 1A returns a condition code of 4.

8.7.2.2.1 Messages expected during BCP ACCEPT CHECK

You might receive the following message, which is acceptable:

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HBB7790
BECAUSE xxxxxxxx IS NOT IN THE dlib ZONE
```

In the message text, *xxxxxxx* is one of the modules listed below:

```
AMDPRFMT  ATBINPVT  IEAIPL04  IEANUC11  IEFITJT
IEFW21SD  IWM02CMD
```

Successful ACCEPT CHECK processing returns a condition code of 4.

8.7.2.2.2 Messages expected during Communications Server IP Services ACCEPT CHECK

During the ACCEPT CHECK of Communications Server IP Services, the following messages are received, which are acceptable:

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HIP6210
BECAUSE xxxxxxxx IS NOT IN THE dlib ZONE
```

In the message text, *xxxxxxx* will be one of the following modules:

```
EZAADMLR  EZAFTSRV  EZAIMSLN  EZAPPRT  EZAPPSST  GXDEM01
GXDEM02   GXDEM03   GXDEM04   GXDEM04A  GXDEM05   GXDEM06
```

8.7.2.2.3 Messages expected during Cryptographic Services ICSF ACCEPT CHECK

During the ACCEPT CHECK of Cryptographic Services, ICSF, the following messages are received and are acceptable.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HCR77A0
BECAUSE IT IS NOT IN THE dlib ZONE
```

In the message, *xxxxxxx* will be one of the following modules:

```
CSFATWOT  CSFAVKID  CSFCVR1  CSFDSTAT
```

8.7.2.3 Additional messages expected during Wave 1AL ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 1AL returns a condition code of 0 or 4.

8.7.2.4 Additional messages expected during Wave 1B ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 1B returns a condition code of 4.

8.7.2.4.1 Messages expected during DFSMS ACCEPT CHECK

The following messages may be received during DFSMS ACCEPT CHECK processing:

```
GIM61903W LMOD yyyyyyyy WAS NOT DELETED BY HDZ2210 BECAUSE  
IT IS NOT IN THE dlib ZONE.
```

In the message, yyyyyyyy will be one of the following modules and dlib is the name of the distribution zone.

```
ARCZCUC  ARCZDLC  ARCZPUT  EDGCXTRC  EMODVOL1  IDA019BL  
OMODVOL1
```

Successful ACCEPT CHECK processing returns a condition code of 4.

8.7.2.5 Additional messages expected during Wave 1C ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 1C returns a condition code of 0.

8.7.2.5.1 Messages expected during BookManager/Build ACCEPT CHECK

During the installation of BookManager/Build, if you installed BookManager READ first, you will receive NOT SEL for the common parts, indicating that BookManager READ retains ownership of the common parts. This is acceptable. The common parts are:

```
EOYALLC  EOYALLC2  EOYBOOK  EOYBKIND  EOYINDEX  EOYINDX  
EOYPARM  EOY@PRIM  EIJBPOR  EIJCFRE  EIJDANI  EIJDUTC  
EIJENGL  EIJFREN  EIJGERM  EIJITAL  EIJNORW  EIJPORT  
EIJSPAN  EIJSWED  EIJUKEN
```

Successful ACCEPT CHECK processing returns a condition code of 0.

8.7.2.5.2 Message expected during EREP ACCEPT CHECK

You may expect to receive the following message.

```
GIM61903W LMOD IFCILG04 WAS NOT DELETED BY SYSMOD EER3500  
BECAUSE IT IS NOT IN THE dlib ZONE
```

8.7.2.5.3 Messages expected during TSO/E ACCEPT CHECK

You might receive the following message, which is acceptable.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HTE7790  
BECAUSE IT IS NOT IN THE dlib ZONE
```

In the message text, xxxxxxxx is one of the following aliases for SYSMOD HTE7790:

```
IGC0006A IKJEFT02 IKJEFT09 IKJEGDRP IRXAPPC TEST
```

Successful ACCEPT CHECK processing returns a condition code of 4.

8.7.2.6 Additional messages expected during Wave 1D ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 1D returns a condition code of 0 or 4.

8.7.2.7 Additional messages expected during Wave 1E ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 1E returns a condition code of 0 or 4.

8.7.2.8 Additional messages expected during Wave 1F ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 1F returns a condition code of 0.

8.7.2.9 Additional messages expected during Wave 1G ACCEPT CHECK

Successful ACCEPT CHECK processing of Wave 1G returns a condition code of 0 or 4. Successful ACCEPT CHECK processing of Wave 1G returns a condition code of 4 when the expected messages documented in the following section are issued.

8.7.2.9.1 Messages expected during Distributed File Service ACCEPT CHECK

During the ACCEPT CHECK of Distributed File Service, the following message might be received. This message is acceptable if it is the only cause of the return code 4.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD yyyyyy  
BECAUSE IT IS NOT IN THE dlib ZONE
```

In the message text, *yyyyyy* is either H0H2410 or HZFS410 and *xxxxxxx* will be one of the following modules:

For H0H2410 IOECMINI, IOEGLUE
For HZFS410 IOEZM004, IOEZM006, IOEZM007

8.7.2.9.2 Messages expected during Network File System ACCEPT CHECK

During the ACCEPT CHECK of Network File System, the following messages might be received. This message is acceptable if it is the only cause of the return code 4.

```
GIM61903W LMOD yyyyyyyy WAS NOT DELETED BY SYSMOD HDZ221N  
BECAUSE yyyyyyyy IS NOT IN THE xxxx ZONE
```

In the message text, *yyyyyyyy* will be one of the following modules and *xxxx* is the name of the distribution zone.

GFSAMAIN GFSMAIN GFSATCPL GFSATPNL GFSATPRL GFSAXOUT
GFSAXPRT GFSAXSRB GFSAXTIN GFSAHFST GFSALEGT GFSAXEPL

8.7.3 Do an SMP/E ACCEPT for Wave 0 and Wave 1 FMIDs and service

Be certain all the exception conditions have been satisfied before adding a BYPASS(HOLDSYSTEM) during the SMP/E ACCEPT step.

Figure 79 on page 294 shows a sample of an ACCEPT for the functions specified in the SELECT operand, plus all the APPLY'd PTFs that are applicable only to FMIDs listed in the FMIDSET of the FORFMID.

```
//ACCEPT JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//          DD DSN=ASM.SASMMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//SMPCSI  DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(dlibzone)
  OPTIONS(ZOSOPT) .
  ACCEPT XZREQ
  FORFMID(ZV21Wn)
  SELECT(WAVEn)
  GROUPEXTEND(NOAPARS,NOUSERMODS)
  SOURCEID(ZOSV2R1,RSU*)
  /* see Note 3 below */
  FIXCAT(IBM.ProductInstall-RequiredService)
  /* see Note 3 below */
  BYPASS(HOLDSYSTEM,HOLDUSER,
  HOLDCLASS(UCLREL,ERREL,HIPER))
  COMPRESS(ALL) .
/*
```

Figure 79. SMP/E ACCEPT (All FMIDs and Service for z/OS Version 2 Release 1 Wave 0 and wave 1)

Note: ZOSOPT is now the option name for z/OS.

Required Updates

1. Update the *job parameters*.
2. Update the v2r1vol1 with the volume serial number for the MIGLIB and SASMMOD1 libraries that are the targets of the Wave 0 installation. By doing so, you can access the z/OS V2.1.0 level of Wave 0 elements using the STEPLIB DD statements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.
4. Update *dlibzone* to your dlib zone name.
5. Update WAVE*n* to change *n* to 0, 1A, 1AL, 1B, 1C, 1D, 1E, 1F, or 1G. If you choose to perform the DUMMY DELETE option to remove the FMIDs of prior releases, you must ACCEPT Wave 1A and Wave 1C concurrently and then Wave 0 and Wave 1B concurrently because of the prereq requirements. Then, continue with the ACCEPT of WAVE 1AL, 1D, 1E, 1F, and 1G.
6. Update ZV21W*n* to change *n* to 0, 1A, 1AL, 1B, 1C, 1D, 1E, 1F, or 1G. This FMIDSET includes FMIDs for all elements within the specific ripple.
7. The XZREQ operand only needs to be specified when cross-zone processing is required.

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDS before putting your system into production.

If you do not BYPASS(HOLDCLASS(HIPER)), the FMIDs may not be installed if any of the HIPER maintenance is unavailable.

Any messages other than in 6.7, "Step 6: Review general installation notes" on page 45 or those listed in the following sections need to be investigated.

Notes:

1. Adding the FMIDSET(ZV21W*n*) in the FORFMID operand ensures that the PTF service for all FMIDs (new, changed, unchanged) will get accepted at the same time as the ripple for the new FMIDs is installed.
2. The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON THE ACCEPT  
COMMAND BUT SINCE NO ZONES WERE APPLICABLE FOR CROSS-ZONE  
REQUISITE CHECKING, THE XZREQ OPERAND WILL BE IGNORED.
```



```
GIM20501I ACCEPT PROCESSING IS COMPLETE. THE HIGHEST RETURN  
CODE WAS 04.
```
3. If you did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the ACCEPT. In such a situation, you must add the HIPER value to the SOURCEID operand; for example, SOURCEID(ZOSV2R1,RSU*,HIPER).

8.7.3.1 Additional messages expected during Wave 0 ACCEPT

Successful ACCEPT processing returns a condition code of 0 or 4.

8.7.3.1.1 Messages expected During Binder ACCEPT

During the ACCEPT of the Binder, the following messages may be received and are acceptable if they are the only reasons for the condition code 4.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED
BY SYSMOD HPM7790 BECAUSE IT IS NOT IN THE dlib ZONE
```

In the message text, xxxxxxxx will be one of the following LMODs. If these are the only cause of the condition code 4, it is acceptable.

```
AKJLKL01 AMBLIST HEWLD HEWLKED IEWBFDAT IEWBIND
IEWBLINK IEWBXEP IEWTPORT
```

8.7.3.2 Additional messages expected during Wave 1A ACCEPT

Successful ACCEPT processing of Wave 1A returns a condition code of 4.

8.7.3.2.1 Messages expected during BCP ACCEPT

You might receive the following messages, which are acceptable.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HBB7790
BECAUSE IT IS NOT IN THE dlib ZONE.
```

In the message, xxxxxxxx is one of the following modules:

```
AMDPRFMT ATBINPVT IEAIPL04 IEANUC11 IEFITJT IEFW21SD
IWM02CMD
```

Successful ACCEPT processing returns a condition code of 4.

8.7.3.2.2 Messages expected during Communications Server IP Services ACCEPT

During the ACCEPT of Communications Server IP Services, the following messages are received and are acceptable:

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HIP6210
BECAUSE IT IS NOT IN THE dlib ZONE.
```

In the message, xxxxxxxx will be one of the following modules:

```
EZAADMLR EZAFTSRV EZAIMSLN EZAPPRT EZAPPSST GXDEM01
GXDEM02 GXDEM03 GXDEM04 GXDEM04A GXDEM05 GXDEM06
```

The following MOD entries in the Communications Server IP Services FMID are superseded by MOD entries in feature FMIDs. Therefore, these MOD entries might be flagged as "NOT SEL" during the ACCEPT.

- MAC EZACDIRB

- MAC EZAODIRB
- MOD EZACXADE
- MOD EZACXAEN
- MOD EZACX3DE
- MOD EZACX3EN
- MOD EZACX3FR
- MOD EZACX3HD
- MOD EZACX3HE
- MOD EZACX3IK
- MOD EZACX3IV
- MOD EZAPX3CC
- MOD EZBISXGM
- MOD EZBISXES

8.7.3.2.3 Messages expected during Cryptographic Services ICSF ACCEPT

During the ACCEPT of Cryptographic Services, ICSF, the following messages are received and are acceptable.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD HCR77A0
BECAUSE IT IS NOT IN THE dlib ZONE
```

In the message, xxxxxxxx will be one of the following modules:

```
CSFATWOT CSFAVKID CSFCVR1 CSFDSTAT
```

8.7.3.3 Additional messages expected during Wave 1AL ACCEPT

Successful ACCEPT processing of Wave 1AL returns a condition code of 0 or 4.

8.7.3.4 Additional messages expected during Wave 1B ACCEPT

Successful ACCEPT processing of Wave 1B returns a condition code of 4.

8.7.3.4.1 Messages expected during DFSMS ACCEPT

The following messages may be received during ACCEPT processing of DFSMS.

```
GIM61903W LMOD yyyyyyyy WAS NOT DELETED BY HDZ2210 BECAUSE
IT IS NOT IN THE dlib ZONE.
```

In the message, yyyyyyyy will be one of the following modules and xxxx is the name of the distribution zone.

```
ARCZCUC ARCZDLC ARCZPUT EDGCXTRC EMODVOL1 IDA019BL
OMODVOL1
```

Successful ACCEPT processing returns a condition code of 4.

8.7.3.5 Additional messages expected during Wave 1C ACCEPT

Successful ACCEPT processing of Wave 1C returns a condition code of 4.

8.7.3.5.1 Messages expected during BookManager/Build ACCEPT

During the installation of BookManager/Build, if you installed BookManager READ first, you will receive NOT SEL for the common parts, indicating BookManager READ retains ownership of the common parts. This is acceptable. The common parts are:

```
EOYALLC  EOYALLC2  EOYBOOK  EOYBKIND  EOYINDEX  EOYINDX
EOYPARM  EOY@PRIM  EIJBPOR  EIJCFRE  EIJDANI  EIJDUTC
EIJENGL  EIJFREN  EIJGERM  EIJITAL  EIJNORW  EIJPORT
EIJSPAN  EIJSWED  EIJUKEN
```

Successful ACCEPT processing returns a condition code of 0.

8.7.3.5.2 Message expected during EREP ACCEPT

```
GIM61903W LMOD IFCILG04 WAS NOT DELETED BY SYSMOD EER3500
BECAUSE IT IS NOT IN THE dlib ZONE
```

8.7.3.5.3 Messages expected during TSO/E ACCEPT

You might receive the following message, which is acceptable.

```
GIM61903W ALIAS xxxxxxxx WAS NOT DELETED BY SYSMOD HTE7790
BECAUSE IT IS NOT IN THE dlib ZONE
```

In the message text, xxxxxxxx is one of the following aliases for SYSMOD HTE7790:

```
IGC0006A IKJEFT02 IKJEFT09 IKJEGDRP IRXAPPC TEST
```

Successful ACCEPT processing returns a condition code of 4.

8.7.3.6 Additional messages expected during Wave 1D ACCEPT

Successful ACCEPT processing of Wave 1D returns a condition code of 0 or 4.

8.7.3.6.1 Messages expected during OCSF Security Level 3 ACCEPT

During the ACCEPT of OCSF Security Level 3, the following messages might be received. These messages are acceptable if they are the only cause of return code 4.

```
GIM61903W LMOD CDSNM036 WAS NOT DELETED BY SYSMOD
JCRY741 BECAUSE CDSNM036 IS NOT IN THE dlib ZONE
```

```
GIM61903W LMOD CDSNM037 WAS NOT DELETED BY SYSMOD
JCRY741 BECAUSE CDSNM037 IS NOT IN THE dlib ZONE
```

8.7.3.7 Additional messages expected during Wave 1E ACCEPT

Successful ACCEPT processing of Wave 1E returns a condition code of 0.

8.7.3.8 Additional messages expected during Wave 1F ACCEPT

Successful ACCEPT processing of Wave 1F returns a condition code of 0 or 4.

8.7.3.8.1 Messages expected during DFSORT ACCEPT

IEW2454W messages can be ignored if they are issued for symbols starting with “CEE,” such as: CEEINT, CEESTART, CEEBETBL, CEETREC, CEESETL, CEEQRYL, CEEARLU, CEESTXF, and CEESCOL. (Other unlisted symbols starting with “CEE” can also be ignored.) These are typical messages from the Binder during steps that store modules into distribution libraries when you ACCEPT DFSORT FMIDs and PTFs at the same time. Any other messages should be investigated.

8.7.3.9 Additional messages expected during Wave 1G ACCEPT

Successful ACCEPT processing of Wave 1G returns a condition code of 0 or 4. Successful ACCEPT processing of Wave 1G returns a condition code of 4 when the expected messages documented in the following section are issued.

8.7.3.9.1 Messages expected during Distributed File Service ACCEPT

During the ACCEPT of Distributed File Service, the following messages might be received. These messages are acceptable if they are the only cause of the return code 4.

```
GIM61903W LMOD xxxxxxxx WAS NOT DELETED BY SYSMOD yyyyyyy  
BECAUSE IT IS NOT IN THE xxxx ZONE
```

In the message text, yyyyyyy is either H0H2410 or HZFS410, xxxxxxxx is one of the following modules, and xxxx is the name of the distribution zone.

For H0H2410 IOECMINI, IOEGLUE
For HZFS410 IOEZM004, IOEZM006, IOEZM007

8.7.3.9.2 Messages expected during Network File System ACCEPT

During the ACCEPT of Network File System, the following message might be received. This message is acceptable if it is the only cause of the return code 4.

```
GIM61903W LMOD yyyyyyyy WAS NOT DELETED BY SYSMOD HDZ221N  
BECAUSE yyyyyyyy IS NOT IN THE xxxx ZONE
```

In the message text, yyyyyyyy will be one of the following modules and xxxx is the name of the distribution zone.

GFSAMAIN GFSMAIN GFSATCPL GFSATPNL GFSATPRL GFSAXOUT
GFSAXPRT GFSAXSRB GFSAXTIN GSAHFST GSALEGT GSAXEPL

8.7.4 Do an SMP/E ACCEPT CHECK for Wave 2

Run an ACCEPT CHECK to identify any requisite service, and additional holds (for example, HOLDSYS(DOC)), that may need to be resolved before ACCEPT processing. Resolve any holds and receive any requisite service identified by the ACCEPT CHECK before the next step.

Figure 80 on page 300 shows a sample ACCEPT CHECK for the functions specified in the SELECT operand, plus APPLyed PTFs that are applicable only to the FMIDs listed in the FORFMID.

```
//CHECK JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//          DD DSN=ASM.SASMMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(dlibzone)
  OPTIONS(ZOSOPT) .
  UPGRADE.
  ACCEPT CHECK XZREQ
    FORFMID(HJE7790,HQX7790,HJS7790
            JJE779J,JJE779S,JQX779J)
            /* If not ordered, remove */
    SELECT(HJE7790,HQX7790,HJS7790
           JJE779J,JJE779S,JQX779J)
           /* If not ordered, remove */
  SOURCEID(ZOSV2R1,RSU*)
  /* see Note 2 below */
  FIXCAT(IBM.ProductInstall-RequiredService)
  /* see Note 2 below */
  GROUPEXTEND(NOAPARS,NOUSERMODS)
  BYPASS(HOLDSYSTEM,HOLDUSER,
         HOLDCLASS(ERREL,UCLREL,HIPER)) .
/*
```

Figure 80. SMP/E ACCEPT CHECK for Wave 2 (All FMIDs and All Service)

Note: ZOSOPT is now the option name for z/OS.

Required Updates

1. Update the *job parameters*.
2. To access the z/OS V2.1.0 level of Wave 0 elements using STEPLIB DD statements, perform either of the following tasks:
 - If you use the Wave 1 target system to install Wave 2 elements, remove the STEPLIB DD statements.
 - Update the volume serial number of v2r1vo11 with the volume serial number of the MIGLIB and SASMMOD1 libraries, which were used to install Wave 0 elements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.
4. Update *dlibzone* to your dlib zone name.
5. The XZREQ operand only needs to be specified when cross-zone processing is required.
6. If you plan to use JES2 and SDSF, and did not order JES3, remove the JES3 FMID HJS7790 from the FORFMID and SELECT operands in the sample job before running the job.
7. If you plan to use JES2 and SDSF, you must install FMID JJE779S concurrently with FMIDs HJE7790 and HQX7790.

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDS before putting your system into production.

If you do not BYPASS(HOLDCLASS(HIPER)), the FMIDs may not be installed if any of the HIPER maintenance is unavailable.

Any messages other than those listed in 6.7, “Step 6: Review general installation notes” on page 45 or those listed below should be investigated.

Notes:

1. The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON THE ACCEPT CHECK  
COMMAND BUT SINCE NO ZONES WERE APPLICABLE FOR CROSS-ZONE  
REQUISITE CHECKING, THE XZREQ OPERAND WILL BE IGNORED.
```

```
GIM20501I ACCEPT PROCESSING IS COMPLETE. THE HIGHEST RETURN  
CODE WAS 04.
```

2. If you did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the ACCEPT. In such a situation, you must add the HIPER value to the SOURCEID operand; for example, SOURCEID(ZOSV2R1,RSU*,HIPER).

Successful ACCEPT CHECK processing for JES2 and SDSF returns a condition code of 0.

8.7.4.1 Messages expected during ACCEPT CHECK Processing for JES3: During the installation of the JES3 component you can expect to receive the following messages:

```
GIM61903W LMOD IATUX86 WAS NOT DELETED BY SYSMOD HJS7790
BECAUSE IT IS NOT IN THE dlib ZONE.
```

```
GIM61903W LMOD IATIMDL WAS NOT DELETED BY SYSMOD HJS7790
BECAUSE IT IS NOT IN THE dlib ZONE.
```

A condition code of 4 is expected during ACCEPT CHECK processing.

8.7.5 Do an SMP/E ACCEPT for Wave 2

Do not specify ASSEM on the ACCEPT command for JES2, JES3, and SDSF. The specification of ASSEM on the ACCEPT command can cause serviceability problems.

Figure 81 shows a sample ACCEPT for the functions specified in the SELECT operand, plus APPLY'd PTFs that are applicable only to the FMIDs listed in the FORFMID.

```
//ACCEPT JOB <job parameters>
//STEP1 EXEC PGM=GIMSMP,REGION=0M,TIME=NOLIMIT
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//          DD DSN=ASM.SASMMOD1,DISP=SHR,
//          UNIT=SYSALLDA,VOL=SER=v2r1vo11
//SMPCSI DD DSN=zosv2r1.global.csi,DISP=SHR
//SMPCNTL DD *
  SET BOUNDARY(dlibzone)
  OPTIONS(ZOSOPT) .
  ACCEPT XZREQ
    FORFMID(HJE7790,HQX7790,HJS7790
            JJE779J,JJE779S,JQX779J)
            /* If not ordered, remove */
    SELECT(HJE7790,HQX7790,HJS7790
           JJE779J,JJE779S,JQX779J)
           /* If not ordered, remove */
  SOURCEID(ZOSV2R1,RSU*)
  /* see Note 2 below */
  FIXCAT(IBM.ProductInstall-RequiredService)
  /* see Note 2 below */
  BYPASS(HOLDUSER,
         HOLDCLASS(ERREL,UCLREL,HIPER))
  GROUPEXTEND(NOAPARS,NOUSERMODS)
  COMPRESS(ALL) .
/*
```

Figure 81. SMP/E ACCEPT for Wave 2 (FMIDs and All Service)

Note: ZOSOFT is now the option name for z/OS.

Required Updates

1. Update the *job parameters*.
2. Either remove the STEPLIB (if you are using the Wave 1 target system to install Wave 2) or update the v2r1vol1 with the volume serial number of the MIGLIB and the SASMMOD1 libraries used to install Wave 0 (if any elements were installed in Wave 0) to access the z/OS V2.1.0 level of Wave 0 elements using STEPLIB DD statements.
3. Replace the CSI name on the SMPCSI DD statement with your CSI name.
4. Update *dlibzone* to your dlib zone name.
5. The XZREQ operand only needs to be specified when cross-zone processing is required.
6. If you plan to use JES2 and SDSF, and did not order JES3, remove the JES3 FMID HJS7790 from the FORFMID and SELECT operands in the sample job before running the job.
7. If you plan to use JES2 and SDSF, you must install FMID JJE779S concurrently with FMIDs HJE7790 and HQX7790.

Note that if you BYPASS(HOLDCLASS(HIPER)), you should run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER HOLDs before putting your system into production.

If you do not BYPASS(HOLDCLASS(HIPER)), the FMIDs may not be installed if any of the HIPER maintenance is unavailable.

Any messages other than those listed in 6.7, "Step 6: Review general installation notes" on page 45 or those listed below should be investigated.

Notes:

1. The XZREQ operand only needs to be specified when cross-zone processing is required. If this operand is specified when there is no zone group set up, the following messages will be received, which are acceptable:

```
GIM50810W THE XZREQ OPERAND WAS SPECIFIED ON THE ACCEPT COMMAND  
BUT SINCE NO ZONES WERE APPLICABLE FOR CROSS-ZONE REQUISITE  
CHECKING, THE XZREQ OPERAND WILL BE IGNORED.  
  
GIM20501I ACCEPT PROCESSING IS COMPLETE. THE HIGHEST RETURN  
CODE WAS 04.
```
2. If you did not run the UPGRADE command in the global zone before receiving the FIXCAT HOLDDATA, you cannot use the FIXCAT operand on the ACCEPT. In such a situation, you must add the HIPER value to the SOURCEID operand; for example, SOURCEID(ZOSV2R1,RSU*,HIPER).

Successful ACCEPT processing of JES2 and SDSF returns a condition code of 0.

8.7.5.1 Messages expected during ACCEPT Processing for JES3: During the installation of the JES3 component you can expect to receive the following messages:

```
GIM61903W LMOD IATUX86 WAS NOT DELETED BY SYSMOD HJS7790  
BECAUSE IT IS NOT IN THE dlib ZONE.
```

```
GIM61903W LMOD IATIMDL WAS NOT DELETED BY SYSMOD HJS7790  
BECAUSE IT IS NOT IN THE dlib ZONE.
```

A condition code of 4 is expected during ACCEPT processing for JES3.

8.8 Step 8: Clean up after Wave 1 and Wave 2

To do an optional global zone cleanup, see Appendix D, “Do global zone cleanup for deleted FMIDs” on page 401.

8.8.1 Do global zone cleanup for previous versions of JES2, JES3, and SDSF

Because each version of JES2, JES3, and SDSF are complete replacements for previous versions of JES2, JES3, and SDSF, you might want to delete the old FMIDs so future (unneeded) service will not be received for them, unless you plan to share the SMPPTS between z/OS V2.1.0 and systems having other levels of JES2, JES3, and SDSF.

The FMIDs listed as deleted in the output of the ACCEPT of the base FMIDs (HJE7790, HJS7790, and HQX7790) can be deleted from the FMID list in the global zone.

8.8.1.1 Do global zone cleanup for JES2: Sample job HASIGCLN is provided by the JES2 element. You can use HASIGCLN to delete old JES2 FMIDs, the associated SYSMODS of these JES2 FMIDs, and HOLDDATA from the SMP/E global zone. To perform the deletion, copy member HASIGCLN from JES2 library SHASSAMP, modify it for your environment, and run the job.

8.8.1.2 Do global zone cleanup for JES3: Sample job IATIGCLN is provided by the JES3 element. You can use IATIGCLN to delete old JES3 FMIDs, the associated SYSMODS of these JES3 FMIDs, and HOLDDATA from the SMP/E global zone. To perform the deletion, copy member IATIGCLN from JES3 library SIATSAMP, modify it for your environment, and run the job.

8.8.1.3 Do global zone cleanup for SDSF: Sample job ISFIGCLN is provided by the SDSF element. You can use ISFIGCLN to delete old SDSF FMIDs, the associated SYSMODS of these SDSF FMIDs, and HOLDDATA from the SMP/E global zone. To perform the deletion, copy member ISFIGCLN from SDSF library SISFJCL, modify it for your environment, and run the job. This sample job completes with a return code of 4.

Refer to *z/OS Migration* for a complete list of clean up activities including:

- Delete obsolete libraries, DDDEFs and Zones
- Run SMP/E Report Crosszone

Appendix A. Component IDs for Elements in z/OS V2.1.0

This appendix lists each z/OS Version 2 Release 1 Component ID along with its corresponding FMIDs. The table is listed by Component ID in alphanumeric order.

<i>Figure 82 (Page 1 of 12). Component IDs</i>			
FMID	COMP ID	Component Name	RETAIN Release
HOPI790 JOPI79J	5647A01OP	Print Interface and IP Printway extended mode	790 79J
HFNT11J HFNT110	5650FNT00	z/OS Font Collection	11J 110
HBKQ400	5655A2000	Bookserver Library Server	400
H24P111 J24P112	5655A4501	C/C++ Base Performance Analyzer	111 112
HIP6210 JIP621X JIP621K	5655HAL00	Communications Server (IP) HFS (TCP/IP / TCPIP) Communications Server X11R4 XWindows (TCP/IP / TCPIP) Communications Server Security Level 3 (TCP/IP / TCPIP)	210 21X 21K
HIF7N02 JIF7N11 JIF7N14 JIF7N15 JIF7N16	565504201	ISPF DM and C/S (Interactive System Productivity Facility)	N02 N11 N14 N15 N16
HIF7N02 JIF7N11 JIF7N14 JIF7N15 JIF7N16	565504202	ISPF PDF and SCLM (Interactive System Productivity Facility)	N02 N11 N14 N15 N16
HRSL410 JRSL41J JRSL411	565506803	Tivoli Directory Server for z/OS (TDS for z/OS / LDAP) Tivoli Directory Server for z/OS Security Level 3 (TDS for z/OS / LDAP)	410 41J 411
HCRY740 JCRY741	565506804	Integrated Security Services OCSF Integrated Security Services OCSF Security Level 3	740 741
HCPT410 JCPT411 JCPT41J	565506805	System SSL System SSL Security Level 3	410 411 41J
HSWK410 JSWK411 JSWK41J	565506807	Integrated Security Services Network Authentication Service Integrated Security Services Network Authentication Service Security Level 3	410 411 41J
HRO7740	565506809	Integrated Security Services OCEP Enhanced Plugin	740

Figure 82 (Page 2 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
H0GI400	565510400	OSA/SF (Open Systems Adapter / Support Facility)	400
HLB7790 JLB779J	56551210A	XL C/C++ Compiler	790 79J
HTV7790 JTV779J	56551210D	Runtime Library Extensions	790 79J
EER3500	565826001	EREP	500
EDU1H01	565899201	ICKDSF	H01
FDU1H07 FDU1H08 FDU1H09	565899202	ICKDSF ISMF Panels	H07 H08 H09
HTE7790	56651XX00	TSO/E REXX SAA (Time Sharing Option/Extensions)	790
HRM7790 JRM779J	566527404	RMF (Resource Measurement Facility)	790 79J
HTE7790 JTE779G JTE779J JTE779C	566528501	TSO/E Edit (Time Sharing Option/Extensions)	790 79G 79J 79C
HTE7790 JTE779G JTE779J JTE779C	566528502	TSO/E Scheduler (Time Sharing Option/Extensions)	790 79G 79J 79C
HTE7790 JTE779G JTE779J JTE779C	566528503	TSO/E Test (Time Sharing Option/Extensions)	790 79G 79J 79C
HTE7790 JTE779G JTE779J JTE779C	566528504	TSO/E XMIT - IDTF (Time Sharing Option/Extensions - Transmit and Receive - Interactive Data Transmission Facility)	790 79G 79J 79C
HTE7790 JTE779G JTE779J JTE779C	566528505	TSO/E Session Manager (Time Sharing Option/Extensions)	790 79G 79J 79C
JTE779C JTE779E JTE779G JTE779J	566528506	TSO/E ICF (Time Sharing Option/Extensions - Information Center Facility)	79C 79E 79G 79J

Figure 82 (Page 3 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HTE7790 JTE779G JTE779J JTE779C	566528507	TSO/E ECF - MVSSERV (Time Sharing Option/Extensions - Enhanced Connectivity Facility)	790 79G 79J 79C
HTE7790 JTE779G JTE779J JTE779C	566528508	TSO/E REXX (Time Sharing Option/Extensions)	790 79G 79J 79C
HIO1104	566529101	Input/Output Configuration Program (IOCP common)	104
HIO1104	566529102	Input/Output Configuration Program (IOCP MVS Control External Writer)	104
HIO1104	566529103	Input/Output Configuration Program (IOCP) Standalone	104
HBD6602 JBD6201 JBD6202	566530201	Bulk Data Transfer (BDT) including File-to-File and SNA NJE	602 201 202
HFX1112	566531101	3270 PC File Transfer Program	112
HQX7790 JQX779J JJE779S	566548801	SDSF (System Display and Search Facility)	790 79J 79S
HGD3201	566881201	GDDM-PGF (Graphical Data Display Manager - Presentation Graphics Feature)	201
HMP1J00 JMP1J11	566894901	SMP/E (System Modification Program Extended)	J00 J11
HBCNC00 HBCND0B JBCND1B	566894902	SMP/E - Planning/Migration Assistant (PMA) Including Software Information Base for Planning SMP/E - Planning/Migration Assistant (PMA) Including Software Information Base for Planning	C00 D0B D1B
HSWF100	568500101	ESCON Director Support	100
HCR77A0	568505101	ICSF (Integrated Cryptographic Service Facility) - HCR77A0 Cryptographic Support for z/OS V1.12 through z/OS V1.13	7A0
HLE7790 JLE779J	568819801	Language Environment (LE) CEL / Common Execution Library	790 79J
HLE7790 JLE779J	568819802	Language Environment (LE) COBOL Library	790 79J
HLE7790 JLE779J	568819803	Language Environment (LE) PL/I Library	790 79J

Figure 82 (Page 4 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HLE7790 JLE779J	568819804	Language Environment (LE) Fortran Library	790 79J
HLE7790 JLE779J	568819805	Language Environment (LE) C/C++ Run Time Library (RTL)	790 79J
HLE7790 JLE779J	568819806	Language Environment (LE) VA PL/I Library	790 79J
HLE7790	568819807	Language Environment (LE) ANSI C/C++ Class Library	790
HDZ2210	5695DF1VR	DFSMS-CICSVR Server Support	210
HDZ2210	5695DF100	DFSMS Install	210
HDZ2210	5695DF101	SMS (Storage Management Subsystem)	210
HDZ2210	5695DF102	BAM (Base Access Methods)	210
HDZ2210	5695DF103	AMS (Access Method Services)	210
HDZ2210	5695DF104	DFSMS Common Services	210
HDZ2210	5695DF105	ICF Catalog and CVOL	210
HDZ2210	5695DF106	VSAM/Media Manager	210
HDZ2210	5695DF107	OCEOV/DADSM/CVAF (Data Management Support)	210
HDZ2210	5695DF109	Checkpoint Restart	210
HDZ2210	5695DF110	Device Support - BTLs/Tape	210
HDZ2210	5695DF111	Device Support - DASD	210
HDZ2210	5695DF113	Device Support Services	210
HDZ2210	5695DF114	Utilities	210
HDZ2210	5695DF115	PDSE (Partitioned Datas Set Extended) and FAMS	210
HDZ2210	5695DF116	VMA (Volume Mount Analyzer)	210
HDZ2210	5695DF117	SDM (System Data Mover)	210
HDZ2210	5695DF118	DFSMS Compression Services	210
HDZ2210	5695DF119	Common Function/Reuse	210
HDZ2210	5695DF120	Distributed File Manager (DFM)	210
HDZ221N JDZ221J	5695DF121	Network File System (NFS) Server	21N 21J
HDZ2210	5695DF122	VSAM Record Level Sharing (RLS)	210
HDZ2210 JDZ221K	5695DF123	Naviquest	210 21K
HDZ2210	5695DF125	z/OS Management Facility - DASD Management	210

Figure 82 (Page 5 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HDZ2210	5695DF126	Media Manager	210
HDZ2210	5695DF133	Device Management Services	210
HDZ2210	5695DF140	CDRA (Character Data Representation Architecture)	210
HDZ2210 JDZ221K	5695DF161	ISMF PANELS JPN	210 21K
HDZ2210 JDZ221K	5695DF170	DFSMSshm (Hierarchical Storage Management)	210 21K
HDZ2210 JDZ221K	5695DF175	DFSMSdss (Data Set Services)	210 21K
HDZ2210	5695DF180	DFSMSoam (Object Access Method)	210
HDZ2210	5695DF185	Hierarchical File System (HFS)	210
HDZ2210 JDZ221K	5695DF186	DFSMSrmm (Removable Media Manager)	210 21K
HPM7790	5695PMB00	Program Management (Binder)	790
HPM7790	5695PMB01	Program Management (Binder)	790
HOT7790 JOT779J	5695SCPE1	z/OS UNIX System Services Parallel Environment	790 79J
HBB7790 JBB779J JBB779C	5695SCPX1	z/OS UNIX System Services Kernel and File System	790 79J 79C
HOT7790 JOT779J JOT779C	5695SCPX2	z/OS UNIX System Services Shell and Utilities	790 79J 79C
HOT7790	5695SCPX3	z/OS UNIX System Services Debugger (DBX)	790
HOT7790 JOT779J JOT779C	5695SCPX4	z/OS UNIX System Services Application Services	790 79J 79C
HOT7790	5695SCPX7	zCOMP	790
HCS7790 JCS779J	5695SC1XL	HCD (Hardware Configuration Definition)	790 79J
HWJ9143 JWJ9144	569501403	Alternate Library for REXX	143 144
HNET790 JNET79J	569504002	PSF NetSpool	790 79J
HMOS705 JMOS7J5	569504004	PrintWay basic mode	705 7J5

Figure 82 (Page 6 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HFST101	569504402	FFST (First Failure Support Technology)	101
HBKP300	569504500	BookManager BUILD	300
JBKP310			310
JBKP311			311
JBKP312			312
JBKP313			313
JBKP314			314
JBKP315			315
HBKM300	569504600	BookManager READ	300
JBKM310			310
JBKM311			311
JBKM312			312
JBKM313			313
JBKM314			314
JBKM315			315
JBKM316			316
JBKM317			317
JBKM318			318
HVT6210	569511701	Communications Server SNA Services (VTAM)	210
HGD3200	569516701	GDDM (Graphical Data Display Manager)	200
JGD3219	569516702	GDDM National Language Support (Graphical Data Display Manager NLS)	219
JGD3220			220
JGD3221			221
JGD3222			222
JGD3223			223
JGD3224			224
JGD3225			225
JGD3226			226
JGD3227			227
JGD3228			228
JGD3229			229
JGD3230			230
JGD3231			231
JGD3232			232
HZFS410	5696EFS00	Distributed File Service (zfs)	410
JZFS41J			41J
HMQ4160	569623400	High Level Assembler (HLASM)	160
JMQ416A	569623401	High Level Assembler (HLASM) Toolkit	16A
H0H2410	569694200	Distributed File Service / Server Message Block (DFS/SMB)	410
J0H241J			41J

Figure 82 (Page 7 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HIMW530 JIMW53B JIMW531	5697D4300	HTTP Server	530 53B 531
HCM1E10	569711900	Hardware Configuration Manager (HCM)	E10
HSM1L00	5740SM105	DFSORT	L00
HBB7790 JBB779J	5752BB1CS	Dynamic Device Reconfiguration (DDR)	790 79J
HBB7790 JBB779J	5752BB1CT	Machine Check Handler (MCH)	790 79J
HBB7790 JBB779J	5752BB131	Event Notification Facility (ENF) Dynamic output Dynamic output	790 79J
HBB7790	5752BDPUT	z/OS Service	790
HBB7790	5752BDTST	z/OS Preventive Service	790
HBB7790	5752MSI05	MSYS RACF Support	790
HBB7790	5752OS390	z/OS General	790
HBB7790 JBB779J	5752SCACB	Advanced Program-to-Program Communication (APPC)	790 79J
HBB7790 JBB779J	5752SCACR	ACR (Alternate CPU Recovery)	790 79J
HBB7790 JBB779J	5752SCASA	z/OS Reuse	790 79J
HBB7790	5752SCASE	Address Space Services	790
HBB7790	5752SCASR	Symptom Record (SYMREC) services	790
HBB7790 JBB779J	5752SCAVM	Availability Manager	790 79J
HBB7790	5752SCAXR	System REXX	790
HPV7790	5752SCCAP	Capacity Provisioning	790
HSD7780	5752SCCCR	Metal C Runtime Library	780
HBB7790	5752SCCEA	Common Event Adapter	790
HPG7790	5752SCCIM	CIM (Common Information Model)	790
HPG7790	5752SCCM2	CIM ESERVER OS Management (Common Information Model)	790
HPG7790	5752SCCM3	CIM Client for Java (Common Information Model)	790
HPG7790	5752SCCM4	CIM Job Cluster Management (Common Information Model)	790
HPG7790	5752SCCM5	CIM Problem Determination (Common Information Model)	790

Figure 82 (Page 8 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HPG7790	5752SCCM6	CIM Workload Manager (Common Information Model)	790
HPG7790	5752SCCM7	CIM SMI-S	790
HPG7790	5752SCCM8	CIM Performance Monitoring (Common Information Model)	790
HBB7790 JBB779J	5752SCCSR	Callable Service Requests	790 79J
HBB7790 JBB779J	5752SCCTX	Context Services	790 79J
HBB7790 JBB779J	5752SCDIV	Data-in-virtual (DIV)	790 79J
HBB7790 JBB779J	5752SCDMP	SNAP/ABDUMP SDUMP	790 79J
HBB7790 JBB779J	5752SCGTZ	BCP Generic Tracker	790 79J
HBB7790	5752SCHCW	Device Driver Manager	790
HBB7790	5752SCHIS	z/OS Hardware Instrumentation	790
HBB7790 JBB779J	5752SCHWI	BCPii (Base Control Program Internal Interface)	790 79J
HBB7790 JBB779J	5752SCHZS	Health Checker	790 79J
HBB7790	5752SCIQP	IOS EXTENSION	790
HBB7790 JBB779J	5752SCIXL	Cross System Extended Services (XES)	790 79J
HBB7790	5752SCJSC	JES Common Coupling	790
HBB7790	5752SCLDR	Program Loader	790
HBB7790 JBB779J	5752SCLOG	System logger	790 79J
HBB7790 JBB779J	5752SCLWT	Loadwait/Restart	790 79J
HBB7790 JBB779J	5752SCMCA	Guest Platform Management	790 79j
HBB7790 JBB779J	5752SCMMS	MVS message service (MMS)	790 79J
HBB7790 JBB779J	5752SCOBR	Outboard recording (OBR) of SYS1.LOGREC error recording	790 79J
HBB7790 JBB779J	5752SCPFA	Predictive Failure Analysis (PFA)	790 79J

Figure 82 (Page 9 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HBB7790 JBB779J	5752SCRRS	Resource Recovery Services (RRS)	790 79J
HBB7790	5752SCRTD	Runtime Diagnostics (RTD)	790
HBB7790 JBB779J	5752SCR TM	Recovery Termination Manager (RTM)	790 79J
HBB7790 JBB779J	5752SCSDS	Global Resource Serialization (GRS)	790 79J
HBB7790 JBB779J	5752SCSLM	License Manager Support	790 79J
HBB7790 JBB779J	5752SCSLP	SLIP/PER	790 79J
HBB7790 JBB779J	5752SCSPI	Service processor interface (SPI)	790 79J
HBB7790 JBB779J	5752SCTRC	Component Trace	790 79J
HBB7790 JBB779J	5752SCTTR	Transaction Trace	790 79J
HUN7790 JUN779J	5752SCUNI	Support for Unicode	790 79J
HBB7790	5752SCURP	Usage Reporting Program	790
HBB7790 JBB779J	5752SCVTM	Virtual Terminal Manager	790 79J
HBB7790 JBB779J	5752SCWLM	Workload Manager (WLM)	790 79J
HBB7790 JBB779J	5752SCXCF	Cross System Coupling Facility (XCF)	790 79J
HBB7790	5752SCXML	XML System Services	790
HBB7790 JBB779J	5752SCXMS	Program Call authorization (PC/AUTH) service routines	790 79J
HJS7790	5752SC1BA	JES3 (Job Entry Subsystem 3)	790
HBB7790	5752SC1BC	BCP Batch Container	790
HJE7790 JJE779J	5752SC1BH	JES2 (Job Entry Subsystem 2)	790 79J
HBB7790	5752SC1BL	Multi Leaving Workstation (MLW)	790
HBB7790	5752SC1BN	System Security Support (SAF)	790

Figure 82 (Page 10 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HBB7790 JBB779J	5752SC1B2	External Writer (XWTR)	790 79J
HBB7790 JBB779J	5752SC1B3	Scheduler Restart	790 79J
HBB7790 JBB779J	5752SC1B4	Allocation/Unallocation	790 79J
HBB7790	5752SC1B5	SWA Manager	790
HBB7790 JBB779J	5752SC1B6	Initiator/Terminator	790 79J
HBB7790 JBB779J	5752SC1B8	Command processing - includes - Command processors / Master scheduler / Master trace	790 79J
HBB7790 JBB779J	5752SC1B9	Converter/Interpreter	790 79J
HBB7790 JBB779J	5752SC1CH	Virtual Storage Management (VSM)	790 79J
HBB7790 JBB779J	5752SC1CJ	Contents Supervisor	790 79J
HBB7790 JBB779J	5752SC1CK	Communications Task (COMMTASK)	790 79J
HBB7790	5752SC1CL	Task Manager	790
HBB7790 JBB779J	5752SC1CM	Recovery Termination Manager (RTM)	790 79J
HBB7790	5752SC1CP	Extended Precision Floating Point Register	790
HBB7790 JBB779J	5752SC1CR	Real Storage Manager (RSM)	790 79J
HBB7790 JBB779J	5752SC1CU	Region Control Task (RCT)	790 79J
HBB7790 JBB779J	5752SC1CV	Timer Supervisor	790 79J
HBB7790 JBB779J	5752SC1CW	Auxiliary Storage Manager (ASM)	790 79J
HBB7790 JBB779J	5752SC1CX	System Resource Manager (SRM)	790 79J
HBB7790 JBB779J	5752SC1CZ	MP Reconfiguration	790 79J

Figure 82 (Page 11 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HBB7790 JBB779J	5752SC1C3	I/O Supervisor (IOS)	790 79J
HBB7790 JBB779J	5752SC1C4	Device Independent Display Operator Control (DIDOCS)	790 79J
HBB7790 JBB779J	5752SC1C5	Supervisor Control - includes Interrupt handlers / Dispatcher	790 79J
HBB7790	5752SC1C6	Execute Channel Program (EXCP)	790
HBB7790	5752SC1C8	Nucleus Initialization Program (NIP)	790
HBB7790	5752SC1C9	Initial Program Loader (IPL)	790
EMI2220	5752SC1DF	3890 Document Processor	220
EMI2220	5752SC1DL	Optical Character Reader (OCR)	220
EMI2220	5752SC1DM	3895 Document Reader/Inscriber	220
EMI2220	5752SC1DN	3540 Diskette I/O Unit	220
EMI2220	5752SC1D5	Output Control Record	220
HBB7790	5752SC1GC	BCP Portable Grid Container	790
HBB7790	5752SC1S4	Supervisor SYSGEN	790
HBB7790	5752SC1S5	Scheduler SYSGEN	790
ETI1106	5752SC1T3	TSO TIOC (Terminal Input/Output Controller)	106
HBB7790 JBB779J	5752SC100	SMF Scheduler	790 79J
HBB7790	5752SC101	Supervisor Mapping Macro (MAPMACS)	790
HBB7790	5752SC102	System Management Facility (SMF)F)	790
HBB7790 JBB779J	5752SC106	On Line Test Executive Program (OLTEP)	790 79J
HBB7790 JBB779J	5752SC111	Generalized Trace Facility (GTF)	790 79J
HBB7790	5752SC112	Super Zap (AMASPZAP) / AMATERSE	790
HBB7790	5752SC115	Stand-Alone Dump (AMDSADMP)	790
HBB7790	5752SC118	GTF Trace edit	790
HBB7790	5752SC132	Interactive Problem Control System (IPCS)	790
HBB7790	5752SC141	JES Services	790
HBB7790 JBB779J	5752SC142	System Trace	790 79J

Figure 82 (Page 12 of 12). Component IDs

FMID	COMP ID	Component Name	RETAIN Release
HBB7790 JBB779J	5752SC143	Auto Dump Services (DAE)	790 79J
HBB7790	5752SC144	Allocation Services	790
HBB7790 JBB779J	5752SC164	Virtual Lookaside Facility (VLF)	790 79J
HBB7790	5752SYBLD	z/OS Install	790
HIT7750	5752XXEIM	Enterprise Identity Mapping (EIM)	750
HRF7790 JRF779J	5752XXH00	RACF (Security Server Resource Access Control Facility)	790 79J
HKY7790	5752XXPKI	PKI Services (Public Key Infrastructure)	790

Appendix B. APARs Incorporated into Elements of z/OS V2.1.0

This appendix is sorted by the element name.

APARs Incorporated into HBB7790 (BCP)

OA29670 OA30028 OA30761 OA31170 OA31453 OA32177 OA32240 OA32339
OA32544 OA32644 OA33460 OA33768 OA33918 OA34121 OA34226 OA34250
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OA37157 OA37160 OA37186 OA37190 OA37191 OA37194 OA37201 OA37211
OA37256 OA37264 OA37265 OA37287 OA37291 OA37292 OA37312 OA37317
OA37320 OA37341 OA37350 OA37372 OA37375 OA37381 OA37384 OA37388
OA37390 OA37420 OA37429 OA37442 OA37444 OA37452 OA37457 OA37467
OA37471 OA37478 OA37488 OA37522 OA37527 OA37531 OA37532 OA37550
OA37563 OA37566 OA37568 OA37583 OA37585 OA37588 OA37594 OA37598

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OA40643 OA40661 OA40665 OA40667 OA40679 OA40687 OA40690 OA40691
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OA40843 OA40856 OA40860 OA40898 OA40900 OA40903 OA40915 OA40925
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OA41055 OA41107 OA41113 OA41120 OA41136 OA41161 OA41249 OA41285
OA41307 OA41313 OA41354 OA41372 OA41373

APARs Incorporated into JBB779C

No APARs have been incorporated at this time.

APARs Incorporated into JBB779J

OA34731 OA35606 OA37957 OA38676

APARs Incorporated into HPV7790 (BCP - Capacity Provisioning)

OA36190 OA38267 OA39441 OA40779

APARs Incorporated into HUN7790 (BCP-Support for Unicode)

OA34499 OA34788 OA35392 OA37034 OA37099 OA37546 OA37560 OA38107
OA38383 OA38391 OA39625 OA40240 OA40283 OA40932 OA40990

APARs Incorporated into JUN779J (Unicode JPN)

No APARs have been incorporated at this time.

APARs Incorporated into HPM7790 (BCP Program Management Binder)

OA35322 OA35907 OA35957 OA36416 OA36502 OA37389 OA37984 OA38080
OA38470 OA39099 OA39387 OA40086 OA40289 OA40361 OA40549 OA40593
OA40686 OA40947 OA41268

APARs Incorporated into HBD6602 (BDT)

OW02466 OW02491 OW02703 OW06303 OW07581 OW08052 OW13686 OW14761
OW16558 OY00989 OY01181 OY01214 OY01465 OY01657 OY01963 OY02278
OY02507 OY02517 OY02556 OY02855 OY03037 OY03043 OY03193 OY03823
OY03900 OY04558 OY04723 OY04746 OY04757 OY04797 OY04960 OY05750
OY05860 OY05862 OY06461 OY06694 OY06854 OY07282 OY07358 OY07532
OY07737 OY07738 OY08097 OY08243 OY08520 OY08693 OY09047 OY09152
OY09208 OY09266 OY09340 OY09444 OY09724 OY09810 OY09814 OY10011
OY10450 OY10548 OY10660 OY10846 OY10938 OY11070 OY11117 OY11225
OY11226 OY11415 OY11487 OY11702 OY11739 OY12279 OY12342 OY12437
OY12637 OY13131 OY13133 OY13406 OY13591 OY14050 OY14244 OY14749
OY14959 OY15068 OY15125 OY15218 OY15466 OY15882 OY15962 OY16130
OY16264 OY16719 OY16986 OY17085 OY17238 OY17314 OY17428 OY17457
OY17584 OY17640 OY17978 OY17985 OY18308 OY18469 OY18554 OY18731
OY18908 OY19076 OY19284 OY19321 OY19388 OY19391 OY19894 OY19898
OY19902 OY19960 OY20171 OY20431 OY20784 OY20901 OY20923 OY21002
OY21460 OY21506 OY21813 OY21829 OY21841 OY21875 OY22428 OY22674
OY22782 OY23216 OY23309 OY23876 OY24777 OY25628 OY25822 OY26508
OY27326 OY27346 OY27743 OY27892 OY27898 OY27956 OY28054 OY28281

OY28729 OY29281 OY29347 OY29399 OY29778 OY29957 OY30006 OY30068
OY30079 OY30258 OY30281 OY31473 OY33022 OY33144 OY33982 OY33985
OY34270 OY35019 OY35732 OY36496 OY38230 OY39828 OY40931 OY41599
OY45904 OY47404 OY47780 OY52343 OY53129 OY54436 OY55413 OY58208
OY59355 OY60833 OY60850 OY64461 OZ96792 OZ96975 OZ97192 OZ97459
OZ97533 OZ97640 OZ97699 OZ97701 OZ97702 OZ97703 OZ97723 OZ97724
OZ97905

APARs Incorporated into JBD6201 (BDT File-to-File)

OW18026

APARs Incorporated into JBD6202 (BDT SNA NJE)

OY10539 OY11415 OY12637 OY16986 OY17978 OY18308 OY18908 OY19960
OY21506 OY26802 OY29281 OY30281 OY38230 OY54126 OY59355

APARs Incorporated into HBKP300 (BookManager BUILD)

PL78077 PL78438 PL81433 PL81434 PL81435 PL81438 PL83495 PL83723
PL84284 PN00882 PN00883 PN00884 PN00885 PN00886 PN04418 PN04426
PN05792 PN06150 PN06151 PN06636 PN06638 PN06641 PN07236 PN07655
PN08794 PN09833 PN10196 PN10207 PN10547 PN10574 PN11017 PN11020
PN14374 PN14375 PN14376 PN14442 PN14444 PN14464 PN14666 PN14874
PN15162 PN15605 PN17240 PN17955 PN18555 PN18558 PN19583 PN19736
PN19976 PN21069 PN21280 PN21281 PN21282 PN21288 PN21996 PN22013
PN22014 PN22015 PN22344 PN24028 PN24512 PN24584 PN24685 PN24776
PN24778 PN24779 PN26384 PN26385 PN26386 PN28563 PN28840 PN28944
PN30620 PN30624 PN33325 PN36241 PN37310 PN38106 PN39385 PN39386
PN39554 PN39909 PN39911 PN39913 PN44340 PN45146 PN45205 PN45291
PN46174 PN46303 PN46364 PN47014 PN47756 PN48037 PN49395 PN49412
PN50606 PN52917 PN53296 PN53402 PN54377 PN56482 PN56624 PN58277
PN58628 PN60135

APARs Incorporated into JBKP310

No APARs have been incorporated at this time.

APARs Incorporated into JBKP311

No APARs have been incorporated at this time.

APARs Incorporated into JBKP312

No APARs have been incorporated at this time.

APARs Incorporated into JBKP313

No APARs have been incorporated at this time.

APARs Incorporated into JBKP314

No APARs have been incorporated at this time.

APARs Incorporated into JBKP315

No APARs have been incorporated at this time.

APARs Incorporated into HBKM300 (BookManager READ)

PN01436 PN01438 PN01441 PN02112 PN02114 PN02115 PN02892 PN03579
PN04139 PN05596 PN05610 PN05613 PN05614 PN06306 PN06704 PN06719
PN06803 PN06810 PN06983 PN07217 PN07424 PN07658 PN07660 PN07976
PN08151 PN08219 PN08349 PN08430 PN08696 PN09081 PN09081 PN09330
PN09561 PN09797 PN10118 PN10394 PN10575 PN11373 PN11590 PN11610
PN11819 PN11915 PN12359 PN12679 PN12950 PN13295 PN13753 PN14344
PN15138 PN15246 PN15317 PN15503 PN15540 PN15715 PN15803 PN15916
PN15983 PN16213 PN16636 PN16640 PN16815 PN17253 PN17368 PN17421
PN17714 PN17951 PN18463 PN18465 PN18470 PN18625 PN18800 PN18861
PN19068 PN19141 PN19238 PN19601 PN19793 PN19815 PN20588 PN21881
PN22012 PN22171 PN22345 PN22390 PN22534 PN22685 PN22863 PN22864
PN23143 PN23200 PN23427 PN23482 PN24226 PN24332 PN24478 PN24777
PN24780 PN26506 PN27890 PN28240 PN28565 PN28703 PN29102 PN29165
PN29241 PN29249 PN29459 PN30430 PN30445 PN30620 PN30622 PN30671
PN30686 PN30771 PN30925 PN31340 PN31762 PN31926 PN32595 PN32673
PN32793 PN33508 PN33509 PN33807 PN33849 PN33871 PN34842 PN35066
PN36073 PN36839 PN37420 PN38106 PN38133 PN38410 PN38855 PN39554
PN39613 PN39813 PN39914 PN41056 PN41227 PN42150 PN43221 PN43465
PN43520 PN43900 PN44340 PN45205 PN45609 PN45863 PN45949 PN46174
PN46285 PN46303 PN46521 PN47014 PN47166 PN47168 PN47840 PN47956
PN48037 PN49359 PN49362 PN49412 PN50606 PN50775 PN51413 PN52136
PN52672 PN52917 PN53402 PN54310 PN54377 PN54694 PN54772 PN56624
PN58277 PN58820 PQ75262 PM59706 PK21196

APARs Incorporated into JBKM310

No APARs have been incorporated at this time.

APARs Incorporated into JBKM311

No APARs have been incorporated at this time.

APARs Incorporated into JBKM312

No APARs have been incorporated at this time.

APARs Incorporated into JBKM313

No APARs have been incorporated at this time.

APARs Incorporated into JBKM314

No APARs have been incorporated at this time.

APARs Incorporated into JBKM315

No APARs have been incorporated at this time.

APARs Incorporated into JBKM316

No APARs have been incorporated at this time.

APARs Incorporated into JBKM317

No APARs have been incorporated at this time.

APARs Incorporated into JBKM318

No APARs have been incorporated at this time.

APARs Incorporated into HPG7790 (Common Information Model (CIM))

OA33774 OA36355 OA38149 OA38790 OA39542 OA39655

APARs Incorporated into HIP6210 (Communications Server IP Services)

PM27084 PM30488 PM30788 PM31256 PM31309 PM31597 PM31986 PM33322
PM33769 PM33959 PM35516 PM36103 PM36877 PM37171 PM37295 PM37366
PM37369 PM37396 PM37460 PM37586 PM37655 PM37707 PM37708 PM37718
PM37720 PM37920 PM37961 PM37983 PM38006 PM38149 PM38150 PM38161
PM38253 PM38266 PM38290 PM38366 PM38402 PM38404 PM38426 PM38427
PM38505 PM38557 PM38636 PM38751 PM38843 PM38937 PM39036 PM39080
PM39109 PM39242 PM39412 PM39474 PM39630 PM39658 PM39695 PM39978
PM40020 PM40024 PM40025 PM40106 PM40137 PM40277 PM40380 PM40584
PM40781 PM40969 PM41405 PM41427 PM41561 PM41777 PM41804 PM41914
PM42050 PM42056 PM42207 PM42353 PM42490 PM42682 PM42869 PM43031
PM43061 PM43170 PM43452 PM43595 PM43816 PM43831 PM44116 PM44187
PM44234 PM44471 PM44539 PM44724 PM44821 PM45271 PM45434 PM45513
PM46074 PM46242 PM46260 PM46413 PM46549 PM46601 PM46927 PM47050
PM47145 PM47229 PM47698 PM47726 PM47741 PM47900 PM48616 PM48924
PM48998 PM49027 PM49032 PM49111 PM49332 PM49510 PM49517 PM49540
PM49727 PM49829 PM49922 PM50108 PM50430 PM50547 PM51183 PM51455
PM51473 PM51759 PM52007 PM52302 PM52545 PM52626 PM52712 PM52900

PM53324 PM53401 PM53598 PM54413 PM54470 PM54641 PM54994 PM55001
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PM62125 PM62213 PM62255 PM62527 PM62905 PM63017 PM63379 PM63682
PM63853 PM63936 PM64257 PM64416 PM64746 PM65102 PM65510 PM65707
PM65776 PM66038 PM66088 PM66494 PM66615 PM66841 PM67056 PM67441
PM67650 PM67750 PM67781 PM68017 PM68039 PM68340 PM68712 PM68761
PM68957 PM69315 PM69491 PM70368 PM70787 PM71103 PM71275 PM71460
PM71528 PM71565 PM71727 PM72122 PM72161 PM72186 PM72266 PM72871
PM72945 PM73126 PM73149 PM73180 PM73189 PM73261 PM73355 PM73523
PM74086 PM74276 PM74393 PM74397 PM74661 PM74678 PM74952 PM75118
PM75676 PM75710 PM76343 PM76397 PM76512 PM76570 PM76921 PM77038
PM77118 PM77862 PM78535 PM79016 PM79134 PM79308 PM79709 PM79869
PM80004 PM80076 PM80172 PM80332 PM80352 PM80550 PM80647 PM80906
PM81034 PM81404 PM81544 PM81547 PM82039 PM82694 PM83079 PM83736
PM87096 PM88359 PM88744 PM88791

APARs Incorporated into HVT6210 (Communications Server SNA Services)

OA26886 OA34571 OA35251 OA35268 OA36046 OA36068 OA36192 OA36193
OA36266 OA36271 OA36344 OA36385 OA36401 OA36445 OA36495 OA36545
OA36610 OA36611 OA36612 OA36631 OA36773 OA36921 OA36923 OA36935
OA36936 OA36937 OA36951 OA37027 OA37280 OA37305 OA37331 OA37353
OA37415 OA37473 OA37484 OA37490 OA37507 OA37512 OA37552 OA37600
OA37606 OA37628 OA37787 OA37800 OA37942 OA37978 OA37994 OA38234
OA38387 OA38392 OA38449 OA38508 OA38511 OA38554 OA38571 OA38588
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OA39277 OA39303 OA39346 OA39414 OA39420 OA39481 OA39595 OA39637
OA39707 OA40057 OA40058 OA40059 OA40307 OA40322 OA40347 OA40368
OA40369 OA40401 OA40513 OA40536 OA40579 OA40631 OA40662 OA40684
OA40894 OA40928 OA40970 OA40979 OA41021 OA41033 OA41078 OA41151
OA41222 OA41284 OA41624 OA42322

APARs Incorporated into JIP621K (Communications Server Security Level 3)

No APARS were integrated into JIP621K.

APARs Incorporated into JIP621X (XWINDOWS)

No APARs were integrated into JIP621X.

APARs Incorporated into HCRY740 (Cryptographic Services: OCSF)

No APARs have been incorporated at this time.

APARs Incorporated into JCRY741 (z/OS Security Level 3: OCSF Security Level 3)

No APARs have been incorporated at this time.

APARs Incorporated into HKY7790 (Cryptographic Services PKI Services)

OA36057 OA36196 OA36948 OA36991 OA36995 OA37066 OA37198 OA38513
OA38514 OA38580 OA39352 OA39353 OA39588 OA41200

APARs Incorporated into HCPT410 (Cryptographic Services: System SSL)

OA36315 OA36775 OA39422 OA40090 OA40338 OA40816 OA40836 OA41009

APARs Incorporated into JCPT411 (z/OS Security Level 3: System SSL Security Level 3)

No APARs have been incorporated at this time.

APARs Incorporated into JCPT41J (Cryptographic Services: System SSL Japanese)

No APARs have been incorporated at this time.

APARs Incorporated into HDZ2210 (DFSMS)

OA20411 OA20924 OA22381 OA22657 OA29680 OA30650 OA31394 OA31598
OA31663 OA32359 OA32665 OA32957 OA32958 OA32959 OA32960 OA33368
OA33783 OA33947 OA33949 OA33950 OA33951 OA33952 OA33953 OA33954
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OA35877 OA35889 OA35910 OA35913 OA35923 OA35926 OA35936 OA35960
OA35963 OA35964 OA35983 OA35985 OA35995 OA35996 OA35999 OA36004
OA36008 OA36016 OA36018 OA36022 OA36025 OA36048 OA36051 OA36060
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OA38317 OA38336 OA38338 OA38349 OA38354 OA38374 OA38379 OA38398
OA38414 OA38426 OA38466 OA38469 OA38481 OA38487 OA38491 OA38492
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OA38587 OA38590 OA38596 OA38607 OA38614 OA38620 OA38624 OA38632
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OA38678 OA38679 OA38680 OA38681 OA38684 OA38685 OA38686 OA38689
OA38691 OA38696 OA38699 OA38702 OA38709 OA38710 OA38711 OA38729
OA38730 OA38746 OA38772 OA38775 OA38777 OA38788 OA38794 OA38799

OA38804 OA38809 OA38815 OA38824 OA38827 OA38837 OA38845 OA38853
OA38856 OA38880 OA38884 OA38886 OA38887 OA38889 OA38893 OA38905
OA38916 OA38923 OA38930 OA38931 OA38939 OA38942 OA38949 OA38954
OA38956 OA38959 OA38961 OA38965 OA38970 OA38976 OA38978 OA38980
OA38981 OA39025 OA39038 OA39039 OA39046 OA39047 OA39055 OA39056
OA39062 OA39074 OA39077 OA39081 OA39087 OA39094 OA39096 OA39113
OA39121 OA39122 OA39124 OA39130 OA39140 OA39152 OA39156 OA39161
OA39169 OA39172 OA39174 OA39176 OA39186 OA39191 OA39205 OA39210
OA39229 OA39235 OA39239 OA39242 OA39244 OA39251 OA39253 OA39262
OA39263 OA39268 OA39276 OA39286 OA39325 OA39327 OA39330 OA39332
OA39340 OA39343 OA39357 OA39358 OA39360 OA39363 OA39372 OA39381
OA39383 OA39401 OA39404 OA39409 OA39417 OA39421 OA39430 OA39431
OA39434 OA39445 OA39448 OA39449 OA39456 OA39457 OA39459 OA39462
OA39470 OA39471 OA39474 OA39475 OA39488 OA39492 OA39499 OA39501
OA39520 OA39521 OA39534 OA39535 OA39537 OA39540 OA39546 OA39547
OA39549 OA39552 OA39567 OA39568 OA39569 OA39570 OA39572 OA39574
OA39583 OA39584 OA39589 OA39604 OA39607 OA39613 OA39635 OA39641
OA39642 OA39653 OA39675 OA39684 OA39688 OA39690 OA39695 OA39702
OA39705 OA39708 OA39710 OA39711 OA39718 OA39724 OA39726 OA39734
OA39738 OA39763 OA39769 OA39779 OA39786 OA39788 OA39789 OA39791
OA39802 OA39804 OA39805 OA39812 OA39827 OA39835 OA39836 OA39839
OA39843 OA39846 OA39849 OA39858 OA39859 OA39867 OA39875 OA39884
OA39885 OA39903 OA39904 OA39908 OA39912 OA39917 OA39923 OA39933
OA39934 OA39935 OA39936 OA39937 OA39943 OA39945 OA39948 OA39949
OA39966 OA39967 OA39971 OA39975 OA39977 OA39987 OA39998 OA40013
OA40014 OA40021 OA40023 OA40024 OA40045 OA40046 OA40056 OA40062
OA40068 OA40074 OA40075 OA40076 OA40081 OA40083 OA40098 OA40099
OA40101 OA40106 OA40110 OA40113 OA40116 OA40127 OA40131 OA40135
OA40142 OA40143 OA40167 OA40171 OA40185 OA40187 OA40195 OA40200
OA40201 OA40203 OA40208 OA40210 OA40221 OA40225 OA40230 OA40237
OA40245 OA40248 OA40253 OA40256 OA40263 OA40265 OA40274 OA40275
OA40280 OA40281 OA40285 OA40286 OA40300 OA40301 OA40321 OA40325
OA40334 OA40350 OA40352 OA40353 OA40365 OA40367 OA40379 OA40386
OA40391 OA40393 OA40400 OA40402 OA40404 OA40408 OA40421 OA40455
OA40456 OA40463 OA40475 OA40482 OA40484 OA40492 OA40494 OA40521
OA40532 OA40538 OA40547 OA40558 OA40577 OA40582 OA40586 OA40587
OA40607 OA40608 OA40616 OA40621 OA40627 OA40635 OA40636 OA40637
OA40640 OA40654 OA40663 OA40668 OA40683 OA40692 OA40697 OA40710
OA40715 OA40723 OA40732 OA40734 OA40741 OA40752 OA40759 OA40762
OA40768 OA40777 OA40783 OA40786 OA40797 OA40824 OA40840 OA40848
OA40867 OA40868 OA40871 OA40875 OA40877 OA40879 OA40881 OA40885
OA40902 OA40904 OA40910 OA40911 OA40914 OA40941 OA40949 OA40962
OA40972 OA40976 OA40982 OA40983 OA40988 OA41008 OA41011 OA41016
OA41020 OA41026 OA41032 OA41036 OA41045 OA41048 OA41064 OA41067
OA41073 OA41082 OA41098 OA41108 OA41119 OA41124 OA41129 OA41137
OA41149 OA41189 OA41191 OA41192 OA41237 OA41243 OA41244 OA41278

OA41279 OA41297 OA41311 OA41406 OA41434 OA41459 OA41460 OA41484
OA41538 OA41555

APARs Incorporated into JDZ221K (DFSMS Japanese)

OA33958 OA37226 OA37752 OA37892 OA38204 OA38540 OA38673 OA38674
OA38680 OA39901 OA33952

APARs Incorporated into HSM1L00 (DFSORT)

PM33358 PM38077 PM39424 PM40070 PM41563 PM44992 PM45183 PM45447
PM52016 PM55911 PM58615 PM62824 PM63086 PM63848 PM64701 PM66114
PM67061 PM68218 PM68822 PM70947 PM73857 PM77027 PM79393 PM79783
PM80651 PM81810

APARs Incorporated into H0H2410 (Distributed File Service)

OA33455 OA36267 OA36619 OA36698 OA36998 OA37058 OA37474 OA37780
OA38301 OA38410 OA38985 OA39436 OA39745 OA40712 OA41000 OA41176

APARs Incorporated into J0H241J

No APARs have been incorporated at this time.

APARs Incorporated into HZFS410

OA36031 OA36113 OA36539 OA36853 OA36990 OA37623 OA38177 OA38670
OA39070 OA39385 OA39716 OA41228

APARs Incorporated into JZFS41J

No APARs have been incorporated at this time.

APARs Incorporated into EER3500 (EREP - REWORK 199105)

This is the version that was shipped since OS/390 R1.

IR80711 IR80768 IR81185 IR81370 IR81547 IR81591 IR81804 IR82451
IR82751 IR82977 IR83371 IR83723 IR83856 IR83943 IR85611 IR85611
IR85711 IR85846 IR85846 IR85931 IR86094 IR86094 IR86191 IR86533
IR86533 IR86658 IR86881 IR87037 IR87038 IR87038 IR87039 IR87040
IR87242 IR87623 IR87632 IR87733 IR87733 IR88018 IR88180 IR88291
IR88374 IR88472 IR88473 IR88596 IR88730 IR88730 IR88776 IR88841
IR88854 IR88949 IR88949 IR88991 IR89166 IR89166 IR89210 IR89296
IR89318 IR89400 IR89419 IR89539 IR89685 IR89922 IR89922 IR89966
IR90141 IR90561 IR90741 IR90770 IR90850 IR90868 IR90959 IR90959
IR91068 IR91068 IR91068 IR91215 IR91464 IR91592 IR91601 IR91836

IR91852 IR92091 IR92091 IR92091 IR92396 IR92655 IR92798 IR92852
IR93183 IR93183 IR93227 IR93460

APARs Incorporated in EER3500 (EREP-SUP'd in z/OS V1.7.0)

This is the version that is SUP'd in z/OS V1.7.0. The APARs listed in the preceding section are still in this version.

IR22107 IR22113 IR22155 IR22361 IR22450 IR22549 IR22587 IR22987
IR23340 IR23532 IR25252 IR25562 IR25718 IR25856 IR27261 IR27350
IR27351 IR27996 IR28576 IR28731 IR29301 IR29955 IR30614 IR30886
IR31012 IR31687 IR32362 IR32608 IR32927 IR32971 IR33045 IR33151
IR33211 IR34613 IR34712 IR35814 IR35816 IR36215 IR36491 IR37709
IR37835 IR38057 IR38058 IR38450 IR38641 IR38950 IR39127 IR39721
IR39722 IR40683 IR40684 IR41039 IR41115 IR41673 IR41712 IR41986
IR42026 IR42503 IR42671 IR42672 IR43043 IR43044 IR43045 IR43046
IR44590 IR44854 IR45030 IR46224 IR46582 IR47431 IR48613 IR49633
IR50051 IR50866 IR50902 IR51078 IR51695 IR53169 IR53273 IR54199
IR54657 IR93614 IR94013 IR94126 IR94181 IR94340 IR94385 IR94450
IR94783 IR94943 IR95091 IR95102 IR95192 IR95324 IR95338 IR95500
IR95588 IR95713 IR95908 IR95965 IR96031 IR96698 IR96724 IR97014
IR97218 IR97314 IR97326 IR97455 IR97631 IR97934 IR97983 IR98123
IR98372 IR98410 IR98501 IR99102 IR99109 IR99262 IR99281

APARs Incorporated into HSWF100 (ESCON Director)

No APARs have been incorporated at this time.

APARs Incorporated into HFST101 (FFST)

PN29099 PN29717 PN29718 PN31356 PN31357 PN31410 PN31484 PN31768
PN31914 PN31916 PN33190 PN34219 PN34224 PN34526 PN35401 PN35590
PN35723 PN36140 PN36526

APARs Incorporated into HGD3200 (GDDM)

PN59427 PN62024 PN62733 PN63738 PN64024 PN65404 PN65498 PN65512
PN65514 PN65681 PN65937 PN65966 PN66171 PN66450 PN66458 PN66461
PN66468 PN66474 PN66507 PN66951 PN67035 PN67882 PN68256 PN68922
PN68927 PN69043 PN69302 PN69421 PN69423 PN69592 PN69719 PN69769
PN70250 PN70433 PN70441 PN70621 PN72131 PN72461 PN72998 PN73336
PN73449 PN73542 PN73588 PN73756 PN73783 PN73970 PN74028 PN74032
PN74087 PN74186 PN74248 PN74255 PN74318 PN74817 PN75807 PN76011
PN76158 PN76418 PN76534 PN76546 PN77428 PN77824 PN78575 PN79934
PN80122 PN80374 PN80720 PN82044 PN82794

APARs Incorporated into HGD3201 (GDDM-PGF)

PN43524 PN45816 PN53932 PN62127 PN64948 PN66658 PN74910 PN79959
PN84114

APARs Incorporated into HCS7790 (HCD)

OA32576 OA36617 OA36841 OA37356 OA37901 OA38286 OA38507 OA38945
OA39234 OA40105 OA40356 OA40896 OA41404 OA41413 OA41982 OA42116

APARs Incorporated into JCS779J

OA32576 OA36617 OA37901 OA38945 OA39234 OA41982

APARs Incorporated into HCM1E10 (HCM)

IO14434 IO17921

APARs Incorporated into HMQ4160 (HLASM)

PQ88271 PQ88470 PQ89655 PQ90802 PQ91893 PQ92291 PQ92371 PQ92508
PQ92579 PQ93977 PQ95145 PQ96292 PQ98607 PQ99158 PQ99706 PK00040
PK01064 PK02523 PK02660 PK05761 PK06113 PK06652 PK07828 PK09700
PK12545 PK14299 PK15306 PK17439 PK17447 PK17728 PK18170 PK19083
PK23005 PK24143 PK25298 PK25410 PK26756 PK27282 PK27577 PK27657
PK27979 PK29624 PK31383 PK31465 PK34746 PK36579 PK37014 PK37093
PK40237 PK42535 PK43179 PK55677 PK55678 PK56245 PK56672 PK58463

APARs Incorporated into JMQ416A (HLASM Toolkit)

PQ90771 PQ91484 PQ94993 PQ96247 PQ98212 PK01063 PK01283 PK05664
PK06190 PK06707 PK07828 PK07940 PK08886 PK09261 PK10316 PK10355
PK12514 PK12866 PK13983 PK15286 PK15984 PK17443 PK19580 PK20237
PK21002 PK25270 PK26240 PK26914 PK28745 PK29714 PK30620 PK30719
PK31375 PK31469 PK39957 PK40271 PK40813 PK41381 PK42140 PK42414
PK43326 PK43386 PK45696 PK46123 PK47176 PK50735 PK56760

APARs Incorporated into H24P111 (Host Performance Analyzer)

PQ06312 PQ07631 PQ11614 PQ19762 PQ30041 PQ39109 PQ51796 PQ517796
PQ71319 PQ75940

APARs Incorporated into J24P112 (Host Performance Analyzer JPN)

PQ06312 PQ19762 PQ11614

APARs Incorporated into HIMW530 (IBM HTTP Server)

PQ21642 PQ22108 PQ22659 PQ22812 PQ23085 PQ23337 PQ23343 PQ23643
PQ23719 PQ23829 PQ23965 PQ24087 PQ24201 PQ24294 PQ24415 PQ24480
PQ24489 PQ24535 PQ24718 PQ24773 PQ24961 PQ25094 PQ25411 PQ25481
PQ25753 PQ25876 PQ26030 PQ26041 PQ26549 PQ27227 PQ27271 PQ27869
PQ28035 PQ28254 PQ28258 PQ28274 PQ28456 PQ28612 PQ29217 PQ29260
PQ29311 PQ29325 PQ29417 PQ29477 PQ29535 PQ29542 PQ29695 PQ29711
PQ29774 PQ29903 PQ29934 PQ29938 PQ29939 PQ29989 PQ30075 PQ30101
PQ30270 PQ30273 PQ30284 PQ30317 PQ30349 PQ30384 PQ30490 PQ30517
PQ30749 PQ30753 PQ30867 PQ30903 PQ30992 PQ31097 PQ31202 PQ31214
PQ31234 PW31375 PQ31524 PQ31589 PQ31601 PQ32463 PQ32584 PQ32626
PQ32768 PQ33062 PQ33077 PQ33156 PQ33186 PQ33453 PQ33623 PQ34123
PQ34690 PQ34697 PQ34915 PQ35192 PQ35775 PQ36101 PQ36110 PQ36420
PQ37041 PQ37042

APARs Incorporated into JIMW53B

PQ22812 PQ23829 PQ28258 PQ29260 PQ29542 PQ31202 PQ28274 PQ31589
PQ25753 PQ28456 PQ24961 PQ25094 PQ29477 PQ35775

APARs Incorporated into JIMW531

No APARs have been incorporated at this time.

APARs Incorporated into HRSL410 (IBM Tivoli Directory Server for z/OS Base)

OA35784 OA35892 OA35916 OA36992 OA37045 OA37138 OA37346 OA37359
OA37789 OA37986 OA38882 OA39271 OA39669 OA39736 OA39866 OA40209
OA40232 OA40611 OA40996 OA41075

APARs Incorporated into JRSL41J (IBM Tivoli Directory Server for z/OS JPN)

No APARs have been incorporated at this time.

APARs Incorporated into EDU1H01 (ICKDSF)

PN60520 PN60881 PN61480 PN62330 PN62342 PN62444 PN63044 PN63507
PN64655 PN64868 PN65609 PN66540 PN66541 PN67080 PN68358 PN69166
PN69797 PN70013 PN70767 PN71101 PN71972 PN72104 PN73132 PN74048
PN74223 PN76727 PN76862 PN76939 PN77249 PN79757 PN80327 PN80879
PN83877 PN84194 PN84489 PN84759 PN85067 PN85631 PN86705 PN87929
PN88014 PN89166 PN89905 PN91223 PQ00652 PQ02288 PQ03341 PQ05231
PQ07015 PQ08691 PQ10899 PQ11775 PQ11919 PQ13687 PQ18005 PQ18393
PQ20390 PQ20391 PQ23131 PQ24114 PQ24577 PQ26800 PQ29648 PQ32380
PQ37791 PQ38921 PQ42534 PQ43495 PQ44667 PQ46396 PQ47472 PQ49243
PQ50940 PQ53196 PQ53326 PQ56431 PQ62077

APARs Incorporated into FDU1H07 and FDU1H08

PL84215 PN00713 PN03938 PN09082 PN18300 PN18847 PN19767 PN20378
PN21633 PN24896 PN24903 PN38041 PN38414 PN42498 PN42602 PN50159
PN50950 PN55778 PN61073 PN61959 PN66436 PN66767 PN68866 PN73788
PN87510 PQ13447 PQ26624 PQ47107 PQ57770

APARs Incorporated into FDU1H09

PL84215 PN00713 PN03938 PN18300 PN18847 PN19767 PN20378 PN24896
PN24903 PN38414 PN50159 PN50950 PN55778 PN61073 PN61959 PN73788
PN87510 PQ13447 PQ26624 PQ47107 PQ57770

APARs Incorporated into HCR77A0 (ICSF)

OA36694 OA37010 OA37130 OA37168 OA37298 OA37299 OA37300 OA37301
OA37366 OA37445 OA37446 OA37464 OA37486 OA37497 OA37693 OA38021
OA38105 OA38373 OA38484 OA38501 OA38615 OA38616 OA38626 OA38698
OA38862 OA38864 OA38865 OA38866 OA39145 OA39309 OA39489 OA39532
OA39679 OA39847

APARs Incorporated into HNET790 (Infoprint Server NetSpool)

OA35726

APARs Incorporated into JNET79J

No APARs have been incorporated at this time.

APARs Incorporated into HOPI790 (Infoprint Server Print Interface and IP Printway extended mode)

OA32759 OA32943 OA33104 OA33129 OA33338 OA33488 OA33627 OA33672
OA33747 OA33750 OA33897 OA34054 OA34740 OA35095 OA35104 OA35521
OA35550 OA35694 OA35737 OA35933 OA35935

APARs Incorporated into JOPI79J

OA33104 OA33338 OA33897

APARs Incorporated into HMOS705 (Infoprint Server IP PrintWay Basic Mode)

OW39337 OW40050 OW40901 OW41343 OW41808 OW42039 OW42727 OW44057
OW44111 OW44172 OW44216 OW44283 OW44335 OW44464 OW44603 OW44687
OW44788 OW44965 OW45138 OW45332 OW45368 OW45718 OW45762 OW45827
OW45852 OW45913 OW46013 OW46331 OW46515 OW46596 OW46688 OW46968
OW47002 OW47086 OW47479 OW47560 OW47717 OW47960 OW48211 OW48387
OW48525 OW48557 OW48955

APARs Incorporated into JMOS7J5

OW44283 OW44965 OW45368 OW46331 OW46515 OW47560 OW48387 OW48557

APARs Incorporated into HSWK410 (Integrated Security Services Network Authentication Service)

OA36431 OA37352 OA39000 OA39494 OA41199

APARs Incorporated into JSWK41J (Integrated Security Services Network Authentication Service JPN)

No APARs have been incorporated at this time.

APARs Incorporated into HRO7740 (Integrated Security Services OCEP)

No APARs have been incorporated at this time.

APARs Incorporated into HIO1104 (IOCP)

OY01989 OY03274 OY11391 OY13461 OY14989 OY16934 OY17169 OZ87310
OZ90023 OZ91644 OZ92967

APARs Incorporated into HIF7N02 (ISPF)

OA31945 OA35402 OA35552 OA35689 OA35735 OA35847 OA35937 OA36036
OA36069 OA36073 OA36115 OA36144 OA36184 OA36197 OA36234 OA36252
OA36343 OA36346 OA36379 OA36450 OA36454 OA36475 OA36497 OA36498
OA36528 OA36550 OA36588 OA36630 OA36652 OA36655 OA36669 OA36774
OA36802 OA36826 OA36852 OA36919 OA36962 OA36973 OA37007 OA37055
OA37145 OA37163 OA37187 OA37189 OA37209 OA37248 OA37249 OA37277
OA37288 OA37329 OA37344 OA37363 OA37373 OA37385 OA37408 OA37428
OA37449 OA37466 OA37521 OA37564 OA37634 OA37860 OA37900 OA37902
OA38007 OA38121 OA38131 OA38146 OA38171 OA38173 OA38191 OA38265
OA38288 OA38330 OA38365 OA38443 OA38467 OA38493 OA38510 OA38733
OA38740 OA38762 OA38807 OA38836 OA38850 OA38940 OA38967 OA39034
OA39120 OA39182 OA39226 OA39297 OA39324 OA39341 OA39359 OA39382
OA39388 OA39460 OA39491 OA39555 OA39571 OA39666 OA39667 OA39677
OA39729 OA39824 OA39854 OA39930 OA39946 OA39986 OA40102 OA40141
OA40148 OA40206 OA40233 OA40306 OA40315 OA40384 OA40390 OA40468
OA40481 OA40540 OA40559 OA40561 OA40597 OA40622 OA40638 OA40660
OA40703 OA40718 OA40775 OA40811 OA40975 OA41248 OA41293 OA41347
OA41442

APARs Incorporated into JIF7N11

OA31945 OA35402 OA35552 OA35689 OA35735 OA35847 OA35937 OA36036
OA36069 OA36073 OA36115 OA36144 OA36184 OA36197 OA36234 OA36252
OA36343 OA36346 OA36379 OA36450 OA36454 OA36475 OA36497 OA36498
OA36528 OA36550 OA36588 OA36630 OA36652 OA36655 OA36669 OA36774
OA36802 OA36826 OA36852 OA36919 OA36962 OA36973 OA37007 OA37055

OA37145 OA37163 OA37187 OA37189 OA37209 OA37248 OA37249 OA37277
OA37288 OA37329 OA37344 OA37363 OA37373 OA37385 OA37408 OA37428
OA37449 OA37466 OA37521 OA37564 OA37634 OA37860 OA37900 OA37902
OA38007 OA38121 OA38131 OA38146 OA38171 OA38173 OA38191 OA38265
OA38288 OA38330 OA38365 OA38443 OA38467 OA38493 OA38510 OA38733
OA38740 OA38762 OA38807 OA38836 OA38850 OA38940 OA38967 OA39034
OA39120 OA39182 OA39226 OA39297 OA39324 OA39341 OA39359 OA39382
OA39388 OA39460 OA39491 OA39555 OA39571 OA39666 OA39667 OA39677
OA39729 OA39824 OA39854 OA39930 OA39946 OA39986 OA40102 OA40141
OA40148 OA40206 OA40233 OA40306 OA40315 OA40384 OA40390 OA40468
OA40481 OA40540 OA40559 OA40561 OA40597 OA40622 OA40638 OA40660
OA40703 OA40718 OA40775 OA40811 OA40975 OA41248 OA41293 OA41347
OA41442

APARs Incorporated into JIF7N14

OA31945 OA35402 OA35552 OA35689 OA35735 OA35847 OA35937 OA36036
OA36069 OA36073 OA36115 OA36144 OA36184 OA36197 OA36234 OA36252
OA36343 OA36346 OA36379 OA36450 OA36454 OA36475 OA36497 OA36498
OA36528 OA36550 OA36588 OA36630 OA36652 OA36655 OA36669 OA36774
OA36802 OA36826 OA36852 OA36919 OA36962 OA36973 OA37007 OA37055
OA37145 OA37163 OA37187 OA37189 OA37209 OA37248 OA37249 OA37277
OA37288 OA37329 OA37344 OA37363 OA37373 OA37385 OA37408 OA37428
OA37449 OA37466 OA37521 OA37564 OA37634 OA37860 OA37900 OA37902
OA38007 OA38121 OA38131 OA38146 OA38171 OA38173 OA38191 OA38265
OA38288 OA38330 OA38365 OA38443 OA38467 OA38493 OA38510 OA38733
OA38740 OA38762 OA38807 OA38836 OA38850 OA38940 OA38967 OA39034
OA39120 OA39182 OA39226 OA39297 OA39324 OA39341 OA39359 OA39382
OA39388 OA39460 OA39491 OA39555 OA39571 OA39666 OA39667 OA39677
OA39729 OA39824 OA39854 OA39930 OA39946 OA39986 OA40102 OA40141
OA40148 OA40206 OA40233 OA40306 OA40315 OA40384 OA40390 OA40468
OA40481 OA40540 OA40559 OA40561 OA40597 OA40622 OA40638 OA40660
OA40703 OA40718 OA40775 OA40811 OA40975 OA41248 OA41293 OA41347
OA41442

APARs Incorporated into JIF7N15

OA31945 OA35402 OA35552 OA35689 OA35735 OA35847 OA35937 OA36036
OA36069 OA36073 OA36115 OA36144 OA36184 OA36197 OA36234 OA36252
OA36343 OA36346 OA36379 OA36450 OA36454 OA36475 OA36497 OA36498
OA36528 OA36550 OA36588 OA36630 OA36652 OA36655 OA36669 OA36774
OA36802 OA36826 OA36852 OA36919 OA36962 OA36973 OA37007 OA37055
OA37145 OA37163 OA37187 OA37189 OA37209 OA37248 OA37249 OA37277
OA37288 OA37329 OA37344 OA37363 OA37373 OA37385 OA37408 OA37428
OA37449 OA37466 OA37521 OA37564 OA37634 OA37860 OA37900 OA37902
OA38007 OA38121 OA38131 OA38146 OA38171 OA38173 OA38191 OA38265

OA38288 OA38330 OA38365 OA38443 OA38467 OA38493 OA38510 OA38733
OA38740 OA38762 OA38807 OA38836 OA38850 OA38940 OA38967 OA39034
OA39120 OA39182 OA39226 OA39297 OA39324 OA39341 OA39359 OA39382
OA39388 OA39460 OA39491 OA39555 OA39571 OA39666 OA39667 OA39677
OA39729 OA39824 OA39854 OA39930 OA39946 OA39986 OA40102 OA40141
OA40148 OA40206 OA40233 OA40306 OA40315 OA40384 OA40390 OA40468
OA40481 OA40540 OA40559 OA40561 OA40597 OA40622 OA40638 OA40660
OA40703 OA40718 OA40775 OA40811 OA40975 OA41248 OA41293 OA41347
OA41442

APARs Incorporated into JIF7N16

OA31945 OA35402 OA35552 OA35689 OA35735 OA35847 OA35937 OA36036
OA36069 OA36073 OA36115 OA36144 OA36184 OA36197 OA36234 OA36252
OA36343 OA36346 OA36379 OA36450 OA36454 OA36475 OA36497 OA36498
OA36528 OA36550 OA36588 OA36630 OA36652 OA36655 OA36669 OA36774
OA36802 OA36826 OA36852 OA36919 OA36962 OA36973 OA37007 OA37055
OA37145 OA37163 OA37187 OA37189 OA37209 OA37248 OA37249 OA37277
OA37288 OA37329 OA37344 OA37363 OA37373 OA37385 OA37408 OA37428
OA37449 OA37466 OA37521 OA37564 OA37634 OA37860 OA37900 OA37902
OA38007 OA38121 OA38131 OA38146 OA38171 OA38173 OA38191 OA38265
OA38288 OA38330 OA38365 OA38443 OA38467 OA38493 OA38510 OA38733
OA38740 OA38762 OA38807 OA38836 OA38850 OA38940 OA38967 OA39034
OA39120 OA39182 OA39226 OA39297 OA39324 OA39341 OA39359 OA39382
OA39388 OA39460 OA39491 OA39555 OA39571 OA39666 OA39667 OA39677
OA39729 OA39824 OA39854 OA39930 OA39946 OA39986 OA40102 OA40141
OA40148 OA40206 OA40233 OA40306 OA40315 OA40384 OA40390 OA40468
OA40481 OA40540 OA40559 OA40561 OA40597 OA40622 OA40638 OA40660
OA40703 OA40718 OA40775 OA40811 OA40975 OA41248 OA41293 OA41347
OA41442

APARs Incorporated into HJE7790 (JES2)

OA24727 OA33701 OA34347 OA35539 OA35543 OA35544 OA35612 OA35770
OA35921 OA35942 OA35969 OA36032 OA36140 OA36142 OA36155 OA36168
OA36170 OA36180 OA36256 OA36276 OA36328 OA36358 OA36382 OA36418
OA36419 OA36436 OA36471 OA36674 OA36688 OA36820 OA36844 OA36865
OA36873 OA36934 OA37018 OA37026 OA37036 OA37085 OA37104 OA37108
OA37110 OA37147 OA37230 OA37233 OA37332 OA37377 OA37603 OA37648
OA37654 OA37738 OA37747 OA37769 OA37805 OA37834 OA37835 OA37847
OA37975 OA37976 OA37992 OA38016 OA38036 OA38043 OA38135 OA38225
OA38226 OA38254 OA38363 OA38548 OA38630 OA38658 OA38671 OA38683
OA38732 OA38825 OA38848 OA38894 OA38935 OA38951 OA39023 OA39042
OA39052 OA39142 OA39162 OA39170 OA39223 OA39305 OA39337 OA39490
OA39498 OA39545 OA39560 OA39591 OA39598 OA39662 OA39672 OA39737
OA39747 OA39767 OA39877 OA39891 OA39972 OA40003 OA40260 OA40273

OA40407 OA40499 OA40735 OA40755 OA40790 OA40846 OA40901 OA40963
OA41080 OA41109 OA41164 OA41196 OA41318

APARs Incorporated into JJE779J

No APARs have been incorporated at this time.

APARs Incorporated into HJS7790 (JES3)

OA16930 OA19557 OA23732 OA24649 OA31594 OA33664 OA35491 OA35789
OA35893 OA35955 OA36041 OA36079 OA36146 OA36211 OA36258 OA36307
OA36365 OA36396 OA36437 OA36460 OA36478 OA36483 OA36533 OA36797
OA36894 OA36966 OA37042 OA37092 OA37156 OA37182 OA37223 OA37275
OA37394 OA37432 OA37685 OA37705 OA37760 OA37841 OA37888 OA37982
OA38037 OA38109 OA38157 OA38232 OA38268 OA38292 OA38333 OA38382
OA38421 OA38531 OA38539 OA38575 OA38603 OA38619 OA38645 OA38774
OA38883 OA38929 OA38936 OA39247 OA39398 OA39550 OA39556 OA39753
OA39857 OA39861 OA39895 OA40077 OA40126 OA40144 OA40340 OA40405
OA40462 OA40491 OA40496 OA40545 OA40581 OA40861 OA40981 OA40989
OA41072 OA41102 OA41270

APARs Incorporated into HLE7790 (Language Environment)

PM26924 PM36444 PM40804 PM55516 PM58670 PM59251 PM60031 PM60506
PM60607 PM61096 PM62648 PM64838 PM65340 PM65725 PM66380 PM67161
PM68556 PM68947 PM69669 PM69938 PM71115 PM71354 PM71621 PM73574
PM74689 PM76220 PM79618 PM80839 PM81270 PM82237

APARs Incorporated into JLE779J

PM79721

APARs Incorporated into HBKQ400 (Library Server)

PM19309 PM22488 PM28410 PM32141 PM38784 PM47052 PM53418 PM54287
PM56965 PM66423 PM71648 PM73800 PM78824 PM80334 PM85010

APARs Incorporated into HSD7780 (Metal C Runtime Library)

OA30396 OA34838

APARs Incorporated into EMI2220 (MICR/OCR)

Service up to, and including, PUT8605 Program Update Tape (service level) is included in this FMID.

APARs Incorporated into HDZ221N (Network File System)

OA37904 OA38246 OA38272 OA38277 OA38657 OA38737 OA38901 OA38906
OA38932 OA39007 OA39040 OA39114 OA39115 OA39160 OA39218 OA39219
OA39246 OA39393 OA39524 OA39587 OA39685 OA39732 OA39902 OA40139
OA40156 OA40175 OA40191 OA40215 OA40217 OA40244 OA40303 OA40314
OA40416 OA40516 OA40584 OA40588 OA40592 OA40694 OA40706 OA40708
OA40709 OA40746 OA40753 OA40802 OA40804 OA40805 OA40806 OA40917
OA40935 OA40971 OA40999 OA41035 OA41168 OA41178

APARs Incorporated into JDZ221J (NFS Japanese)

OA37904 OA40753

APARs Incorporated into H0GI400 (OSA/SF)

OW51180 OW51720 OW54217 OW54990 OW55733 OW57242

APARs Incorporated into HRM7790 (RMF)

OA36177 OA36188 OA36357 OA36618 OA36667 OA36738 OA36805 OA36831
OA37016 OA37091 OA37224 OA37472 OA37688 OA37730 OA37774 OA37803
OA37826 OA37923 OA37965 OA38022 OA38078 OA38532 OA38660 OA39112
OA39272 OA39302 OA39407 OA39562 OA39703 OA39750 OA39993 OA40490
OA40553 OA40899 OA41038 OA41106 OA41185 OA41326 OA41399 OA41521
OA41591 OA41668 OA41724 OA41815 OA42069 OA42164

APARs Incorporated into JRM779J

OA36188 OA37826 OA38660 OA39993 OA41326

APARs Incorporated into HQX7790 (SDSF)

PM24152 PM29711 PM36443 PM37502 PM37674 PM38070 PM39927 PM41718
PM47004 PM48383 PM51138 PM55242 PM55521 PM59695 PM60017 PM60569
PM60864 PM62342 PM63103 PM63866 PM70439 PM75966 PM80735 PM80992

APARs Incorporated into JQX779J

No APARs have been incorporated at this time.

APARs Incorporated into JJE779S (SDSF JES2 Support)

No APARs have been incorporated at this time.

APARs Incorporated into JRSL411 (z/OS Security Level 3 IBM TDS Security Level 3)

No APARs have been incorporated at this time.

APARs Incorporated into HRF7790 (Security Server: RACF)

OA32058 OA34332 OA34376 OA34694 OA34696 OA34784 OA34929 OA35112
OA35244 OA35258 OA35325 OA36341 OA36468 OA36531 OA36762 OA36907
OA36947 OA36983 OA36987 OA37053 OA37480 OA37511 OA37537 OA37690
OA37716 OA37949 OA38335 OA38517 OA38584 OA38594 OA38618 OA38745
OA38852 OA38900 OA39531 OA39548 OA39645 OA39713 OA39751 OA39759
OA39792 OA40231 OA40304 OA40364 OA40819 OA41162

APARs Incorporated into JRF779J

No APARs have been incorporated at this time.

APARs Incorporated into HIT7750 (Integrated Security Services Enterprise Identity Mapping)

No APARs have been incorporated at this time.

APARs Incorporated into HWJ9143 (Alternate Library for REXX)

PN71194 PQ00096

APARs Incorporated into JWJ9144 (Alternate Library for REXX (Japanese))

No APARs have been incorporated at this time.

APARs Incorporated into HTV7790 (Runtime Library Extensions)

PM64981

APARs Incorporated into JTV779J (Runtime Library Extensions JPN)

No APARs have been incorporated at this time.

APARs Incorporated into HMP1J00 and JMP1J11 (SMP/E)

IO08762 IO08897 IO09256 IO09341 IO09355 IO09386 IO09452 IO09476
IO09513 IO09549 IO09716 IO09940 IO10260 IO10344 IO10362 IO10377
IO10392 IO10404 IO10494 IO10537 IO10550 IO10675 IO10688 IO10753
IO10924 IO10945 IO11169 IO11349 IO11433 IO11458 IO11463 IO11487
IO11583 IO11698 IO11805 IO11793 IO11941 IO12183 IO12263 IO12338
IO12380 IO12940 IO13217 IO13229 IO13463 IO13643 IO13710 IO13944

APARs Incorporated into HBCND0B (SMP/E Planning and Migration Assistant)

IR39002 IR39263 IR39454 IR39791 IR39923 IR39982 IR40499 IR40721
IR41032 IR41082 IR41093 IR41714 IR42543 IR42962 IR43513

APARs Incorporated into JBCND1B (SMP/E Planning and Migration Assistant JPN)

No APARs have been incorporated at this time.

APARs Incorporated into HBCNC00

No APARs have been incorporated at this time.

APARs Incorporated into ETI1106 (TIOC)

OZ27476 OZ28922 OZ34273 OZ36819 OZ39784 OZ42197 OZ42972 OZ43111
OZ43223 OZ43490 OZ44359 OZ44765 OZ45384 OZ46377 OZ46729 OZ48113
OZ48875 OZ49608 AZ49617 AZ50214 AZ51683 AZ56262 AZ56745 AZ57305
AZ59270 AZ61617 AZ62047

APARs Incorporated into HTE7790 (TSO/E)

OA23342 OA30592 OA32678 OA32761 OA35217 OA35991 OA36091 OA36212
OA36321 OA36491 OA36880 OA37218 OA37315 OA38018 OA38144 OA38321
OA38473 OA38761 OA38767 OA39110 OA39855 OA40184

APARs Incorporated into JTE779E

OA32678

APARs Incorporated into JTE779C

OA38473

APARs Incorporated into JTE779G

OA38473

APARs Incorporated into JTE779J

OA38473

APARs Incorporated into HLB7790 (XL C/C++)

PM59592 PM59593 PM62395 PM62604 PM63759 PM64782 PM64787
PM65008 PM65010 PM65011 PM65012 PM65016 PM65384 PM65956
PM69068 PM69416 PM69769 PM69771 PM71320 PM76580

APARs Incorporated into JLB779J (XL C/C++ JPN)

No APARs have been incorporated at this time.

APARs Incorporated into JSWK411 (z/OS Security Level 3 - Network Authentication Service Security Level 3)

No APARs have been incorporated at this time.

APARs Incorporated into HOT7790 (z/OS UNIX System Services Application Services)

OA33436 OA37567 OA38573 OA39922 OA40104 OA40277

APARs Incorporated into JOT779J

No APARs have been incorporated at this time.

APARs Incorporated into JOT779C

No APARs have been incorporated at this time.

APARs Incorporated into HFX1112 (3270 PC File Transfer Program)

No APARs have been incorporated at this time.

Appendix C. DASD Storage Requirements Tables

The following sections contain information about storage requirements for DASD.

C.1 Understanding the DASD Storage Requirements Tables

The DASD space requirements shown in this appendix represent the actual storage required by the FMIDs listed in Figure 1 on page 3 after the product and integration-tested service are installed and the data sets are compressed, plus approximately 15%. The directory blocks have been increased by 40% for load libraries and 15% for the rest. The additional space allows for service installation. When allocating these data sets, you can specify additional storage and directory blocks to allow for future maintenance.

The storage requirements tables in this appendix reflect the data sets required if you are installing **all** base and optional elements of z/OS. They do not reflect any customization performed by the customer. For example, the PARMLIB and PROCLIB space shown is the space required for the SMP/E installation without taking into account copying members from your production PARMLIB and PROCLIB data sets.

For libraries required for IPL, libraries that cannot have secondary space allocated, data sets that cannot be partitioned data set extended (PDSE), and data sets that should have a high-level qualifier of SYS1, see the information sent with the z/OS product. For references to cataloging, see *z/OS DFSMS Managing Catalogs*.

Sample jobs to allocate the target and distribution libraries for certain elements are provided. For descriptions and locations of these jobs, see:

- 7.2.2, “Allocate Target and Distribution Libraries for Wave 0 elements” on page 56
- 8.1.7, “Allocate target and distribution libraries for Wave 1 elements” on page 87
- 8.3.3, “Allocate Target and Distribution Libraries for Wave 2 Elements” on page 124

You only need to run these jobs if any of the libraries do not exist on the target system.

Similarly, sample jobs for certain elements are provided to set up the HFS or zFS directories. For more information about these jobs and where to find them, see:

- 7.2.3, “Create File System Directories for Wave 0” on page 57
- 8.1.8, “Create file system directories” on page 92
- 8.3.4, “Set up File System Directories for Wave 2” on page 124

Sample jobs to define DDDEF entries for the target and distribution libraries for certain elements are provided. For descriptions and locations of these jobs, see:

- 7.2.4, “Define DDDEFs for Wave 0 elements” on page 57
- 8.1.9, “Define DDDEFs for Wave 1 Elements” on page 95
- 8.3.5, “Define DDDEFs for Wave 2 Elements” on page 125

You only need to run these jobs if any of the DDDEF entries do not exist.

Note that the DDDEFs should point to the target system data sets and not to the production data sets. To use the target PARMLIB data set to IPL, you can use the PARMLIB concatenation to isolate the new members or copy the members to the production library. Refer to 8.5.2, "PARMLIB member considerations" on page 140 for more information on using the target system libraries.

C.2 SMP/E Data Sets for z/OS V2.1.0

A complete set of SMP/E data sets is required for the installation of z/OS Version 2 Release 1. See *SMP/E for z/OS Reference*, for information on the use of these data sets.

<i>Figure 83. Storage Requirements for the SMP/E Work Data Sets</i>							
DDDEF Name	D S O R G	R E C F M	L R E C L	BLK SIZE	No. of BLKS	No. of 3390 TRKS	No. of DIR BLKS
SMPWRK1	PO	FB	80	n/a	n/a	150	300
SMPWRK2	PO	FB	80	n/a	n/a	150	300
SMPWRK3	PO	FB	80	n/a	n/a	9500	990
SMPWRK4	PO	FB	80	n/a	n/a	132	300
SMPWRK6	PO	FB	80	n/a	n/a	20000	1500
SYSUT1	--	--	--	n/a	n/a	7500	seq
SYSUT2	--	--	--	n/a	n/a	1500	seq
SYSUT3	--	--	--	n/a	n/a	960	seq
SYSUT4	--	--	--	n/a	n/a	3000	seq
Note: Space for SYSUT1 through SYSUT4 cannot be allocated in blocks (BLKS).							

Abbreviations used for the ORG field are:

PDS Partition Data Set
PDSE Partition Data Set Extended

<i>Figure 84 (Page 1 of 2). Storage Required for SMP/E Data Sets for z/OS V2.1.0</i>						
DDDEF Name	O R G	N O T E	R E C F M	L R E C L	No. of 3390 TRKS	No. of DIR BLKS
SMPLTS	PDSE		U	0	0	--

Figure 84 (Page 2 of 2). Storage Required for SMP/E Data Sets for z/OS V2.1.0

DDDEF Name	O R G	N O T E	R E C O M M	L R E C L	No. of 3390 TRKS	No. of DIR BLKS
SMPMTS	PDS		FB	80	6	2
SMPPTS	PDSE		FB	80	9560	--
SMPSCDS	PDS		FB	80	9	36
SMPSTS	PDS		FB	80	7	2

SMPPTS Considerations

The size of the SMPPTS data set reflects the total space requirements after receiving the changed and unchanged FMIDs for z/OS V2.1.0. Additional space will be required for the SMPPTS based on the service received. The size of the SMPPTS shown does not include service since the total space required for the SMPPTS is dependent on the amount of service received.

C.3 Load Module libraries references

Load module libraries (or “load libraries”), which are data sets containing load modules, have been divided into several tables. Several tables are used because load libraries with different characteristics must be managed differently. Some you must put in specific places in the system-wide search order for programs, such as in the link pack area (LPA) list. Others you can add anywhere in the search order for programs; however, performance and virtual storage considerations will govern appropriate placement for each installation.

The load library tables are:

- Required LPA and optional RMODE 31 LPA-eligible libraries; see Figure 85.
- LPA-eligible RMODE 24 libraries; see Figure 86 on page 346.
- Load libraries for change migration; see Figure 87 on page 346.
- Load libraries for callable services; see Figure 88 on page 347.

Some load libraries fall into more than one category and thus could be placed in more than one table. However, we’ve selected the most likely tables for these load libraries rather than listing them in multiple tables.

Figure 85 lists z/OS libraries that contain required LPA and optional RMODE 31 LPA-eligible modules. Because the only libraries listed in this category are those that contain only RMODE 31 load modules, no virtual storage below 16 MB is used when the libraries are included in the LPA list.

<i>Figure 85. Required LPA and optional RMODE 31 LPA-eligible load libraries</i>			
DDDEF name	Element or feature name	Volume	Type
LPALIB	BCP, DFSMSdfp, DFSMSdss, DFSMShsm, DFSMSrmm, DFSMStvs, FFST, Communications Server, ISPF, Security Server RACF, TIOC, TSO/E, z/OS UNIX System Services	TVOL1	LMOD
SCEELPA	Language Environment	TVOL1	LMOD
SEOYLPA	BookManager READ	TVOL1	LMOD
SERBLPA	RMF	TVOL1	LMOD

Figure 86 lists z/OS libraries that contain RMODE 24 LPA-eligible modules. All RMODE 24 modules placed in LPA are loaded below 16 MB. Placing them in LPA increases common area used below 16 MB and might decrease the private area available below 16 MB. Some of the modules in these libraries need to be placed in LPA to use a z/OS element or function. Other elements and functions can be used without having their modules placed in LPA but perform better when their modules are placed in LPA. For more information about placing modules in LPA and the effects of doing so on performance and virtual storage, see *z/OS MVS Initialization and Tuning Guide*.

<i>Figure 86. LPA-eligible RMODE 24 load libraries</i>			
DDDEF name	Element or feature name	Volume	Type
SBDTLPA	BDT	TVOL1	LMOD
SEZALPA	Communications Server	TVOL1	LMOD
SIATLPA	JES3	TVOL1	LMOD
SICELPA	DFSORT	TVOL1	LMOD
SISFLPA	SDSF	TVOL1	LMOD
SISPLPA	ISPF	TVOL1	LMOD
SORTLPA	DFSORT	TVOL1	LMOD

Figure 87 lists z/OS libraries that contain load modules that are used from another system for migration purposes. These libraries are used, or might be used, during migration from one level of software to another. For example, the MIGLIB library contains load modules used by IPCS to read dumps taken on one level of z/OS on another level. Also included in this list are libraries containing WLM functions.

<i>Figure 87 (Page 1 of 2). Load libraries for change migration</i>			
DDDEF name	Element or feature name	Volume	Type
MIGLIB	BCP, BDT, Communications Server, Cryptographic Services, DFSMSdfp, DFSMSdss, DFSMShsm, DFSMSrmm, DFSMStvs, Security Server RACF, SMP/E, TSO/E	TVOL1	LMOD
SCBDHENU	HCD	TVOL1	LMOD
SHASMIG	JES2	TVOL1	LMOD

<i>Figure 87 (Page 2 of 2). Load libraries for change migration</i>			
DDDEF name	Element or feature name	Volume	Type
SIATMIG	JES3	TVOL1	LMOD

Figure 88 lists z/OS libraries that contain load modules that are used as callable services from other elements and non-z/OS products.

<i>Figure 88. Load libraries for callable services</i>			
DDDEF name	Element or feature name	Volume	Type
CSSLIB	BCP, DFSMSdfp, Infoprint Server	TVOL1	LMOD
SAFHFORT	Language Environment	TVOL1	LMOD
SCEEBIND	Language Environment	TVOL1	LMOD
SCEELKED	Language Environment	TVOL1	LMOD
SCEESPC	Language Environment	TVOL1	LMOD
SDMSSVM	DFSMSdfp	TVOL1	LMOD
SEZACMTX	Communications Server	TVOL1	LMOD
SEZADPIL	Communications Server	TVOL1	LMOD
SEZARPCL	Communications Server	TVOL1	LMOD
SIBMICAL2	Language Environment	TVOL1	LMOD
SIBMAM24	Language Environment	TVOL1	LMOD
SIBMICAL	Language Environment	TVOL1	LMOD
SIBMMATH	Language Environment	TVOL1	LMOD
SIBMTASK	Language Environment	TVOL1	LMOD
SIOAMMOD	OSA/SF	TVOL1	LMOD
SISPLOAD	ISPF	TVOL1	LMOD

C.4 Target Libraries for z/OS V2.1.0

Figure 89 on page 349 describes the target libraries required to install z/OS V2.1.0. It maps all the z/OS target libraries to either target library volume 1 (TVOL1) or target library volume 2 (TVOL2). This mapping comprises IBM's recommended system layout. Abbreviations used for Member Type for z/OS V2.1.0 are:

CLST	CLIST
DATA	Data
EXEC	Exec
FONT	Font
HELP	Help
LMOD	Load Module

MAC	Macro
MSG	Message
PARM	Parameter
PANL	Panel
PROC	Procedure
SAMP	Sample
SKEL	Skeleton
BOOK	Book
SRCE	Source
TABL	Table
TEXT	Text

Abbreviations used for Target Volume Are:

T1	TVOL1
T2	TVOL2

Abbreviations used for the data set type field are:

U	Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or program directories) need to be referenced for the data set size.
S	Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.
E	Existing shared data set, used by this product and others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This existing data set must have enough free space to accommodate the storage size given in this table.

The following abbreviations are used for the ORG field.

PDS	Partition Data Set
PDSE	Partition Data Set Extended
SEQ	Sequential Data Set

In the tables, abbreviations used for the **NOTE** column are:

1	New library introduced in z/OS Version 1 Release 1.
2	New library introduced in z/OS Version 1 Release 2.
3	New library introduced in z/OS Version 1 Release 3.
4	New library introduced in z/OS Version 1 Release 4.
5	New library introduced in z/OS Version 1 Release 5.
6	New library introduced in z/OS Version 1 Release 6.
7	New library introduced in z/OS Version 1 Release 7.

8	New library introduced in z/OS Version 1 Release 8.
9	New library introduced in z/OS Version 1 Release 9.
10	New library introduced in z/OS Version 1 Release 10.
11	New library introduced in z/OS Version 1 Release 11.
21	New library introduced in z/OS Version 2 Release 1.
N	Library used only for National Language support. This library can be empty if the language is not ordered.
*	An “*” in the NOTE column indicates that the library is empty after the z/OS release is installed.

All target libraries listed have the following attributes:

- The default name of the data set may be changed.

Note: Target IPCS data sets (data sets that start with the low level qualifier of SBLS) may be renamed. Be aware, however, if the name is different from SYS1.SBLS*, then clists in the SBLSCLI0 data set will have to be modified. In SBLSCLI0, the data set names within several clists are specified as:

- SYS1.SBLSCLI0
- SYS1.SBLSMSG0
- SYS1.SBLSKEL0
- SYS1.SBLSPNL0
- SYS1.SBLSTBL0

- The default block size of the data set may be changed.
- The data set may be merged with another data set that has equivalent characteristics. You must not merge any data sets that contain like-named members or aliases. For example, SFOMOBJ and SCLBCPP are the two libraries that cannot be merged together.
- The data set may be either a PDS or a PDSE.
- The data set may be SMS managed.
- It is not required for the data set to be SMS managed.
- The data set may be in the LPA; see Figure 85 on page 345 for required LPA and optional RMODE 31 LPA-eligible libraries, and Figure 86 on page 346 for LPA-eligible RMODE 24 libraries.
- The data set may be in the LNKLIST.
- Some of the target libraries must be APF-authorized; see 8.5.2, “PARMLIB member considerations” on page 140 for information about the data sets that must be APF-authorized.
- It is not required for the data set to reside on the IPL volume.
- The values in the “Member Type” column are not necessarily the actual SMP/E element types identified in the SMPMCS.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old one and reclaim the space used by the old release and any service that had been installed. You can determine if these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

Figure 89 (Page 1 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
ADFMAC1	CLST	T1	U	PDS	FB	80	2	2	
CBRDBRM	DATA	T1	U	PDS	FB	80	7	3	
CHSLIB	LMOD	T1	U	PDS	U	0	4	6	N
CMDLIB	LMOD	T1	E	PDS	U	0	72	75	
CSSLIB	LMOD	T1	E	PDS	U	0	90	259	
DBBLIB	DATA	T1	U	PDS	VB	80	53	34	
DFQLLIB	LMOD	T1	U	PDS	U	0	6	5	
DFQMKLB	MSG	T1	U	PDS	FB	80	2	2	N
DFQMLIB	MSG	T1	U	PDS	FB	80	3	2	
DFQPKLB	PANL	T1	U	PDS	FB	80	36	17	N
DFQPLIB	PANL	T1	U	PDS	FB	80	36	17	
DGTCLIB	CLST	T1	U	PDS	FB	80	163	14	
DGTLLIB	LMOD	T1	U	PDS	U	0	207	142	
DGTMKLB	MSG	T1	U	PDS	FB	80	45	30	N
DGTMLIB	MSG	T1	U	PDS	FB	80	45	30	
DGTPKLB	PANL	T1	S	PDS	FB	80	819	375	N
DGTPLIB	PANL	T1	U	PDS	FB	80	823	375	
DGTSKLB	SKEL	T1	U	PDS	FB	80	4	2	N
DGTSLIB	SKEL	T1	U	PDS	FB	80	33	5	
DGTTLIB	TABL	T1	U	PDS	FB	80	5	5	
FONTLIB	LMOD	T2	U	PDS	VBM	12284	275	200	21
FONTLIBB	LMOD	T2	U	PDS	VBM	12284	2709	404	21
FONT300	LMOD	T2	U	PDS	VBM	12284	3295	390	21
GERLIB	LMOD	T1	U	PDS	U	0	4	6	N
GHELP	HELP	T1	U	PDS	FB	80	37	13	N
HELP	HELP	T1	E	PDS	FB	80	210	49	
HELPEPNP	HELP	T1	U	PDS	FB	80	35	10	
HLPKLB	HELP	T1	U	PDS	FB	80	4	4	N
HRFCLST	CLST	T1	U	PDS	FB	80	17	3	
HRFMSG	MSG	T1	U	PDS	FB	80	12	5	

Figure 89 (Page 2 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
HRFPANL	PANL	T1	U	PDS	FB	80	216	88	
HRFSKEL	SKEL	T1	U	PDS	FB	80	67	13	
ICQABTXT	MAC	T2	U	PDS	FB	80	5	3	
ICQCCLIB	CLST	T1	U	PDS	FB	80	165	10	
ICQGABTX	MAC	T2	U	PDS	FB	80	5	4	N
ICQGCLIB	CLST	T1	U	PDS	FB	80	2	2	N
ICQGILIB	MAC	T2	U	PDS	FB	80	2	3	N
ICQGMLIB	MSG	T1	U	PDS	FB	80	18	30	N
ICQGPLIB	PANL	T1	U	PDS	FB	80	342	424	N
ICQGTABL	TABL	T1	U	PDS	FB	80	9	11	N
ICQILIB	MAC	T2	U	PDS	FB	80	2	2	
ICQKABTX	MAC	T2	U	PDS	FB	80	5	4	N
ICQKCLIB	CLST	T1	U	PDS	FB	80	2	2	N
ICQKILIB	MAC	T2	U	PDS	FB	80	2	3	N
ICQKMLIB	MSG	T1	U	PDS	FB	80	18	30	N
ICQKPLIB	PANL	T1	U	PDS	FB	80	343	424	N
ICQKTABL	TABL	T1	U	PDS	FB	80	7	11	N
ICQMLIB	MSG	T1	U	PDS	FB	80	17	15	
ICQPABTX	MAC	T2	U	PDS	FB	80	5	4	N
ICQPCLIB	CLST	T1	U	PDS	FB	80	2	2	N
ICQPILIB	MAC	T2	U	PDS	FB	80	2	3	N
ICQPLIB	PANL	T1	U	PDS	FB	80	335	213	
ICQPMLIB	MSG	T1	U	PDS	FB	80	18	30	N
ICQPPLIB	PANL	T1	U	PDS	FB	80	342	424	N
ICQPTABL	TABL	T1	U	PDS	FB	80	7	11	N
ICQSLIB	SKEL	T1	U	PDS	FB	80	2	2	
ICQTABLS	TABL	T1	U	PDS	FB	80	9	6	
IGDVBS1	DATA	T1	U	PDS	VB	4100	9	2	
IMAGELIB	LMOD	T1	U	PDS	U	0	20	30	
KANLIB	LMOD	T1	U	PDS	U	0	4	6	N

Figure 89 (Page 3 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
KHELP	HELP	T1	E	PDS	FB	80	46	17	N
LINKLIB	LMOD	T1	E	PDS	U	0	3128	1043	
LPALIB	LMOD	T1	E	PDS	U	0	1029	451	
MACLIB	MAC	T2	E	PDS	FB	80	4017	147	
MIGLIB	LMOD	T1	E	PDS	U	0	1075	467	
MODGEN	MAC	T2	E	PDS	FB	80	627	55	
MSGCHS	MSG	T2	S	PDS	VB	259	11	2	N
MSGDEU	MSG	T2	U	PDS	VB	259	10	2	N
MSGENP	MSG	T2	U	PDS	VB	259	9	2	N
MSGENU	MSG	T2	U	PDS	VB	259	55	10	
MSGJPN	MSG	T2	S	PDS	VB	259	48	9	N
NFSLIBE	LMOD	T1	U	PDSE	U	0	213	-	7
NFSMAC	MAC	T2	U	PDS	FB	80	4	2	
NFSSAMP	SAMP	T2	U	PDS	FB	80	13	3	
NFSTARB	DATA	T1	U	PDS	VB	264	25	2	
NUCLEUS	LMOD	T1	E	PDS	U	0	980	152	
PARMLIB	PARM	T1	E	PDS	FB	80	19	9	
PHELP	HELP	T1	S	PDS	FB	80	38	17	N
PROCLIB	PROC	T1	E	PDS	FB	80	7	6	
SACBCNTL	SAMP	T2	U	PDS	FB	80	26	7	
SADMCDA	DATA	T1	U	PDS	FB	400	2	2	
SADMCFO	DATA	T1	U	PDS	FB	400	2	2	
SADMDAT	DATA	T1	U	PDS	VB	255	29	2	
SADMGDF	DATA	T1	U	PDS	FB	400	9	3	
SADMIMG	DATA	T1	U	PDS	FB	400	2	2	
SADMMAP	DATA	T1	U	PDS	FB	400	109	6	
SADMMOD	LMOD	T1	U	PDS	U	0	460	307	
SADMMMSG	MSG	T1	U	PDS	FB	80	2	2	
SADMOPS	SAMP	T2	U	PDS	VB	255	7	2	
SADMPCF	DATA	T2	U	PDS	FB	400	97	6	

Figure 89 (Page 4 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SADMPNL	PANL	T1	U	PDS	FB	80	4	3	
SADMSAM	SAMP	T2	U	PDS	FB	80	195	14	
SADMSYM	DATA	T2	U	PDS	FB	400	212	30	
SADRYLIB	DATA	T1	U	PDS	FB	80	12	6	
SAFHFORT	LMOD	T1	U	PDS	U	0	19	69	
SAMPLIB	SAMP	T2	E	PDS	FB	80	1533	94	
SAOPEXEC	EXEC	T1	U	PDS	FB	80	3	2	
SAOPMENU	MSG	T1	U	PDS	FB	80	3	3	
SAOPMJPN	MSG	T1	U	PDS	FB	80	3	3	N
SAOPPENU	PANL	T1	U	PDS	FB	80	83	34	
SAOPPJPN	PANL	T1	U	PDS	FB	80	83	37	N
SASMMAC1	MAC	T2	U	PDS	FB	80	12	2	
SASMMAC2	MAC	T2	U	PDS	FB	80	5	2	
SASMMOD1	LMOD	T1	U	PDS	U	0	21	6	
SASMMOD2	LMOD	T1	U	PDS	U	0	59	5	
SASMPUT2	DATA	T2	U	PDS	FB	80	134	2	
SASMSAM1	SAMP	T2	U	PDS	FB	80	25	3	
SASMSAM2	SAMP	T2	U	PDS	FB	80	11	2	
SAXREXEC	DATA	T2	U	PDS	VB	255	12	3	9
SBDTCLI0	CLST	T1	U	PDS	FB	80	4	2	
SBDTCMD	LMOD	T1	U	PDS	U	0	2	2	
SBDTHELP	HELP	T1	U	PDS	FB	80	3	2	
SBDTLIB	LMOD	T1	U	PDS	U	0	21	16	
SBDTLINK	LMOD	T1	U	PDS	U	0	2	2	
SBDTLPA	LMOD	T1	U	PDS	U	0	3	2	
SBDTMAC	MAC	T2	U	PDS	FB	80	118	19	
SBDTMSG	MSG	T1	U	PDS	FB	80	2	2	
SBDTPNL0	PANL	T1	U	PDS	FB	80	7	5	
SBDTSAMP	SAMP	T2	U	PDS	FB	80	11	2	
SBLSCLI0	CLST	T1	E	PDS	FB	80	311	19	

Figure 89 (Page 5 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SBSKELO	SKEL	T1	E	PDS	FB	80	7	6	
SBSMSG0	MSG	T1	E	PDS	FB	80	10	10	
SBSPNL0	PANL	T1	E	PDS	FB	80	359	225	
SBSSTBL0	TABL	T1	E	PDS	FB	80	6	3	
SBPXEXEC	EXEC	T1	U	PDS	FB	80	33	4	
SBPXMCHS	MSG	T1	U	PDS	FB	80	12	10	N
SBPXMENU	MSG	T1	U	PDS	FB	80	11	10	
SBPXMJPN	MSG	T1	U	PDS	FB	80	11	10	N
SBXPCHS	PANL	T1	U	PDS	FB	80	35	28	N
SBXPENU	PANL	T1	U	PDS	FB	80	34	27	
SBXPJPN	PANL	T1	U	PDS	FB	80	36	28	N
SBPXTCHS	TABL	T1	U	PDS	FB	80	2	2	N
SBPXTENU	TABL	T1	U	PDS	FB	80	2	2	
SBPXTJPN	TABL	T1	U	PDS	FB	80	2	2	N
SCBDCLST	CLST	T1	U	PDS	FB	80	3	2	
SCBDHENU	LMOD	T1	U	PDS	U	0	425	691	
SCBDHJPN	LMOD	T1	U	PDS	U	0	443	1363	N
SCBDMENU	MSG	T1	U	PDS	FB	80	20	18	
SCBDMJPN	MSG	T1	U	PDS	FB	80	20	18	N
SCBDPENU	PANL	T1	U	PDS	FB	80	81	32	
SCBDPJPN	PANL	T1	U	PDS	FB	80	81	32	N
SCBDTEMP	DATA	T1	U	PDS	FB	80	18	2	
SCBDTENU	TABL	T1	U	PDS	FB	80	2	2	
SCBDTJPN	TABL	T1	U	PDS	FB	80	2	2	N
SCCNCMP	LMOD	T1	U	PDSE	U	0	5151	-	2
SCCNDOC	BOOK	T2	U	PDS	FB	80	2	2	2
SCCNJCL	SAMP	T2	U	PDS	FB	80	4	2	2
SCCNOBJ	DATA	T1	U	PDS	FB	80	19	4	5
SCCNPRC	PROC	T1	U	PDS	FB	80	7	5	2
SCCNSAM	SAMP	T2	U	PDS	FB	80	26	14	2

Figure 89 (Page 6 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SCCNUTL	EXEC	T1	U	PDS	FB	80	6	2	2
SCCR3BND	LMOD	T1	U	PDS	U	0	14	35	11
SCCR6BND	LMOD	T1	U	PDS	U	0	14	35	11
SCDRTABL	DATA	T1	U	PDS	FB	80	283	2	
SCDSSAMP	SAMP	T2	U	PDS	FB	80	3	2	
SCEEBIND	LMOD	T1	U	PDSE	U	0	12	-	
SCEEBND2	DATA	T2	U	PDS	FB	80	4	7	2
SCEECICS	LMOD	T1	U	PDS	U	0	2	2	
SCEECLST	CLST	T1	U	PDS	FB	80	10	2	
SCEECMAP	DATA	T1	U	PDS	FB	80	480	11	
SCEECPP	DATA	T1	U	PDS	FB	80	15	5	
SCEEGXLT	DATA	T1	U	PDS	FB	80	127	35	
SCEEH	MAC	T2	U	PDS	FB	120	114	12	2
SCEEHARP	MAC	T2	U	PDS	FB	80	2	2	
SCEEHH	MAC	T2	U	PDS	FB	80	126	19	
SCEEHNEI	MAC	T2	U	PDS	FB	80	4	2	
SCEEHNET	MAC	T2	U	PDS	FB	80	2	2	
SCEEHSYS	MAC	T2	U	PDS	FB	80	23	6	
SCEEHT	MAC	T2	U	PDS	FB	120	18	3	2
SCEELIB	DATA	T1	U	PDS	FB	80	48	2	
SCEELKED	LMOD	T1	U	PDS	U	0	636	2690	
SCEELKEX	DATA	T1	U	PDS	FB	80	101	194	
SCEELOCL	DATA	T1	U	PDS	FB	80	74	5	
SCEELOCX	DATA	T1	U	PDS	FB	80	848	22	
SCEELPA	LMOD	T1	U	PDS	U	0	249	3	
SCEEMAC	MAC	T2	U	PDS	FB	80	76	10	
SCEEMSGP	MSG	T1	U	PDS	FB	150	2	2	N
SCEEOBJ	DATA	T1	U	PDS	FB	80	5	5	
SCEEPROC	PROC	T1	U	PDS	FB	80	3	3	
SCEERUN	LMOD	T1	U	PDS	U	0	1612	926	

Figure 89 (Page 7 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SCEERUN2	LMOD	T1	U	PDSE	U	0	24766	-	
SCEESAMP	SAMP	T2	U	PDS	FB	80	130	42	
SCEESPC	LMOD	T1	U	PDS	U	0	13	84	
SCEESPCO	DATA	T1	U	PDS	FB	80	4	4	
SCLBCPP	DATA	T1	U	PDS	FB	80	83	9	
SCLBDLL	LMOD	T1	U	PDS	U	0	19	3	
SCLBDLL2	LMOD	T1	U	PDSE	U	0	20	-	2
SCLBHH	DATA	T2	U	PDS	FB	120	10	2	
SCLBJCL	SAMP	T2	U	PDS	FB	80	5	2	
SCLBSID	DATA	T1	U	PDS	FB	80	3	2	
SCSFCLIO	CLST	T1	U	PDS	FB	80	32	3	
SCSFHDRS	DATA	T2	U	PDS	FB	80	7	2	
SCSFMOD0	LMOD	T1	U	PDS	U	0	134	149	
SCSFMOD1	LMOD	T1	U	PDS	U	0	2	2	
SCSFMSG0	MSG	T1	U	PDS	FB	80	9	5	
SCSFOBJ	DATA	T2	U	PDS	FB	80	7	2	
SCSFPNL0	PANL	T1	U	PDS	FB	80	38	20	
SCSFSKL0	SKEL	T1	U	PDS	FB	80	2	2	
SCSFTLIB	TABL	T1	U	PDS	FB	80	2	2	
SCTVJCL	SAMP	T2	U	PDS	FB	80	3	2	
SCTVMOD	LMOD	T1	U	PDS	U	0	12	3	
SCUNHF	DATA	T2	U	PDS	VB	255	11	2	2
SCUNJCL	SAMP	T2	U	PDS	FB	80	4	2	2
SCUNLOCL	DATA	T1	U	PDS	FB	80	955	42	8
SCUNMENU	DATA	T1	U	PDS	VB	259	2	2	4
SCUNMJPN	DATA	T1	U	PDS	VB	259	2	2	N
SCUNTBL	DATA	T1	U	PDS	FB	256	43397	973	2
SDFQPKSR	DATA	T2	U	PDS	VB	255	14	3	N
SDFQPSRC	DATA	T2	U	PDS	VB	255	14	3	
SDGTPKSR	DATA	T2	U	PDS	VB	255	224	61	N

Figure 89 (Page 8 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SDGTPSRC	DATA	T2	U	PDS	VB	255	224	61	
SDGTTSRC	DATA	T2	U	PDS	VB	255	3	3	
SDMSSVM	LMOD	T1	U	PDS	U	0	38	177	
SDMSSVMS	LMOD	T1	U	PDS	U	0	2	2	
SDWWDLPA	LMOD	T1	U	PDS	U	0	2	2	3
SEAGALT	LMOD	T2	U	PDS	U	0	2	3	9
SEAGJENU	SAMP	T2	U	PDS	FB	80	4	2	9
SEAGMENU	MSG	T1	U	PDS	VB	255	2	2	9
SEAGMJPN	MSG	T1	U	PDS	VB	255	2	2	N
SEAGSAM	SAMP	T2	U	PDS	FB	80	2	2	9
SEDGEXE1	EXEC	T1	U	PDS	FB	80	102	7	
SEDGMENU	MSG	T1	U	PDS	FB	80	12	11	
SEDGMJPN	MSG	T1	U	PDS	FB	80	12	11	N
SEDGPENU	PANL	T1	U	PDS	FB	80	181	84	
SEDGPJPN	PANL	T1	U	PDS	FB	80	183	84	N
SEDGPKSR	DATA	T2	U	PDS	VB	255	65	30	N
SEDGPSRC	DATA	T2	U	PDS	VB	255	65	30	
SEEQINST	DATA	T2	U	PDS	FB	80	2136	2	
SEOXFONT	FONT	T2	U	PDS	VBM	8300	3	2	
SEOXIDAN	FONT	T2	U	PDS	VBM	8300	7	2	N
SEOXIDEU	FONT	T2	U	PDS	VBM	8300	7	2	N
SEOXIENU	FONT	T2	U	PDS	VBM	8300	7	2	
SEOXIESP	FONT	T2	U	PDS	VBM	8300	7	2	N
SEOXIFRA	FONT	T2	U	PDS	VBM	8300	7	2	N
SEOXIFRC	FONT	T2	U	PDS	VBM	8300	7	2	N
SEOXIITA	FONT	T2	U	PDS	VBM	8300	7	2	N
SEOXINLD	FONT	T2	U	PDS	VBM	8300	7	2	N
SEOXIPTB	FONT	T2	U	PDS	VBM	8300	7	2	N
SEOXODAN	BOOK	T2	U	PDS	FB	4096	21	2	N
SEOXODEU	BOOK	T2	U	PDS	FB	4096	21	2	N

Figure 89 (Page 9 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SEOXOENU	BOOK	T2	U	PDS	FB	4096	21	2	
SEOXOESP	BOOK	T2	U	PDS	FB	4096	21	2	N
SEOXOFRA	BOOK	T2	U	PDS	FB	4096	22	2	N
SEOXOFRC	BOOK	T2	U	PDS	FB	4096	22	2	N
SEOXOITA	BOOK	T2	U	PDS	FB	4096	21	2	N
SEOXONLD	BOOK	T2	U	PDS	FB	4096	21	2	N
SEOXOPTB	BOOK	T2	U	PDS	FB	4096	21	2	N
SEOX1DAN	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX1DEU	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX1ENU	BOOK	T2	U	PDS	VB	259	7	2	
SEOX1ESP	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX1FRA	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX1FRC	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX1ITA	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX1NLD	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX1PTB	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX2DAN	BOOK	T2	U	PDS	VB	259	4	2	N
SEOX2DEU	BOOK	T2	U	PDS	VB	259	4	2	N
SEOX2ENU	BOOK	T2	U	PDS	VB	259	4	2	
SEOX2ESP	BOOK	T2	U	PDS	VB	259	4	2	N
SEOX2FRA	BOOK	T2	U	PDS	VB	259	5	2	N
SEOX2FRC	BOOK	T2	U	PDS	VB	259	5	2	N
SEOX2ITA	BOOK	T2	U	PDS	VB	259	4	2	N
SEOX2NLD	BOOK	T2	U	PDS	VB	259	4	2	N
SEOX2PTB	BOOK	T2	U	PDS	VB	259	4	2	N
SEOX3DAN	BOOK	T2	U	PDS	VB	259	22	3	N
SEOX3DEU	BOOK	T2	U	PDS	VB	259	22	3	N
SEOX3ENU	BOOK	T2	U	PDS	VB	259	22	3	
SEOX3ESP	BOOK	T2	U	PDS	VB	259	25	3	N
SEOX3FRA	BOOK	T2	U	PDS	VB	259	27	3	N

Figure 89 (Page 10 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SEOX3FRC	BOOK	T2	U	PDS	VB	259	27	3	N
SEOX3ITA	BOOK	T2	U	PDS	VB	259	22	3	N
SEOX3NLD	BOOK	T2	U	PDS	VB	259	22	3	N
SEOX3PTB	BOOK	T2	U	PDS	VB	259	22	3	N
SEOX4DAN	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX4DEU	BOOK	T2	U	PDS	VB	259	6	2	N
SEOX4ENU	BOOK	T2	U	PDS	VB	259	7	2	
SEOX4ESP	BOOK	T2	U	PDS	VB	259	6	2	N
SEOX4FRA	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX4FRC	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX4ITA	BOOK	T2	U	PDS	VB	259	7	2	N
SEOX4NLD	BOOK	T2	U	PDS	VB	259	6	2	N
SEOX4PTB	BOOK	T2	U	PDS	VB	259	6	2	N
SEOYADEU	PANL	T1	U	PDS	FB	400	2	2	N
SEOYAENU	PANL	T1	U	PDS	FB	400	2	2	
SEOYAESP	PANL	T1	U	PDS	FB	400	2	2	N
SEOYAFRA	PANL	T1	U	PDS	FB	400	2	2	N
SEOYAFRC	PANL	T1	U	PDS	FB	400	2	2	N
SEOYAPTB	PANL	T1	U	PDS	FB	400	2	2	N
SEOYBDAN	MSG	T1	U	PDS	FB	80	2	2	N
SEOYBDEU	MSG	T1	U	PDS	FB	80	2	2	N
SEOYBENU	MSG	T1	U	PDS	FB	80	2	2	
SEOYBESP	MSG	T1	U	PDS	FB	80	2	2	N
SEOYBFRA	MSG	T1	U	PDS	FB	80	2	2	N
SEOYBFRC	MSG	T1	U	PDS	FB	80	2	2	N
SEOYBITA	MSG	T1	U	PDS	FB	80	2	2	N
SEOYBNLD	MSG	T1	U	PDS	FB	80	2	2	N
SEOYBPTB	MSG	T1	U	PDS	FB	80	2	2	N
SEOYCLIB	CLST	T1	U	PDS	FB	80	23	4	
SEOYGDAN	DATA	T2	U	PDS	FB	80	2	2	N

Figure 89 (Page 11 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SEOYGDEU	DATA	T2	U	PDS	FB	80	2	2	N
SEOYGENU	DATA	T2	U	PDS	FB	80	2	2	
SEOYGESP	DATA	T2	U	PDS	FB	80	2	2	N
SEOYGFRA	DATA	T2	U	PDS	FB	80	2	2	N
SEOYGFRC	DATA	T2	U	PDS	FB	80	2	2	N
SEOYGITA	DATA	T2	U	PDS	FB	80	2	2	N
SEOYGNLD	DATA	T2	U	PDS	FB	80	2	2	N
SEOYGPTB	DATA	T2	U	PDS	FB	80	2	2	N
SEOYIDEU	FONT	T2	U	PDS	VB	8300	6	2	N
SEOYIENU	FONT	T2	U	PDS	VB	8300	6	2	
SEOYIESP	FONT	T2	U	PDS	VB	8300	6	2	N
SEOYIFRA	FONT	T2	U	PDS	VB	8300	6	2	N
SEOYIFRC	FONT	T2	U	PDS	VB	8300	6	2	N
SEOYIPRF	SAMP	T2	U	PDS	FB	80	2	2	
SEOYIPTB	FONT	T2	U	PDS	VB	8300	6	2	N
SEOYLDAN	DATA	T2	U	PDS	FB	80	2	2	N
SEOYLDEU	DATA	T2	U	PDS	FB	80	2	2	N
SEOYLENU	DATA	T2	U	PDS	FB	80	2	2	
SEOYLES	DATA	T2	U	PDS	FB	80	2	2	N
SEOYLEXS	DATA	T2	U	PDS	FB	512	362	2	
SEOYLFRA	DATA	T2	U	PDS	FB	80	2	2	N
SEOYLFRC	DATA	T2	U	PDS	FB	80	2	2	N
SEOYLITA	DATA	T2	U	PDS	FB	80	2	2	N
SEOYLNLD	DATA	T2	U	PDS	FB	80	2	2	N
SEOYLOAD	LMOD	T1	U	PDS	U	0	120	3	
SEOYLPA	LMOD	T1	U	PDS	U	0	42	5	
SEOYLPTB	DATA	T2	U	PDS	FB	80	2	2	N
SEOYMC30	MAC	T2	U	PDS	FB	80	11	6	
SEOYMC40	MAC	T2	U	PDS	FB	80	34	36	
SEOYMDAN	MSG	T1	U	PDS	FB	80	5	5	N

Figure 89 (Page 12 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SEOYMDEU	MSG	T1	U	PDS	FB	80	5	5	N
SEOYMENU	MSG	T1	U	PDS	FB	80	5	5	
SEOYMESP	MSG	T1	U	PDS	FB	80	5	5	N
SEOYMFRA	MSG	T1	U	PDS	FB	80	5	5	N
SEOYMFRC	MSG	T1	U	PDS	FB	80	5	5	N
SEOYMITA	MSG	T1	U	PDS	FB	80	5	5	N
SEOYMNLD	MSG	T1	U	PDS	FB	80	5	5	N
SEOYMPTB	MSG	T1	U	PDS	FB	80	5	5	N
SEOYODEU	BOOK	T2	U	PDS	FB	4096	20	2	N
SEOYOENU	BOOK	T2	U	PDS	FB	4096	20	2	
SEOYOESP	BOOK	T2	U	PDS	FB	4096	20	2	N
SEOYOFRA	BOOK	T2	U	PDS	FB	4096	20	2	N
SEOYOFRC	BOOK	T2	U	PDS	FB	4096	20	2	N
SEOYOPTB	BOOK	T2	U	PDS	FB	4096	20	2	N
SEOYPDAN	PANL	T1	U	PDS	FB	80	164	60	N
SEOYPDEU	PANL	T1	U	PDS	FB	80	165	63	N
SEOYPENU	PANL	T1	U	PDS	FB	80	153	63	
SEOYPESP	PANL	T1	U	PDS	FB	80	166	63	N
SEOYPFRA	PANL	T1	U	PDS	FB	80	165	64	N
SEOYPFRC	PANL	T1	U	PDS	FB	80	166	64	N
SEOYPITA	PANL	T1	U	PDS	FB	80	161	60	N
SEOYPNLD	PANL	T1	U	PDS	FB	80	164	60	N
SEOYPPTB	PANL	T1	U	PDS	FB	80	165	63	N
SEOYPROC	PROC	T1	U	PDS	FB	80	2	2	
SEOYSAMP	SAMP	T2	U	PDS	FB	80	7	3	
SEOYSDAN	BOOK	T2	U	PDS	VB	259	2	2	N
SEOYSDEU	BOOK	T2	U	PDS	VB	259	2	2	N
SEOYSENU	BOOK	T2	U	PDS	VB	259	2	2	
SEOYSESP	BOOK	T2	U	PDS	VB	259	2	2	N
SEOYSFRA	BOOK	T2	U	PDS	VB	259	2	2	N

Figure 89 (Page 13 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SEOYSFRC	BOOK	T2	U	PDS	VB	259	2	2	N
SEOYSITA	BOOK	T2	U	PDS	VB	259	2	2	N
SEOYSNLD	BOOK	T2	U	PDS	VB	259	2	2	N
SEOYSPTB	BOOK	T2	U	PDS	VB	259	2	2	N
SEOYTDAN	TABL	T1	U	PDS	FB	80	3	2	N
SEOYTDEU	TABL	T1	U	PDS	FB	80	3	2	N
SEOYTENU	TABL	T1	U	PDS	FB	80	3	2	
SEOYTESP	TABL	T1	U	PDS	FB	80	3	2	N
SEOYTFRA	TABL	T1	U	PDS	FB	80	3	2	N
SEOYTFRC	TABL	T1	U	PDS	FB	80	3	2	N
SEOYTITA	TABL	T1	U	PDS	FB	80	3	2	N
SEOYTNLD	TABL	T1	U	PDS	FB	80	3	2	N
SEOYTPTB	TABL	T1	U	PDS	FB	80	3	2	N
SEOYXDAN	BOOK	T2	U	PDS	FB	4096	7	2	N
SEOYXDEU	BOOK	T2	U	PDS	FB	4096	13	2	N
SEOYXENU	BOOK	T2	U	PDS	FB	4096	13	2	
SEOYXESP	BOOK	T2	U	PDS	FB	4096	14	2	N
SEOYXFRA	BOOK	T2	U	PDS	FB	4096	17	2	N
SEOYXFRC	BOOK	T2	U	PDS	FB	4096	17	2	N
SEOYXITA	BOOK	T2	U	PDS	FB	4096	7	2	N
SEOYXNLD	BOOK	T2	U	PDS	FB	4096	7	2	N
SEOYXPTB	BOOK	T2	U	PDS	FB	4096	13	2	N
SEOY1DEU	TEXT	T2	U	PDS	VB	259	20	4	N
SEOY1ENU	TEXT	T2	U	PDS	VB	259	20	4	
SEOY1ESP	TEXT	T2	U	PDS	VB	259	20	4	N
SEOY1FRA	TEXT	T2	U	PDS	VB	259	20	4	N
SEOY1FRC	TEXT	T2	U	PDS	VB	259	20	4	N
SEOY1PTB	TEXT	T2	U	PDS	VB	259	20	4	N
SEOY2DEU	TEXT	T2	U	PDS	VB	259	5	2	N
SEOY2ENU	TEXT	T2	U	PDS	VB	259	5	2	

Figure 89 (Page 14 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SEOY2ESP	TEXT	T2	U	PDS	VB	259	5	2	N
SEOY2FRA	TEXT	T2	U	PDS	VB	259	6	2	N
SEOY2FRC	TEXT	T2	U	PDS	VB	259	6	2	N
SEOY2PTB	TEXT	T2	U	PDS	VB	259	5	2	N
SEOY4DEU	TEXT	T2	U	PDS	VB	259	19	3	N
SEOY4ENU	TEXT	T2	U	PDS	VB	259	19	3	
SEOY4ESP	TEXT	T2	U	PDS	VB	259	19	3	N
SEOY4FRA	TEXT	T2	U	PDS	VB	259	19	3	N
SEOY4FRC	TEXT	T2	U	PDS	VB	259	19	3	N
SEOY4PTB	TEXT	T2	U	PDS	VB	259	19	3	N
SEPHBOK1	BOOK	T2	U	PDS	VB	259	77	3	
SEPHCLB1	CLST	T1	U	PDS	FB	80	2	2	
SEPHCLIB	CLST	T1	U	PDS	FB	80	2	2	
SEPHDAT1	DATA	T2	U	PDS	V	256	3	3	
SEPHLOD1	LMOD	T1	U	PDS	U	0	17	2	
SEPHSAMP	SAMP	T2	U	PDS	FB	80	5	2	
SEPHSAM1	SAMP	T2	U	PDS	FB	80	2	2	
SEPHTAB	DATA	T1	U	PDS	FB	4096	80	2	
SEPWBENU	DATA	T2	U	PDS	FB	4096	6	2	N
SEPWCENU	CLST	T1	U	PDS	FB	80	3	2	
SEPWMAC1	MAC	T2	U	PDS	FB	80	2	2	
SEPWMOD1	LMOD	T1	U	PDS	U	0	13	12	
SEPWMOD2	LMOD	T1	U	PDS	U	0	4	6	
SEPWMOD3	LMOD	T1	U	PDS	U	0	2	2	
SEPWMOD4	LMOD	T1	U	PDS	U	0	147	75	
SEPWPENU	PANL	T1	U	PDS	FB	80	2	2	
SEPWSRC1	DATA	T2	U	PDS	FB	80	6	2	
SEPWSRC2	SAMP	T2	U	PDS	FB	80	4	2	
SERBCLS	CLST	T1	U	PDS	FB	80	29	3	
SERBLINK	LMOD	T1	U	PDS	U	0	486	45	

Figure 89 (Page 15 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SERBLPA	LMOD	T1	U	PDS	U	0	7	14	
SERBMENU	MSG	T1	U	PDS	FB	80	6	6	
SERBMJPN	MSG	T1	U	PDS	FB	80	6	6	N
SERBPENU	PANL	T1	U	PDS	FB	80	348	127	
SERBPJPN	PANL	T1	U	PDS	FB	80	356	130	N
SERBPWSV	DATA	T2	U	PDS	VB	255	3410	2	
SERBT	TABL	T1	U	PDS	FB	80	17	5	
SERBTENU	TABL	T1	U	PDS	FB	80	7	2	
SERBTJPN	TABL	T1	U	PDS	FB	80	6	2	N
SEUVFEXC	EXEC	T1	U	PDS	FB	80	2	2	
SEUVFLIB	DATA	T2	U	PDS	FB	80	6	2	
SEUVFSAM	SAMP	T2	U	PDS	FB	80	4	2	
SEZACMAC	MAC	T2	U	PDS	FB	80	318	91	
SEZACMTX	LMOD	T1	U	PDS	U	0	38	189	
SEZADBCX	DATA	T1	U	PDS	VB	231	225	2	
SEZADBRM	DATA	T1	U	PDS	FB	80	6	2	
SEZADPIL	LMOD	T1	U	PDS	U	0	4	6	
SEZADSIL	DATA	T1	U	PDS	U	0	22	3	
SEZADSIM	DATA	T1	U	PDS	FB	80	3	3	
SEZADSIP	PARM	T1	U	PDS	FB	80	2	2	
SEZAEXEC	EXEC	T1	U	PDS	FB	80	7	2	11
SEZAINST	SAMP	T2	U	PDS	FB	80	210	53	
SEZALIBN	LMOD	T1	U	PDS	U	0	7	44	
SEZALNK2	LMOD	T1	U	PDS	U	0	12	2	
SEZALOAD	LMOD	T1	U	PDSE	U	0	2668	-	4
SEZALPA	LMOD	T1	U	PDS	U	0	3	5	
SEZAMENU	MSG	T1	U	PDS	FB	80	4	4	
SEZANCLS	CLST	T1	U	PDS	FB	80	42	12	
SEZANMAC	MAC	T2	U	PDS	FB	80	74	6	
SEZANPNL	DATA	T1	U	PDS	FB	80	22	20	

Figure 89 (Page 16 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SEZAOLDX	LMOD	T1	U	PDS	U	0	2	5	3
SEZAPENU	PANL	T1	U	PDS	FB	80	13	7	
SEZARNT1	DATA	T1	U	PDS	FB	80	105	64	
SEZARNT2	DATA	T1	U	PDS	FB	80	18	6	3
SEZARNT3	DATA	T1	U	PDS	FB	80	76	12	3
SEZARNT4	DATA	T1	U	PDS	FB	80	9	6	
SEZAROE1	DATA	T1	U	PDS	FB	80	105	60	
SEZAROE2	DATA	T1	U	PDS	FB	80	18	6	3
SEZAROE3	DATA	T1	U	PDS	FB	80	76	12	3
SEZARPCL	LMOD	T1	U	PDS	U	0	10	40	
SEZATCP	LMOD	T1	U	PDS	U	0	117	13	
SEZATCPX	DATA	T1	U	PDS	FB	80	7	7	
SEZATELX	DATA	T1	U	PDS	FB	80	5	7	
SEZAXAWL	DATA	T1	U	PDS	U	0	13	51	3
SEZAXLD1	DATA	T1	U	PDS	F	256	2	2	
SEZAXLD2	DATA	T1	U	PDS	VB	5124	87	11	
SEZAXMLB	DATA	T1	U	PDS	U	0	50	181	3
SEZAXTLB	DATA	T1	U	PDS	U	0	19	114	3
SEZAX11L	DATA	T1	U	PDS	U	0	56	280	3
SFNILIB	LMOD	T2	U	PDS	VBM	16124	3192	527	21
SFOMHDRS	MAC	T2	U	PDS	FB	80	18	2	
SFOMOBJ	DATA	T1	U	PDS	FB	80	68	37	
SFONDLIB	LMOD	T2	U	PDS	VBM	12284	18768	740	21
SGIMCLS0	CLST	T1	U	PDS	FB	80	14	3	
SGIMLMD0	LMOD	T1	U	PDS	U	0	76	12	
SGIMMENU	MSG	T1	U	PDS	FB	80	10	7	
SGIMMJPJN	MSG	T1	U	PDS	FB	80	10	7	N
SGIMPENU	PANL	T1	U	PDS	FB	80	159	90	
SGIMPJPJN	PANL	T1	U	PDS	FB	80	159	90	N
SGIMSENU	SKEL	T1	U	PDS	FB	80	18	6	

Figure 89 (Page 17 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SGIMTENU	TABL	T1	U	PDS	FB	80	487	2	
SGIMTJPN	TABL	T1	U	PDS	FB	80	2	2	N
SGLDEXEC	EXEC	T1	U	PDS	FB	80	2	3	
SGLDEXPC	DATA	T2	U	PDS	FB	80	3	2	
SGLDHDRC	DATA	T2	U	PDS	FB	80	9	2	
SGLDSAMP	SAMP	T2	U	PDS	FB	80	12	3	
SGSKSAMP	SAMP	T2	U	PDS	FB	80	4	2	
SHASLNKE	LMOD	T1	U	PDSE	U	0	104	-	7
SHASMAC	MAC	T2	U	PDS	FB	80	458	55	
SHASMENU	MSG	T1	U	PDS	VB	259	5	2	
SHASMIG	LMOD	T1	U	PDS	U	0	101	66	
SHASMJPN	MSG	T1	U	PDS	VB	259	6	2	N
SHASPARM	PARM	T1	U	PDS	FB	80	2	2	
SHASPNL0	PANL	T1	U	PDS	FB	80	17	4	
SHASSAMP	SAMP	T2	U	PDS	FB	80	89	6	
SHASSRC	SRCE	T2	U	PDS	FB	80	1895	23	
SIATCLI0	CLST	T1	U	PDS	FB	80	10	2	
SIATLIB	LMOD	T1	U	PDS	U	0	345	117	
SIATLINK	LMOD	T1	U	PDS	U	0	23	7	
SIATLPA	LMOD	T1	U	PDS	U	0	40	17	
SIATMAC	MAC	T2	U	PDS	FB	80	644	74	
SIATMIG	LMOD	T1	U	PDS	U	0	133	83	
SIATMSG0	MSG	T1	U	PDS	FB	80	2	2	
SIATPARM	PARM	T1	U	PDS	FB	80	2	2	
SIATPNL0	PANL	T1	U	PDS	FB	80	11	7	
SIATSAMP	SAMP	T2	U	PDS	FB	80	15	3	
SIATSRC	SRCE	T2	U	PDS	FB	80	3400	88	
SIATTBLO	TABL	T1	U	PDS	FB	80	2	2	
SIBMAM24	LMOD	T1	U	PDS	U	0	7	24	
SIBMCALL	LMOD	T1	U	PDS	U	0	2	2	

Figure 89 (Page 18 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SIBMAL2	LMOD	T1	U	PDS	U	0	2	2	
SIBMMATH	LMOD	T1	U	PDS	U	0	14	56	
SIBMTASK	LMOD	T1	U	PDS	U	0	2	3	
SICELINK	LMOD	T1	U	PDS	U	0	25	13	
SICELPA	LMOD	T1	U	PDS	U	0	2	2	
SICEPROC	SAMP	T2	U	PDS	FB	80	2	2	
SICESAMP	SAMP	T2	U	PDS	FB	80	6	3	
SICESRCE	MAC	T2	U	PDS	FB	80	3	3	
SICEUSER	MAC	T2	U	PDS	FB	80	17	2	
SICHMJPN	MSG	T1	U	PDS	FB	80	11	5	N
SICHPJPN	PANL	T1	U	PDS	FB	80	221	87	N
SIEAHDR	MAC	T2	U	PDS	FB	80	82	6	
SIEAHDRV	DATA	T2	U	PDS	VB	260	23	4	6
SIEALNKE	LMOD	T1	S	PDSE	U	0	3394	-	6
SIEAMIGE	LMOD	T1	S	PDSE	U	0	13	-	7
SIEASID	DATA	T2	U	PDS	FB	80	6	4	6
SIFALIB	LMOD	T1	U	PDS	U	0	9	2	
SIMWSDCK	DATA	T2	U	PDS	FB	80	4	2	
SIMWTBL1	TABL	T1	U	PDS	FB	80	4	4	
SIOAIBIN	DATA	T2	U	PDS	FB	256	78	2	
SIOAJAVA	DATA	T2	U	PDS	VB	84	44	2	
SIOALMOD	LMOD	T1	U	PDS	U	0	51	3	
SIOAMMOD	LMOD	T1	U	PDS	U	0	2	3	
SIOASAMP	SAMP	T2	U	PDS	FB	80	63	3	
SIOEEXEC	EXEC	T1	U	PDS	FB	80	21	2	
SIOEMJPN	MSG	T1	U	PDS	VB	255	6	2	N
SIOEPROC	PROC	T1	U	PDS	FB	80	2	2	
SIOESAMP	SAMP	T2	U	PDS	FB	80	4	2	
SISFEXEC	EXEC	T1	U	PDS	FB	80	14	3	
SISFHELP	HELP	T1	U	PDS	FB	80	2	2	4

Figure 89 (Page 19 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SISFJCL	SAMP	T2	U	PDS	FB	80	10	2	
SISFJCL1	SAMP	T2	U	PDS	FB	80	3	2	10
SISFLINK	LMOD	T1	U	PDS	U	0	3	2	
SISFLOAD	LMOD	T1	U	PDS	U	0	133	16	
SISFLPA	LMOD	T1	U	PDS	U	0	2	2	
SISFMAC	SRCE	T2	U	PDS	FB	80	63	5	9
SISFMIG	LMOD	T1	U	PDS	U	0	12	40	10
SISFMLIB	MSG	T1	U	PDS	FB	80	2	2	
SISFMOD1	LMOD	T1	U	PDS	U	0	3	2	10
SISFPLIB	PANL	T1	U	PDS	FB	80	647	350	
SISFSLIB	SKEL	T1	U	PDS	FB	80	2	2	
SISFSRC	SRCE	T2	U	PDS	FB	80	2	2	
SISFSRC1	SRCE	T2	U	PDS	FB	80	21	2	10
SISFTLIB	TABL	T1	U	PDS	FB	80	81	2	
SISPALIB	DATA	T2	U	PDS	FB	80	2	2	
SISPCLIB	CLST	T1	U	PDS	FB	80	19	3	
SISPEXEC	EXEC	T1	U	PDS	FB	80	107	4	
SISPGDES	DATA	T2	U	PDS	FB	80	272	140	N
SISPGDEU	DATA	T2	U	PDS	FB	80	272	140	N
SISPGENP	DATA	T2	U	PDS	FB	80	265	140	N
SISPGENU	DATA	T2	U	PDS	FB	80	268	140	
SISPGJPN	DATA	T2	U	PDS	FB	80	266	140	N
SISPGMLI	DATA	T2	U	PDS	FB	80	168	56	
SISPGUI	DATA	T2	U	PDS	VB	255	317	2	
SISPHelp	HELP	T1	U	PDS	FB	80	2	2	
SISPLOAD	LMOD	T1	U	PDS	U	0	127	72	
SISPLPA	LMOD	T1	U	PDS	U	0	442	44	
SISPMACS	MAC	T2	U	PDS	FB	80	59	9	
SISPMDES	MSG	T1	U	PDS	FB	80	52	36	N
SISPMDEU	MSG	T1	U	PDS	FB	80	52	36	N

Figure 89 (Page 20 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SISPMENP	MSG	T1	U	PDS	FB	80	46	36	N
SISPMENU	MSG	T1	U	PDS	FB	80	46	36	
SISPMJPN	MSG	T1	U	PDS	FB	80	49	36	N
SISPPDES	PANL	T1	U	PDS	FB	80	490	217	N
SISPPDEU	PANL	T1	U	PDS	FB	80	490	217	N
SISPPENP	PANL	T1	U	PDS	FB	80	480	217	N
SISPPENU	PANL	T1	U	PDS	FB	80	480	217	
SISPPJPN	PANL	T1	U	PDS	FB	80	479	217	N
SISPSAMP	SAMP	T2	U	PDS	FB	80	99	15	
SISPSDES	SKEL	T1	U	PDS	FB	80	111	55	N
SISPSDEU	SKEL	T1	U	PDS	FB	80	111	55	N
SISPSENP	SKEL	T1	U	PDS	FB	80	105	55	N
SISPSENU	SKEL	T1	U	PDS	FB	80	106	55	
SISPSJPN	SKEL	T1	U	PDS	FB	80	104	55	N
SISPSLIB	SKEL	T1	U	PDS	FB	80	22	6	
SISPTDES	TABL	T1	U	PDS	FB	80	4	2	N
SISPTDEU	TABL	T1	U	PDS	FB	80	4	2	N
SISPTENP	TABL	T1	U	PDS	FB	80	4	2	N
SISPTENU	TABL	T1	U	PDS	FB	80	4	2	
SISPTJPN	TABL	T1	U	PDS	FB	80	4	2	N
SISTASGD	DATA	T1	U	PDS	VB	512	61	5	
SISTASN1	DATA	T1	U	PDS	FB	1024	11	4	
SISTCLIB	LMOD	T1	U	PDS	U	0	88	111	
SISTCMIP	DATA	T1	U	PDS	FB	80	2	2	
SISTDAT1	DATA	T1	U	PDS	VB	6156	28	2	
SISTDAT2	DATA	T1	U	PDS	VB	259	6	2	
SISTGDMO	DATA	T1	U	PDS	FB	500	120	2	
SISTMAC1	MAC	T2	U	PDS	FB	80	17	3	
SORTLIB	LMOD	T1	U	PDS	U	0	28	41	
SORTLPA	LMOD	T1	U	PDS	U	0	32	13	

Figure 89 (Page 21 of 21). Storage required for target libraries for z/OS V2.1.0

Library DDNAME	Mem Type	Tar Vol	T Y P E	Org	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	N O T E
SVCLIB	LMOD	T1	U	PDS	U	0	2	2	
UADS	DATA	T1	U	PDS	FB	80	2	2	
VTAMLIB	LMOD	T1	U	PDS	U	0	280	83	

C.5 Distribution Libraries for z/OS V2.1.0

Figure 90 on page 371 describes the distribution libraries required to install z/OS V2.1.0. Abbreviations used for the data set type field are:

- U** Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or program directories) need to be referenced for the data set size.
- S** Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.
- E** Existing shared data set, used by this product and others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This existing data set must have enough free space to accommodate the storage size given in this table.

Abbreviations used for the ORG field are:

- PDS** Partition Data Set
- PDSE** Partition Data Set Extended
- SEQ** Sequential Data Set

In the tables, abbreviations used for the **NOTE** column are:

- 1** New library introduced in z/OS Version 1 Release 1.
- 2** New library introduced in z/OS Version 1 Release 2.
- 3** New library introduced in z/OS Version 1 Release 3.
- 4** New library introduced in z/OS Version 1 Release 4.
- 5** New library introduced in z/OS Version 1 Release 5.
- 6** New library introduced in z/OS Version 1 Release 6.
- 7** New library introduced in z/OS Version 1 Release 7.
- 8** New library introduced in z/OS Version 1 Release 8.
- 9** New library introduced in z/OS Version 1 Release 9.

- 10** New library introduced in z/OS Version 1 Release 10.
- 11** New library introduced in z/OS Version 1 Release 11.
- 21** New library introduced in z/OS Version 2 Release 1.
- N** Library used only for National Language support. This library can be empty if the language is not ordered.
- *** An “*” in the NOTE column indicates that the library is empty after the z/OS release is installed.

All distribution libraries listed have the following attributes:

- The default name of the data set may be changed
- The default block size of the data set may be changed
- The data set may be merged with another data set that has equivalent characteristics
- The data set may be either a PDS or a PDSE.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old one and reclaim the space used by the old release and any service that had been installed. You can determine whether or not these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

For more information on the names and sizes of the required data sets, refer to 7.2.2, “Allocate Target and Distribution Libraries for Wave 0 elements” on page 56 and 8.1.7, “Allocate target and distribution libraries for Wave 1 elements” on page 87.

Figure 90 (Page 1 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AACBCNTL	-	PDS	FB	80	26	7	
AADFMAC1	-	PDS	FB	80	2	2	
AADMCDCA	-	PDS	FB	400	2	2	
AADMCF0	-	PDS	FB	400	2	2	
AADMDAT	-	PDS	VB	255	29	2	
AADMGDF	-	PDS	FB	400	9	3	
AADMIMG	-	PDS	FB	400	2	2	
AADMMAP	-	PDS	FB	400	109	6	
AADMMOD	-	PDS	U	0	670	775	
AADMMSG	-	PDS	FB	80	2	2	
AADMOPS	-	PDS	VB	255	7	2	
AADMPCF	-	PDS	FB	400	97	6	
AADMPNL	-	PDS	FB	80	4	3	
AADMSAM	-	PDS	FB	80	195	14	
AADMSYM	-	PDS	FB	400	212	30	

Figure 90 (Page 2 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AADRLIB	-	PDS	U	0	103	82	
AADRYLIB	-	PDS	FB	80	12	6	
AAFHMOD1	-	PDS	U	0	170	709	
AAFHSRC1	-	PDS	FB	80	21	4	
AAOPEXEC	-	PDS	FB	80	3	2	
AAOPHFS	-	PDS	VB	255	2396	32	
AAOPHJPN	-	PDS	VB	255	350	12	
AAOPMENU	-	PDS	FB	80	3	3	
AAOPMJPN	-	PDS	FB	80	3	3	
AAOPMOD1	-	PDS	U	0	201	62	
AAOPPENU	-	PDS	FB	80	83	34	
AAOPPJPN	-	PDS	FB	80	83	37	
AASMMAC1	-	PDS	FB	80	12	2	
AASMMAC2	-	PDS	FB	80	5	2	
AASMMOD1	-	PDS	U	0	29	23	
AASMMOD2	-	PDS	U	0	114	105	
AASMPUT2	-	PDS	FB	80	134	2	
AASMSAM1	-	PDS	FB	80	25	3	
AASMSAM2	-	PDS	FB	80	11	2	
AAXREXEC	-	PDS	VB	255	12	3	
ABDTCLI0	-	PDS	FB	80	4	2	
ABDTHelp	-	PDS	FB	80	3	2	
ABDTMAC	-	PDS	FB	80	118	19	
ABDTMOD	-	PDS	U	0	40	45	
ABDTMSG	-	PDS	FB	80	2	2	
ABDTPNL0	-	PDS	FB	80	7	5	
ABDTSAMP	-	PDS	FB	80	11	2	
ABLSCLI0	-	PDS	FB	80	311	19	
ABLSKEL0	-	PDS	FB	80	7	6	
ABLSMSG0	-	PDS	FB	80	10	10	
ABLSPNL0	-	PDS	FB	80	359	225	

Figure 90 (Page 3 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
ABLSTBL0	-	PDS	FB	80	6	3	
ABMFMOD0	-	PDS	U	0	34	27	
ABPXEXEC	-	PDS	FB	80	34	4	
ABPXMCHS	-	PDS	FB	80	12	10	
ABPXMENU	-	PDS	FB	80	11	10	
ABPXMJPN	-	PDS	FB	80	11	10	
ABPXMOD1	-	PDS	U	0	296	205	
ABPXPCHS	-	PDS	FB	80	35	28	
ABPXPENU	-	PDS	FB	80	34	27	
ABPXPJPN	-	PDS	FB	80	36	28	
ABPXSPC	-	PDS	U	0	4	6	
ABPXTCHS	-	PDS	FB	80	2	2	
ABPXTENU	-	PDS	FB	80	2	2	
ABPXTJPN	-	PDS	FB	80	2	2	
ABPXXMLS	-	PDS	VB	256	4	2	
ACBDCLST	-	PDS	FB	80	3	2	
ACBDEHFS	-	PDS	VB	255	2	2	
ACBDHENU	-	PDS	U	0	425	691	
ACBDHJPN	-	PDS	U	0	443	1363	
ACBDMENU	-	PDS	FB	80	20	18	
ACBDMJPN	-	PDS	FB	80	20	18	
ACBDMOD1	-	PDS	U	0	365	138	
ACBDMOD2	-	PDS	U	0	5	9	
ACBDMOD3	-	PDS	U	0	5	9	
ACBDPENU	-	PDS	FB	80	81	32	
ACBDPJPN	-	PDS	FB	80	81	32	
ACBDTEMP	-	PDS	FB	80	18	2	
ACBDTENU	-	PDS	FB	80	2	2	
ACBDTJPN	-	PDS	FB	80	2	2	
ACBRDBRM	-	PDS	FB	80	7	3	
ACBRMOD0	-	PDS	U	0	170	180	

Figure 90 (Page 4 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
ACCNCMP	-	PDSE	U	0	5150	-	
ACCNSR1	-	PDS	FB	80	58	23	
ACCRHFS	-	PDS	VB	256	3	2	
ACCRMOD	-	PDS	U	0	27	24	
ACDMMOD0	-	PDS	U	0	50	38	
ACDRMODS	-	PDS	U	0	9	2	
ACDRTABL	-	PDS	FB	80	283	2	
ACDSHFS	-	PDS	VB	255	558	5	
ACDSSAMP	-	PDS	FB	80	3	2	
ACEEMOD1	-	PDS	U	0	442	502	
ACEEMOD2	-	PDSE	U	0	23586	-	
ACEESRC1	-	PDS	FB	80	143	14	
ACEESRC2	-	PDS	FB	120	114	12	
ACEESRC3	-	PDS	FB	120	18	3	
ACFZHFS	-	PDS	VB	255	899	2	
ACLBDLL	-	PDS	U	0	46	5	
ACLBDLL2	-	PDSE	U	0	244	-	
ACLBHFS1	-	PDS	VB	255	92	3	
ACLBOBJ	-	PDS	FB	80	122	10	
ACLBSR1	-	PDS	FB	120	18	3	
ACLMMOD0	-	PDS	U	0	266	189	
ACMDLIB	-	PDS	U	0	37	41	
ACSFCLIO	U	PDS	FB	80	32	3	
ACSFHDRS	U	PDS	FB	80	7	2	
ACSFHFS	U	PDS	VB	255	34	3	
ACSFMOD0	U	PDS	U	0	184	205	
ACSFMOD1	U	PDS	U	0	2	2	
ACSFMSG0	U	PDS	FB	80	9	5	
ACSFOBJ	U	PDS	FB	80	7	2	
ACSFPNL0	U	PDS	FB	80	38	20	
ACSFSKL0	U	PDS	FB	80	2	2	

Figure 90 (Page 5 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
ACSFTLIB	U	PDS	FB	80	2	2	
ACSSLIB	-	PDS	U	0	87	251	
ACTVMOD	-	PDS	U	0	12	2	
ACTVSRC	-	PDS	FB	80	3	2	
ACUNHF	-	PDS	VB	255	11	2	
ACUNJCL	-	PDS	FB	80	4	2	
ACUNLOCL	-	PDS	FB	80	955	42	
ACUNMAC	-	PDS	FB	80	89	3	
ACUNMENU	-	PDS	VB	259	2	2	
ACUNMJPN	-	PDS	VB	259	2	2	
ACUNMOD	-	PDS	U	0	69	54	
ACUNSAMP	-	PDS	FB	80	25	4	
ACUNTBL	-	PDS	FB	256	42931	973	
ADBBLIB	-	PDS	VB	80	55	34	
ADFPMOD0	-	PDS	U	0	26	19	
ADFQMKLB	-	PDS	FB	80	2	2	
ADFQMLIB	-	PDS	FB	80	3	2	
ADFQPKLB	-	PDS	FB	80	36	17	
ADFQPKSR	-	PDS	VB	255	14	3	
ADFQPLIB	-	PDS	FB	80	36	17	
ADFQPSRC	-	PDS	VB	255	14	3	
ADGTCLIB	-	PDS	FB	80	163	14	
ADGTL LIB	-	PDS	U	0	247	292	
ADGTMKLB	-	PDS	FB	80	45	30	
ADGTMLIB	-	PDS	FB	80	45	30	
ADGTPKLB	-	PDS	FB	80	819	375	
ADGTPKSR	-	PDS	VB	255	224	61	
ADGTPLIB	-	PDS	FB	80	823	375	
ADGTPSRC	-	PDS	VB	255	224	61	
ADGTSKLB	-	PDS	FB	80	4	2	
ADGTS LIB	-	PDS	FB	80	33	5	

Figure 90 (Page 6 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
ADGTTLIB	-	PDS	FB	80	5	5	
ADGTTSRC	-	PDS	VB	255	3	3	
ADMSSVM	-	PDS	U	0	38	177	
AEAGJENU	-	PDS	FB	80	4	2	
AEAGMENU	-	PDS	VB	255	2	2	
AEAGMJPN	-	PDS	VB	255	2	2	
AEAGMOD1	-	PDS	U	0	3	3	
AEAGSAM	-	PDS	FB	80	2	2	
AEDCCPP1	-	PDS	FB	80	15	5	
AEDCHFS	-	PDS	VB	255	4067	75	
AEDCMOD1	-	PDS	U	0	1405	1784	
AEDCMOD2	-	PDS	U	0	13	80	
AEDCMSEP	-	PDS	FB	150	2	2	
AEDCOBJ1	-	PDS	FB	80	7	7	
AEDCSRC6	-	PDS	FB	80	703	68	
AEDCSRC7	-	PDS	FB	80	1086	243	
AEDGEXE1	-	PDS	FB	80	102	7	
AEDGHFS	-	PDS	VB	256	55	3	
AEDGMENU	-	PDS	FB	80	12	11	
AEDGMJPN	-	PDS	FB	80	12	11	
AEDGMOD1	-	PDS	U	0	55	33	
AEDGPENU	-	PDS	FB	80	181	84	
AEDGPJPN	-	PDS	FB	80	183	84	
AEDGPKSR	-	PDS	VB	255	65	30	
AEDGPSRC	-	PDS	VB	255	65	30	
AEDGSRC1	-	PDS	FB	80	17	2	
AEEQINST	-	PDS	FB	80	2136	2	
AEOXFONT	-	PDS	VBM	8300	3	2	
AEOXIDAN	-	PDS	VBM	8300	7	2	
AEOXIDEU	-	PDS	VBM	8300	7	2	
AEOXIENU	-	PDS	VBM	8300	7	2	

Figure 90 (Page 7 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AEOXIESP	-	PDS	VBM	8300	7	2	
AEOXIFRA	-	PDS	VB	8300	7	2	
AEOXIFRC	-	PDS	VBM	8300	7	2	
AEOXIITA	-	PDS	VBM	8300	7	2	
AEOXINLD	-	PDS	VBM	8300	7	2	
AEOXIPTB	-	PDS	VBM	8300	7	2	
AEOXODAN	-	PDS	FB	4096	21	2	
AEOXODEU	-	PDS	FB	4096	21	2	
AEOXOENU	-	PDS	FB	4096	21	2	
AEOXOESP	-	PDS	FB	4096	21	2	
AEOXOFRA	-	PDS	FB	4096	22	2	
AEOXOFRC	-	PDS	FB	4096	22	2	
AEOXOITA	-	PDS	FB	4096	21	2	
AEOXONLD	-	PDS	FB	4096	21	2	
AEOXOPTB	-	PDS	FB	4096	21	2	
AEOX1DAN	-	PDS	VB	259	7	2	
AEOX1DEU	-	PDS	VB	259	7	2	
AEOX1ENU	-	PDS	VB	259	7	2	
AEOX1ESP	-	PDS	VB	259	7	2	
AEOX1FRA	-	PDS	VB	259	7	2	
AEOX1FRC	-	PDS	VB	259	7	2	
AEOX1ITA	-	PDS	VB	259	7	2	
AEOX1NLD	-	PDS	VB	259	7	2	
AEOX1PTB	-	PDS	VB	259	7	2	
AEOX2DAN	-	PDS	VB	259	4	2	
AEOX2DEU	-	PDS	VB	259	4	2	
AEOX2ENU	-	PDS	VB	259	4	2	
AEOX2ESP	-	PDS	VB	259	4	2	
AEOX2FRA	-	PDS	VB	259	5	2	
AEOX2FRC	-	PDS	VB	259	5	2	
AEOX2ITA	-	PDS	VB	259	4	2	

Figure 90 (Page 8 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AEOX2NLD	-	PDS	VB	259	4	2	
AEOX2PTB	-	PDS	VB	259	4	2	
AEOX3DAN	-	PDS	VB	259	22	3	
AEOX3DEU	-	PDS	VB	259	22	3	
AEOX3ENU	-	PDS	VB	259	22	3	
AEOX3ESP	-	PDS	VB	259	25	3	
AEOX3FRA	-	PDS	VB	259	27	3	
AEOX3FRC	-	PDS	VB	259	27	3	
AEOX3ITA	-	PDS	VB	259	22	3	
AEOX3NLD	-	PDS	VB	259	22	3	
AEOX3PTB	-	PDS	VB	259	22	3	
AEOX4DAN	-	PDS	VB	259	7	2	
AEOX4DEU	-	PDS	VB	259	6	2	
AEOX4ENU	-	PDS	VB	259	7	2	
AEOX4ESP	-	PDS	VB	259	6	2	
AEOX4FRA	-	PDS	VB	259	7	2	
AEOX4FRC	-	PDS	VB	259	7	2	
AEOX4ITA	-	PDS	VB	259	7	2	
AEOX4NLD	-	PDS	VB	259	6	2	
AEOX4PTB	-	PDS	VB	259	6	2	
AEOYADEU	-	PDS	FB	400	2	2	
AEOYAENU	-	PDS	FB	400	2	2	
AEOYAESP	-	PDS	FB	400	2	2	
AEOYAFRA	-	PDS	FB	400	2	2	
AEOYAFRC	-	PDS	FB	400	2	2	
AEOYAPTB	-	PDS	FB	400	2	2	
AEOYBDAN	-	PDS	FB	80	2	2	
AEOYBDEU	-	PDS	FB	80	2	2	
AEOYBENU	-	PDS	FB	80	2	2	
AEOYBESP	-	PDS	FB	80	2	2	
AEOYBFRA	-	PDS	FB	80	2	2	

Figure 90 (Page 9 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AEOYBFRC	-	PDS	FB	80	2	2	
AEOYBITA	-	PDS	FB	80	2	2	
AEOYBNLD	-	PDS	FB	80	2	2	
AEOYBPTB	-	PDS	FB	80	2	2	
AEOYCLIB	-	PDS	FB	80	23	4	
AEOYGDAN	-	PDS	FB	80	2	2	
AEOYGDEU	-	PDS	FB	80	2	2	
AEOYGENU	-	PDS	FB	80	2	2	
AEOYGESP	-	PDS	FB	80	2	2	
AEOYGFRA	-	PDS	FB	80	2	2	
AEOYGFRFC	-	PDS	FB	80	2	2	
AEOYGITA	-	PDS	FB	80	2	2	
AEOYGNLD	-	PDS	FB	80	2	2	
AEOYGPTB	-	PDS	FB	80	2	2	
AEOYIDEU	-	PDS	VB	8300	6	2	
AEOYIENU	-	PDS	VB	8300	6	2	
AEOYIESP	-	PDS	VB	8300	6	2	
AEOYIFRA	-	PDS	VB	8300	6	2	
AEOYIFRC	-	PDS	VB	8300	6	2	
AEOYIPRF	-	PDS	FB	80	2	2	
AEOYIPTB	-	PDS	VB	8300	6	2	
AEOYLDAN	-	PDS	FB	80	2	2	
AEOYLDEU	-	PDS	FB	80	2	2	
AEOYLENU	-	PDS	FB	80	2	2	
AEOYLESP	-	PDS	FB	80	2	2	
AEOYLEXS	-	PDS	FB	512	362	2	
AEOYLFRA	-	PDS	FB	80	2	2	
AEOYLFRC	-	PDS	FB	80	2	2	
AEOYLITA	-	PDS	FB	80	2	2	
AEOYLNLD	-	PDS	FB	80	2	2	
AEOYLOAD	-	PDS	U	0	90	27	

Figure 90 (Page 10 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AEOYLPTB	-	PDS	FB	80	2	2	
AEOYMC30	-	PDS	FB	80	11	6	
AEOYMC40	-	PDS	FB	80	34	36	
AEOYMDAN	-	PDS	FB	80	5	5	
AEOYMDEU	-	PDS	FB	80	5	5	
AEOYMENU	-	PDS	FB	80	5	5	
AEOYMESP	-	PDS	FB	80	5	5	
AEOYMFRA	-	PDS	FB	80	5	5	
AEOYMFRC	-	PDS	FB	80	5	5	
AEOYMITA	-	PDS	FB	80	5	5	
AEOYMNLD	-	PDS	FB	80	5	5	
AEOYMPTB	-	PDS	FB	80	5	5	
AEOYODEU	-	PDS	FB	4096	20	2	
AEOYOENU	-	PDS	FB	4096	20	2	
AEOYOESP	-	PDS	FB	4096	20	2	
AEOYOFRA	-	PDS	FB	4096	20	2	
AEOYOFRC	-	PDS	FB	4096	20	2	
AEOYOPTB	-	PDS	FB	4096	20	2	
AEOYPDAN	-	PDS	FB	80	164	60	
AEOYPDEU	-	PDS	FB	80	165	63	
AEOYPENU	-	PDS	FB	80	153	63	
AEOYPESP	-	PDS	FB	80	166	63	
AEOYPFRA	-	PDS	FB	80	165	64	
AEOYPFRC	-	PDS	FB	80	166	64	
AEOYPITA	-	PDS	FB	80	161	60	
AEOYPNLD	-	PDS	FB	80	164	60	
AEOYPPTB	-	PDS	FB	80	165	63	
AEOYPROC	-	PDS	FB	80	2	2	
AEOYSAMP	-	PDS	FB	80	7	3	
AEOYSDAN	-	PDS	VB	259	2	2	
AEOYSDEU	-	PDS	VB	259	2	2	

Figure 90 (Page 11 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AEOYSENU	-	PDS	VB	259	2	2	
AEOYSESP	-	PDS	VB	259	2	2	
AEOYSFRA	-	PDS	VB	259	2	2	
AEOYSFRC	-	PDS	VB	259	2	2	
AEOYSITA	-	PDS	VB	259	2	2	
AEOYSNLD	-	PDS	VB	259	2	2	
AEOYSPTB	-	PDS	VB	259	2	2	
AEOYTDAN	-	PDS	FB	80	3	2	
AEOYTDEU	-	PDS	FB	80	3	2	
AEOYTENU	-	PDS	FB	80	3	2	
AEOYTESP	-	PDS	FB	80	3	2	
AEOYTFRA	-	PDS	FB	80	3	2	
AEOYTFRC	-	PDS	FB	80	3	2	
AEOYTITA	-	PDS	FB	80	3	2	
AEOYTNLD	-	PDS	FB	80	3	2	
AEOYTPTB	-	PDS	FB	80	3	2	
AEOYXDAN	-	PDS	FB	4096	7	2	
AEOYXDEU	-	PDS	FB	4096	13	2	
AEOYXENU	-	PDS	FB	4096	13	2	
AEOYXESP	-	PDS	FB	4096	14	2	
AEOYXFRA	-	PDS	FB	4096	17	2	
AEOYXFRC	-	PDS	FB	4096	17	2	
AEOYXITA	-	PDS	FB	4096	7	2	
AEOYXNLD	-	PDS	FB	4096	7	2	
AEOYXPTB	-	PDS	FB	4096	13	2	
AEOY1DEU	-	PDS	VB	259	20	4	
AEOY1ENU	-	PDS	VB	259	20	4	
AEOY1ESP	-	PDS	VB	259	20	4	
AEOY1FRA	-	PDS	VB	259	20	4	
AEOY1FRC	-	PDS	VB	259	20	4	
AEOY1PTB	-	PDS	VB	259	20	4	

Figure 90 (Page 12 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AEOY2DEU	-	PDS	VB	259	5	2	
AEOY2ENU	-	PDS	VB	259	5	2	
AEOY2ESP	-	PDS	VB	259	5	2	
AEOY2FRA	-	PDS	VB	259	6	2	
AEOY2FRC	-	PDS	VB	259	6	2	
AEOY2PTB	-	PDS	VB	259	5	2	
AEOY4DEU	-	PDS	VB	259	19	3	
AEOY4ENU	-	PDS	VB	259	19	3	
AEOY4ESP	-	PDS	VB	259	19	3	
AEOY4FRA	-	PDS	VB	259	19	3	
AEOY4FRC	-	PDS	VB	259	19	3	
AEOY4PTB	-	PDS	VB	259	19	3	
AEPHBOOK	-	PDS	FB	4096	448	3	
AEPHCLB1	-	PDS	FB	80	2	2	
AEPHCLIB	-	PDS	VB	255	2490	28	
AEPHLOAD	-	PDS	U	0	14	2	
AEPHLOD1	-	PDS	U	0	15	2	
AEPHPLIB	-	PDS	VB	255	439	15	21
AEPHSAMP	-	PDS	FB	80	5	3	
AEPHSAM1	-	PDS	FB	80	2	2	
AEPHTAB	-	PDS	FB	4096	80	2	21
AEPWBENU	-	PDS	FB	4096	6	2	
AEPWMOD1	-	PDS	U	0	134	114	
AEPWSRC1	-	PDS	FB	80	12	3	
AERBCLS	-	PDS	FB	80	29	3	
AERBMAC1	-	PDS	FB	80	56	4	
AERBMENU	-	PDS	FB	80	6	6	
AERBMJPN	-	PDS	FB	80	6	6	
AERBMOD1	-	PDS	U	0	452	161	
AERBPENU	-	PDS	FB	80	348	127	
AERBPJPN	-	PDS	FB	80	356	130	

Figure 90 (Page 13 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AERBPWSV	-	PDS	VB	255	3491	2	
AERBT	-	PDS	FB	80	17	5	
AERBTENU	-	PDS	FB	80	7	2	
AERBTJPN	-	PDS	FB	80	6	2	
AEUVFEXC	-	PDS	FB	80	2	2	
AEUVFHFS	-	PDS	VB	255	58	3	
AEUVFLIB	-	PDS	FB	80	6	2	
AEUVFSAM	-	PDS	FB	80	4	2	
AEZADBR1	-	PDS	FB	80	6	2	
AEZAMAC1	-	PDS	FB	80	92	13	
AEZAMAC2	-	PDS	FB	80	389	88	
AEZAMAC3	-	PDS	FB	80	141	26	
AEZAMODS	-	PDSE	U	0	3525	-	
AEZARNT1	-	PDS	FB	80	105	64	
AEZARNT2	-	PDS	FB	80	18	6	
AEZARNT3	-	PDS	FB	80	76	12	
AEZARNT4	-	PDS	FB	80	9	6	
AEZAROE1	-	PDS	FB	80	105	60	
AEZAROE2	-	PDS	FB	80	18	6	
AEZAROE3	-	PDS	FB	80	76	12	
AEZASMP1	-	PDS	FB	80	1591	109	
AEZAXLTD	-	PDS	F	256	2	2	
AEZAXLTK	-	PDS	VB	5124	104	13	
AEZAXLT1	-	PDS	FB	80	7	7	
AEZAXLT2	-	PDS	FB	80	5	7	
AEZAXLT3	-	PDS	VB	231	1364	89	
AFNTDLIB	-	PDS	VBM	12284	18768	740	21
AFNTILIB	-	PDS	VBM	16124	3192	527	21
AFNTLIB	-	PDS	VBM	12284	275	200	21
AFNTLIBB	-	PDS	VBM	12284	2709	404	21
AFNT300	-	PDS	VBM	12284	3295	390	21

Figure 90 (Page 14 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AFOMHDRS	-	PDS	FB	80	22	2	
AFOMHFS	-	PDS	VB	255	53785	147	
AFOMMOD1	-	PDS	U	0	761	44	
AFOMOBJ	-	PDS	FB	80	68	37	
AFONTHFS	-	PDS	VB	255	31085	4	21
AGDEMOD0	-	PDS	U	0	65	55	
AGENLIB	-	PDS	FB	80	6	2	
AGFTAJL1	-	PDS	FB	80	2	2	
AGFTAMD1	-	PDS	U	0	22	23	
AGFUMOD1	-	PDS	U	0	35	23	
AGHELP	-	PDS	FB	80	37	13	
AGIMBIN	-	PDS	VB	255	3	3	
AGIMCLS0	-	PDS	FB	80	14	3	
AGIMMENU	-	PDS	FB	80	10	7	
AGIMMJPN	-	PDS	FB	80	10	7	
AGIMPENU	-	PDS	FB	80	159	90	
AGIMPJPN	-	PDS	FB	80	159	90	
AGIMSENU	-	PDS	FB	80	18	6	
AGIMTENU	-	PDS	FB	80	487	2	
AGIMTJPN	-	PDS	FB	80	2	2	
AGLDEXEC	-	PDS	FB	80	2	3	
AGLDEXPC	-	PDS	FB	80	3	2	
AGLDHCLI	-	PDS	VB	255	6	2	
AGLDHDRC	-	PDS	FB	80	9	2	
AGLDHFS	-	PDS	VB	255	75	4	
AGLDHJPN	-	PDS	VB	255	3	2	
AGLDSAMP	-	PDS	FB	80	12	3	
AGLIB	-	PDS	U	0	4	6	
AGSKHFS	-	PDS	VB	255	14	3	
AGSKSAMP	-	PDS	FB	80	4	2	
AHASMALC	-	PDS	FB	80	458	55	

Figure 90 (Page 15 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AHASMENU	-	PDS	VB	259	5	2	
AHASMJPN	-	PDS	VB	259	6	2	
AHASM0D	-	PDS	U	0	138	76	
AHASPARM	-	PDS	FB	80	2	2	
AHASPNO	-	PDS	FB	80	17	4	
AHASSAMP	-	PDS	FB	80	89	6	
AHASSRC	-	PDS	FB	80	1895	23	
AHELP	-	PDS	FB	80	210	49	
AHELPNP	-	PDS	FB	80	35	10	
AHLPKLB	-	PDS	FB	80	4	4	
AIATCLI0	-	PDS	FB	80	10	2	
AIATMAC	-	PDS	FB	80	644	74	
AIATMOD	-	PDS	U	0	259	272	
AIATMSG0	-	PDS	FB	80	2	2	
AIATPARM	-	PDS	FB	80	2	2	
AIATPNO	-	PDS	FB	80	11	7	
AIATSAMP	-	PDS	FB	80	15	3	
AIATSRC	-	PDS	FB	80	3400	89	
AIATTBLO	-	PDS	FB	80	2	2	
AIBMMOD3	-	PDS	U	0	344	654	
AIBMSRC3	-	PDS	FB	80	27	9	
AICELIB	-	PDS	U	0	88	94	
AICESAMP	-	PDS	FB	80	6	3	
AICESRCE	-	PDS	FB	80	3	3	
AICEUSER	-	PDS	FB	80	17	2	
AICHMJPN	-	PDS	FB	80	11	5	
AICHPJPN	-	PDS	FB	80	221	87	
AICQAB	-	PDS	FB	80	5	3	
AICQGAB	-	PDS	FB	80	5	4	
AICQGILB	-	PDS	FB	80	2	3	
AICQGMA1	-	PDS	FB	80	342	424	

Figure 90 (Page 16 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AICQGMA3	-	PDS	FB	80	18	30	
AICQGMA4	-	PDS	FB	80	9	11	
AICQGMA5	-	PDS	FB	80	2	2	
AICQILIB	-	PDS	FB	80	2	2	
AICQKAB	-	PDS	FB	80	5	4	
AICQKILB	-	PDS	FB	80	2	3	
AICQKMA1	-	PDS	FB	80	343	424	
AICQKMA3	-	PDS	FB	80	18	30	
AICQKMA4	-	PDS	FB	80	7	11	
AICQKMA5	-	PDS	FB	80	2	2	
AICQMAC1	-	PDS	FB	80	335	213	
AICQMAC2	-	PDS	FB	80	2	2	
AICQMAC3	-	PDS	FB	80	17	15	
AICQMAC4	-	PDS	FB	80	9	6	
AICQMAC5	-	PDS	FB	80	165	10	
AICQPAB	-	PDS	FB	80	5	4	
AICQPILB	-	PDS	FB	80	2	3	
AICQPMA1	-	PDS	FB	80	342	424	
AICQPMA3	-	PDS	FB	80	18	30	
AICQPMA4	-	PDS	FB	80	7	11	
AICQPMA5	-	PDS	FB	80	2	2	
AIEAHDR	-	PDS	FB	80	82	6	
AIEAHDRV	-	PDS	VB	260	23	4	
AIEALNKE	-	PDSE	U	0	3292	-	
AIEAMIGE	-	PDSE	U	0	11	-	
AIEASID	-	PDS	FB	80	6	4	
AIEWMOD0	-	PDS	U	0	87	62	
AIFALIB	-	PDS	U	0	11	6	
AIGDVBS1	-	PDS	VB	4100	9	2	
AIGZMOD1	-	PDS	U	0	130	279	
AIGZSRC1	-	PDS	FB	80	33	11	

Figure 90 (Page 17 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AIKYHFS	-	PDS	VB	255	1355	9	
AIMAGE	-	PDS	FB	80	630	17	
AIMFMOD0	-	PDS	U	0	6	5	
AIMWEMOD	-	PDSE	U	0	311	-	
AIMWHENU	-	PDS	VB	1024	120	14	
AIMWHJPN	-	PDS	VB	1024	69	7	
AIMWSAM1	-	PDS	FB	80	9	4	
AINDLMD	-	PDS	U	0	3	3	
AIOAIBIN	-	PDS	FB	256	78	2	
AIOAJAVA	-	PDS	VB	204	44	2	
AIOALMOD	-	PDS	U	0	66	44	
AIOAMMOD	-	PDS	U	0	2	2	
AIOASAMP	-	PDS	FB	80	63	3	
AIOEEXEC	-	PDS	FB	80	21	2	
AIOEHJPN	-	PDS	VB	255	12	5	
AIOEHLIB	-	PDS	VB	255	151	5	
AIOEHSAM	-	PDS	VB	255	2	2	
AIOEHSHL	-	PDS	VB	255	2	2	
AIOEHSRC	-	PDS	VB	255	2	2	
AIOEMJPN	-	PDS	VB	255	6	2	
AIOEPROC	-	PDS	FB	80	2	2	
AIOESAMP	-	PDS	FB	80	4	2	
AISFEXEC	-	PDS	FB	80	14	3	
AISFHELP	-	PDS	FB	80	2	2	
AISFHFS	-	PDS	VB	255	56	2	10
AISFJCL	-	PDS	FB	80	10	2	
AISFJCL1	-	PDS	FB	80	3	2	10
AISFLINK	-	PDS	U	0	2	2	
AISFLOAD	-	PDS	U	0	155	103	
AISFMAC	-	PDS	FB	80	63	5	
AISFMLIB	-	PDS	FB	80	2	2	

Figure 90 (Page 18 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AISFMOD1	-	PDS	U	0	3	3	10
AISFPLIB	-	PDS	FB	80	647	350	
AISFSLIB	-	PDS	FB	80	2	2	
AISFSRC	-	PDS	FB	80	2	2	
AISFSRC1	-	PDS	FB	80	21	2	10
AISFTLIB	-	PDS	FB	80	81	2	
AISPALIB	-	PDS	FB	80	2	2	
AISPCLIB	-	PDS	FB	80	19	3	
AISPEXEC	-	PDS	FB	80	107	4	
AISPGDES	-	PDS	FB	80	272	140	
AISPGDEU	-	PDS	FB	80	272	140	
AISPGENP	-	PDS	FB	80	265	140	
AISPGENU	-	PDS	FB	80	268	140	
AISPGJPN	-	PDS	FB	80	266	140	
AISPGMLI	-	PDS	FB	80	168	56	
AISPGUI	-	PDS	VB	255	317	2	
AISPHelp	-	PDS	FB	80	2	2	
AISPMACS	-	PDS	FB	80	59	9	
AISPMDES	-	PDS	FB	80	52	36	
AISPMDEU	-	PDS	FB	80	52	36	
AISPMENP	-	PDS	FB	80	46	36	
AISPMENU	-	PDS	FB	80	46	36	
AISPMJPN	-	PDS	FB	80	49	36	
AISPMOD1	-	PDS	U	0	552	469	
AISPPDES	-	PDS	FB	80	490	217	
AISPPDEU	-	PDS	FB	80	490	217	
AISPPENP	-	PDS	FB	80	480	217	
AISPPENU	-	PDS	FB	80	480	217	
AISPPJPN	-	PDS	FB	80	479	217	
AISPSAMP	-	PDS	FB	80	101	15	
AISPSDES	-	PDS	FB	80	111	55	

Figure 90 (Page 19 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AISPSDEU	-	PDS	FB	80	111	55	
AISPSENP	-	PDS	FB	80	105	55	
AISPSENU	-	PDS	FB	80	106	55	
AISPSJPN	-	PDS	FB	80	104	55	
AISPSLIB	-	PDS	FB	80	22	6	
AISPTDES	-	PDS	FB	80	4	2	
AISPTDEU	-	PDS	FB	80	4	2	
AISPTENP	-	PDS	FB	80	4	2	
AISPTENU	-	PDS	FB	80	4	2	
AISPTJPN	-	PDS	FB	80	4	2	
AISTASGD	-	PDS	VB	512	61	5	
AISTASN1	-	PDS	FB	1024	11	4	
AISTCMIP	-	PDS	FB	80	2	2	
AISTDAT1	-	PDS	VB	6156	28	2	
AISTDAT2	-	PDS	VB	259	6	2	
AISTGDMO	-	PDS	FB	500	120	2	
AISTMAC1	-	PDS	FB	80	17	3	
AITYHFS	-	PDS	VB	255	101	2	
AKHELP	-	PDS	FB	80	46	17	
AKLIB	-	PDS	U	0	4	6	
ALINKLIB	-	PDS	U	0	216	258	
ALPALIB	-	PDS	U	0	27	35	
AMACLIB	-	PDS	FB	80	3777	130	
AMIGLIB	-	PDS	U	0	158	217	
AMODGEN	-	PDS	FB	80	627	56	
AMSGCHS	-	PDS	VB	259	11	2	
AMSGDEU	-	PDS	VB	259	10	2	
AMSGENP	-	PDS	VB	259	9	2	
AMSGENU	-	PDS	VB	259	55	10	
AMSGJPN	-	PDS	VB	259	48	9	
ANFSLIBE	-	PDSE	U	0	279	-	

Figure 90 (Page 20 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
ANFSMAC	-	PDS	FB	80	4	2	
ANFSSAMP	-	PDS	FB	80	13	3	
ANFSTARB	-	PDS	VB	264	25	2	
ANUCLEUS	-	PDS	U	0	41	56	
AOSACB	-	PDS	U	0	111	98	
AOSA0	-	PDS	U	0	149	119	
AOSA1	-	PDS	U	0	118	83	
AOSBN	-	PDS	U	0	335	286	
AOSB0	-	PDS	U	0	3	3	
AOSB3	-	PDS	U	0	175	189	
AOSCA	-	PDS	U	0	5	5	
AOSCD	-	PDS	U	0	173	201	
AOSCE	-	PDS	U	0	9	12	
AOSC2	-	PDS	U	0	2	2	
AOSC5	-	PDS	U	0	1600	1304	
AOSC6	-	PDS	U	0	9	10	
AOSD0	-	PDS	U	0	143	171	
AOSD7	-	PDS	U	0	6	9	
AOSG0	-	PDS	U	0	2	2	
AOSJSC	-	PDS	U	0	3	3	
AOST3	-	PDS	U	0	17	23	
AOST4	-	PDS	U	0	157	185	
AOSU0	-	PDS	U	0	388	272	
AOSXCF	-	PDS	U	0	237	159	
AOS00	-	PDS	U	0	17	14	
AOS04	-	PDS	U	0	7	6	
AOS05	-	PDS	U	0	3	2	
AOS06	-	PDS	U	0	13	17	
AOS11	-	PDS	U	0	12	12	
AOS12	-	PDS	U	0	237	145	
AOS24	-	PDS	U	0	10	7	

Figure 90 (Page 21 of 21). Storage required for distribution libraries for z/OS V2.1.0

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks	NOTE
AOS26	-	PDS	U	0	879	983	
AOS28	-	PDS	U	0	291	255	
AOS32	-	PDS	U	0	69	104	
APARMLIB	-	PDS	FB	80	19	9	
APHELP	-	PDS	FB	80	38	17	
APLIB	-	PDS	U	0	4	6	
APROCLIB	-	PDS	FB	80	7	6	
ASAMPLIB	-	PDS	FB	80	873	74	
ASSFMODE0	-	PDS	U	0	118	58	
ATSOMAC	-	PDS	FB	80	79	13	
AUADS	-	PDS	FB	80	2	2	
CIPLIB	-	PDS	U	0	7	9	
HHRFCLST	-	PDS	FB	80	17	3	
HHRFMSG	-	PDS	FB	80	12	5	
HHRFPANL	-	PDS	FB	80	216	88	
HHRFSKEL	-	PDS	FB	80	67	13	

C.6 File System for z/OS V2.1.0

Abbreviations used for the HFS or zFS Path type are:

- N** New path, created by this product.
- P** Previously existing path, created by another product.
- X** Path created by this product, but may already exist from a previous release.

Abbreviations for the NOTE column are:

- ZV1R1** New file system path introduced in z/OS Version 1 Release 1
- ZV1R2** New file system path introduced in z/OS Version 1 Release 2
- ZV1R3** New file system path introduced in z/OS Version 1 Release 3
- ZV1R4** New file system path introduced in z/OS Version 1 Release 4
- ZV1R5** New file system path introduced in z/OS Version 1 Release 5
- ZV1R6** New file system path introduced in z/OS Version 1 Release 6
- ZV1R7** New file system path introduced in z/OS Version 1 Release 7
- ZV1R9** New file system path introduced in z/OS Version 1 Release 9
- ZV1R10** New file system path introduced in z/OS Version 1 Release 10
- ZV1R11** New file system path introduced in z/OS Version 1 Release 11

- ZV1R13** New file system path introduced in z/OS Version 1 Release 13
- ZV2R1** New file system path introduced in z/OS Version 2 Release 1
- Z9X** New file system path introduced in z990 Exploitation feature
- NLV** File system path for NLV

Note: The NLV directories will be empty if the NLV features are not ordered.

Figure 91 (Page 1 of 6). HFS or zFS Paths for z/OS V2.1.0

DDDEF Name	TYPE	PATH	Note
NFSCUTIL	X	/usr/lpp/NFS/IBM/	
SERBHFS	N	/usr/lpp/gpm/IBM/	ZV1R13
SAOPBIN	X	/usr/lpp/Printsrv/bin/IBM/	
SAOPCLAS	X	/usr/lpp/Printsrv/classes/IBM/	
SAOPICHE	X	/usr/lpp/Printsrv/InfoprintCentral/help/En_US/IBM/	ZV1R5
SAOPICHJ	X	/usr/lpp/Printsrv/InfoprintCentral/help/Ja_JP/IBM/	ZV1R5NLV
SAOPICIM	X	/usr/lpp/Printsrv/InfoprintCentral/Images/IBM/	ZV1R5
SAOPICSC	X	/usr/lpp/Printsrv/InfoprintCentral/Scripts/IBM/	ZV1R5
SAOPICTE	X	/usr/lpp/Printsrv/InfoprintCentral/html/En_US/IBM/	ZV1R5
SAOPICTJ	X	/usr/lpp/Printsrv/InfoprintCentral/html/Ja_JP/IBM/	ZV1R5NLV
SAOPICXC	X	/usr/lpp/Printsrv/InfoprintCentral/xsl/Controls/IBM/	ZV1R5
SAOPICXE	X	/usr/lpp/Printsrv/InfoprintCentral/xml/En_US/IBM/	ZV1R5
SAOPICXJ	X	/usr/lpp/Printsrv/InfoprintCentral/xml/Ja_JP/IBM/	ZV1R5NLV
SAOPICXM	X	/usr/lpp/Printsrv/InfoprintCentral/xml/IBM/	ZV1R5
SAOPICXP	X	/usr/lpp/Printsrv/InfoprintCentral/xsl/Page/IBM/	ZV1R5
SAOPICXS	X	/usr/lpp/Printsrv/InfoprintCentral/xsl/IBM/	ZV1R5
SAOPJAJP	X	/usr/lpp/Printsrv/Ja_JP/IBM/	NLV
SAOPLIB	X	/usr/lpp/Printsrv/lib/IBM/	
SAOPMCT1	X	/usr/lpp/Printsrv/man/C/cat1/IBM/	
SAOPMCT5	X	/usr/lpp/Printsrv/man/C/cat5/IBM/	
SAOPMCT8	X	/usr/lpp/Printsrv/man/C/cat8/IBM/	
SAOPSAM1	X	/usr/lpp/Printsrv/samples/IBM/	
SAOPUSEN	X	/usr/lpp/Printsrv/C/IBM/	
SAOPWENU	X	/usr/lpp/Printsrv/win/En_US/IBM/	
SAOPWJPN	X	/usr/lpp/Printsrv/win/Ja_JP/IBM/	NLV
SBPXXMLS	X	/usr/lib/xml_schema/IBM/	ZV1R6
SCBDEATCH	X	/usr/lpp/hcd/etc/IBM/	ZV1R10

Figure 91 (Page 2 of 6). HFS or zFS Paths for z/OS V2.1.0

DDDEF Name	TYPE	PATH	Note
SCBDEXMP	X	/usr/lpp/hcd/examples/IBM/	
SCBDHFSL	X	/usr/lpp/hcd/bin/IBM/	Z9X
SCBDMLDP	X	/usr/lpp/hcd/msg/IBM/	
SCDSHFS	X	/usr/lpp/ocsf/IBM/	
SCEEI	X	/usr/include/IBM/	
SCEEIARP	X	/usr/include/arpa/IBM/	
SCEEINEI	X	/usr/include/netinet/IBM/	
SCEEINET	X	/usr/include/net/IBM/	
SCEEISYS	X	/usr/include/sys/IBM/	
SCEEMTHD	X	/usr/lib/nls/method/IBM/	ZV1R2
SCEESAMC	X	/usr/lpp/le/samples/ansic++/IBM/	ZV1R2
SCFZHFS	X	/usr/lpp/wbem/IBM/	ZV1R7
SCLBHFS1	X	/usr/lpp/cbclib/IBM/	ZV1R5
SCMXBIN	X	/usr/lpp/cmxb/bin/IBM/	
SCPOHFS	X	/usr/lpp/cpo/IBM/	ZV1R9
SCPOLIB	X	/usr/lpp/cpo/lib/IBM/	ZV1R9
SCSFHFS	X	/usr/lpp/pkcs11/IBM/	ZV1R9
SEDGHFS	X	/usr/lpp/dfsms/rmm/IBM/	ZV1R7
SEPHBOOK	X	/usr/lpp/booksrv/books/IBM/	
SEPHCASE	X	/usr/lpp/booksrv/cases/IBM/	ZV1R5
SEPHGIF	X	/usr/lpp/booksrv/public/bookmgr/IBM/	
SEPHLOAD	X	/usr/lpp/booksrv/cgi-bin/IBM/	
SEPHPLIB	X	/usr/lpp/booksrv/plugins/IBM/	ZV2R1
SEPHPUB	X	/usr/lpp/booksrv/public/IBM/	
SEPHSRVR	X	/usr/lpp/booksrv/public/bookmgr/libraryserver/IBM/	ZV1R5
SEPHTPLT	X	/usr/lpp/booksrv/public/bookmgr/templates/IBM/	ZV1R5
SEPHSHLF	X	/usr/lpp/booksrv/shelves/IBM/	ZV1R5
SEUVFHFS	X	/usr/lpp/skrb/IBM/	ZV1R6
SEZABIN	X	/usr/lpp/tcpip/bin/IBM/	
SEZAHTCP	X	/usr/lpp/tcpip/IBM/	
SEZAMCT1	X	/usr/lpp/tcpip/man/C/cat1/IBM/	
SEZAMMSC	X	/usr/lpp/tcpip/lib/nls/msg/C/IBM/	

Figure 91 (Page 3 of 6). HFS or zFS Paths for z/OS V2.1.0

DDDEF Name	TYPE	PATH	Note
SEZASAMP	X	/usr/lpp/tcpip/samples/IBM/	
SEZASBIN	X	/usr/lpp/tcpip/sbin/IBM/	
SEZAXAR	X	/usr/lpp/tcpip/X11R6/lib/IBM/	
SEZAXINC	X	/usr/lpp/tcpip/X11R6/include/IBM/	
SEZAXSMP	X	/usr/lpp/tcpip/X11R6/Xamples/IBM/	
SFNTWTYP	N	/usr/lpp/fonts/worldtype/IBM/	ZV2R1
SFOMBCPH	X	/usr/lpp/bcp/IBM/	ZV1R10
SFOMCEA	X	/usr/share/cea/IBM/	ZV1R10
SFOMINC	X	/usr/include/IBM/	
SFOMINCM	X	/usr/include/metal/IBM/	ZV1R9
SFOMJVCL	X	/usr/include/java_classes/IBM/	ZV1R5
SFOMJVRT	X	/usr/lib/java_runtime/IBM/	ZV1R5
SFOMJ64R	X	/usr/lib/java_runtime64/IBM/	ZV1R6
SFOMTA	X	/usr/share/lib/terminfo/a/IBM/	
SFOMTC	X	/usr/share/lib/terminfo/c/IBM/	
SFOMTD	X	/usr/share/lib/terminfo/d/IBM/	
SFOMTH	X	/usr/share/lib/terminfo/h/IBM/	
SFOMTI	X	/usr/share/lib/terminfo/i/IBM/	
SFOMTJ	X	/usr/share/lib/terminfo/j/IBM/	
SFOMTL	X	/usr/share/lib/terminfo/l/IBM/	
SFOMTL2	X	/usr/share/lib/terminfo/L/IBM/	
SFOMTV	X	/usr/share/lib/terminfo/v/IBM/	
SFOMTW	X	/usr/share/lib/terminfo/w/IBM/	
SFOMTX	X	/usr/share/lib/terminfo/x/IBM/	
SFOM1MNC	X	/usr/man/C/man1/IBM/	
SFOM1MNJ	X	/usr/man/Ja_JP/man1/IBM/	NLV
SFSUMANC	X	/usr/man/C/IBM/	
SFSUMANJ	X	/usr/man/Ja_JP/IBM/	NLV
SFSUMBIN	X	/bin/IBM/	
SFSUMCHR	X	/usr/lib/nls/charmap/IBM/	
SFSUMCHS	X	/usr/lib/nls/msg/Zh_CN/IBM/	NLV
SFSUMJPN	X	/usr/lib/nls/msg/Ja_JP/IBM/	NLV

Figure 91 (Page 4 of 6). HFS or zFS Paths for z/OS V2.1.0

DDDEF Name	TYPE	PATH	Note
SFSUMLCD	X	/usr/lib/nls/localedef/IBM/	
SFSUMLCL	X	/usr/lib/nls/locale/IBM/	
SFSUMLIB	X	/usr/lib/IBM/	
SFSUMMSC	X	/usr/lib/nls/msg/C/IBM/	
SFSUMUUC	X	/usr/lib/uucp/IBM/	
SFSUSAMP	X	/samples/IBM/	
SFSUSBIN	X	/usr/sbin/IBM/	
SGFUBIN	X	/usr/lpp/dfsms/bin/IBM/	
SGFUMSG	X	/usr/lpp/dfsms/nls/msg/C/IBM/	
SGIMDIR	X	/usr/lpp/smp/IBM/	ZV1R7
SGLDHCLI	X	/usr/lpp/ldapclient/IBM/	
SGLDHFS	X	/usr/lpp/ldap/IBM/	ZV1R4
SGLDHJPN	X	/usr/lpp/ldap/lib/nls/msg/Ja_JP/IBM/	NLV
SGSKHFS	X	/usr/lpp/gskssl/IBM/	
SHZCINC	X	/usr/lpp/hzc/include/IBM/	ZV2R1
SHZCLIB	X	/usr/lpp/hzc/lib/IBM/	ZV2R1
SIKYHFS	X	/usr/lpp/pkiserv/IBM/	ZV1R3
SIMWIB	X	/usr/lpp/internet/bin/IBM/	
SIMWINC	X	/usr/lpp/internet/C/IBM/	
SIMWINJ	X	/usr/lpp/internet/Ja_JP/IBM/	NLV
SIMWIS	X	/usr/lpp/internet/sbin/IBM/	
SIMWSA	X	/usr/lpp/internet/samples/API/IBM/	
SIMWSAWC	X	/usr/lpp/internet/server_root/admin-bin/webexec/C/IBM/	
SIMWSAWJ	X	/usr/lpp/internet/server_root/admin-bin/webexec/Ja_JP/IBM/	NLV
SIMWSCC	X	/usr/lpp/internet/samples/config/C/IBM/	
SIMWSCJ	X	/usr/lpp/internet/samples/config/Ja_JP/IBM/	NLV
SIMWSPJC	X	/usr/lpp/internet/server_root/pub/reports/javelin/C/IBM/	
SIMWSPJJ	X	/usr/lpp/internet/server_root/pub/reports/javelin/Ja_JP/IBM/	NLV
SIMWSPPC	X	/usr/lpp/internet/server_root/pub/PICSxmp/C/IBM/	
SIMWSPPJ	X	/usr/lpp/internet/server_root/pub/PICSxmp/Ja_JP/IBM/	NLV
SIMWSPRJ	X	/usr/lpp/internet/server_root/pub/reports/java/IBM/	
SIMWSRA	X	/usr/lpp/internet/server_root/Admin/IBM/	

Figure 91 (Page 5 of 6). HFS or zFS Paths for z/OS V2.1.0

DDDEF Name	TYPE	PATH	Note
SIMWSRAB	X	/usr/lpp/internet/server_root/admin-bin/IBM/	
SIMWSRAC	X	/usr/lpp/internet/server_root/Admin/C/IBM/	
SIMWSRAJ	X	/usr/lpp/internet/server_root/Admin/Ja_Jp/IBM/	NLV
SIMWSRAW	X	/usr/lpp/internet/server_root/admin-bin/webexec/IBM/	
SIMWSRCB	X	/usr/lpp/internet/server_root/cgi-bin/IBM/	
SIMWSRCO	X	/usr/lpp/internet/server_root/Counters/IBM/	
SIMWSRDC	X	/usr/lpp/internet/server_root/Docs/C/IBM/	
SIMWSRDJ	X	/usr/lpp/internet/server_root/Docs/Ja_Jp/IBM/	NLV
SIMWSRFB	X	/usr/lpp/internet/server_root/fcgi-bin/IBM/	
SIMWSRFC	X	/usr/lpp/internet/server_root/Counters/Fonts/C/IBM/	
SIMWSRFJ	X	/usr/lpp/internet/server_root/Counters/Fonts/Ja_Jp/IBM/	NLV
SIMWSRI	X	/usr/lpp/internet/server_root/icons/IBM/	
SIMWSRIB	X	/usr/lpp/internet/server_root/img-bin/IBM/	
SIMWSRLC	X	/usr/lpp/internet/server_root/labels/C/IBM/	
SIMWSRLJ	X	/usr/lpp/internet/server_root/labels/Ja_Jp/IBM/	NLV
SIMWSRPC	X	/usr/lpp/internet/server_root/pub/C/IBM/	
SIMWSRPJ	X	/usr/lpp/internet/server_root/pub/Ja_Jp/IBM/	NLV
SIMWSRPR	X	/usr/lpp/internet/server_root/pub/reports/IBM/	
SIMWSRRC	X	/usr/lpp/internet/server_root/pub/reports/C/IBM/	
SIMWSRRJ	X	/usr/lpp/internet/server_root/pub/reports/Ja_JP/IBM/	NLV
SIMWSRWA	X	/usr/lpp/internet/server_root/admin-bin/webexec/com/ibm /webexec/applets/IBM/	
SIMWSRWH	X	/usr/lpp/internet/server_root/admin-bin/webexec/com/ibm /webexec/herald/IBM/	
SIMWSRWM	X	/usr/lpp/internet/server_root/admin-bin/webexec/com/ibm /webexec/msgarea/IBM/	
SIMWSRWN	X	/usr/lpp/internet/server_root/admin-bin/webexec/com/ibm /webexec/navarea/IBM/	
SIMWSRWS	X	/usr/lpp/internet/server_root/admin-bin/webexec/servlets/IBM/	
SIMWSRWU	X	/usr/lpp/internet/server_root/admin-bin/webexec/com/ibm /webexec/util/IBM/	
SIMWSS	X	/usr/lpp/internet/samples/SNMP/IBM/	
SIOEHJPN	X	/usr/lpp/dfs/global/lib/nls/msg/Ja_JP/IBM/	NLV
SIOEHLIB	X	/usr/lpp/dfs/global/lib/IBM/	

Figure 91 (Page 6 of 6). HFS or zFS Paths for z/OS V2.1.0

DDDEF Name	TYPE	PATH	Note
SIOEHLMD	X	/usr/lpp/dfs/global/bin/IBM/	
SIOEHSAM	X	/usr/lpp/dfs/global/examples/IBM/	
SIOEHSHL	X	/usr/lpp/dfs/global/scripts/IBM/	
SIOEHSRC	X	/usr/lpp/dfs/global/src/IBM/	
SISFHFS	X	/usr/lpp/sdsf/IBM/	ZV1R10
SISPZHFS	X	/usr/lpp/ispf/bin/IBM/	ZV1R10
SITYHFS	X	/usr/lpp/eim/IBM/	ZV1R5
	X	/usr/man/C/cat1/IBM/	
	X	/usr/man/Ja_JP/cat1/IBM/	

For more information about creating file system directories, see 8.1.8, “Create file system directories” on page 92.

C.7 DDDEFS Handled by LINK Parm in SMPMCS

Figure 92 contains DDDEFS that have been deleted. Although the DDDEFs are deleted, the paths, minus **IBM**, are still valid for system functioning.

Figure 92 (Page 1 of 2). DDDEFS Handled by LINK Parm in SMPMCS

Old DDDEF	Old PATH	New DDDEF
SEZALRPC	/usr/lpp/tcpip/rpc/include/IBM/	SEZAHTCP
SEZARPCO	/usr/lpp/tcpip/lib/IBM/	SEZAHTCP
SEZARPCS	/usr/lpp/tcpip/rpc/samples/IBM/	SEZAHTCP
SEZASLDP	/usr/lpp/tcpip/snmp/build/libdpi20/IBM/	SEZAHTCP
SEZASNIN	/usr/lpp/tcpip/snmp/include/IBM/	SEZAHTCP
SEZATINC	/usr/lpp/tcpip/include/IBM/	SEZAHTCP
SEZAXAPD	/usr/lpp/tcpip/X11R6/lib/X11/app-defaults/IBM/	SEZAXAR
SEZAXBMP	/usr/lpp/tcpip/X11R6/include/X11/bitmaps/IBM/	SEZAINC
SEZAXEXT	/usr/lpp/tcpip/X11R6/include/X11/extensions/IBM/	SEZAINC
SEZAXFIL	/usr/lpp/tcpip/X11R6/lib/X11/IBM/	SEZAXAR
SEZAXHDR	/usr/lpp/tcpip/X11R6/include/X11/IBM/	SEZAINC
SEZAXICE	/usr/lpp/tcpip/X11R6/include/X11/ICE/IBM/	SEZAINC
SEZAXIPX	/usr/lpp/tcpip/X11R6/include/X11/PEX5/IBM/	SEZAINC

Figure 92 (Page 2 of 2). DDDEFS Handled by LINK Parm in SMPMCS

Old DDDEF	Old PATH	New DDDEF
SEZAXLCL	/usr/lpp/tcpip/X11R6/lib/X11/locale/IBM/	SEZAXAR
SEZAXLEN	/usr/lpp/tcpip/X11R6/lib/X11/locale/en_US.utf/IBM/	SEZAXAR
SEZAXLI1	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-1/IBM/	SEZAXAR
SEZAXLI2	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-2/IBM/	SEZAXAR
SEZAXLI3	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-3/IBM/	SEZAXAR
SEZAXLI4	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-4/IBM/	SEZAXAR
SEZAXLI5	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-5/IBM/	SEZAXAR
SEZAXLI6	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-6/IBM/	SEZAXAR
SEZAXLI7	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-7/IBM/	SEZAXAR
SEZAXLI8	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-8/IBM/	SEZAXAR
SEZAXLI9	/usr/lpp/tcpip/X11R6/lib/X11/locale/iso8859-9/IBM/	SEZAXAR
SEZAXLJA	/usr/lpp/tcpip/X11R6/lib/X11/locale/ja/IBM/	SEZAXAR
SEZAXLJI	/usr/lpp/tcpip/X11R6/lib/X11/locale/ja.JIS/IBM/	SEZAXAR
SEZAXLKO	/usr/lpp/tcpip/X11R6/lib/X11/locale/ko/IBM/	SEZAXAR
SEZAXLOC	/usr/lpp/tcpip/X11R6/lib/X11/locale/C/IBM/	SEZAXAR
SEZAXLSJ	/usr/lpp/tcpip/X11R6/lib/X11/locale/ja.SJIS/IBM/	SEZAXAR
SEZAXLTB	/usr/lpp/tcpip/X11R6/lib/X11/locale/tb_data/IBM/	SEZAXAR
SEZAXLTH	/usr/lpp/tcpip/X11R6/lib/X11/locale/th_TH.TACTIS/IBM/	SEZAXAR
SEZAXLZH	/usr/lpp/tcpip/X11R6/lib/X11/locale/zh/IBM/	SEZAXAR
SEZAXLZT	/usr/lpp/tcpip/X11R6/lib/X11/locale/zh_TW/IBM/	SEZAXAR
SEZAXMRM	/usr/lpp/tcpip/X11R6/include/Mrm/IBM/	SEZAINC
SEZAXMXM	/usr/lpp/tcpip/X11R6/include/Xm/IBM/	SEZAINC
SEZAXSM	/usr/lpp/tcpip/X11R6/include/X11/SM/IBM/	SEZAINC
SEZAXUIL	/usr/lpp/tcpip/X11R6/include/uil/IBM/	SEZAINC
SEZAXXAW	/usr/lpp/tcpip/X11R6/include/X11/Xaw/IBM/	SEZAINC
SEZAXXMU	/usr/lpp/tcpip/X11R6/include/X11/Xmu/IBM/	SEZAINC
SFSUMCT1	/usr/man/C/cat1/IBM/	See note.
SFSUMJT1	/usr/man/Ja_JP/cat1/IBM/	See note.
Note: This PATH is required by the Communications Server IP Services HFS element; there is no new DDDEF.		

C.7.1 Additional Data Sets

Several elements require additional data sets to complete installation of z/OS V2.1.0. These libraries are created while running Post-APPLY steps. See 8.4, “Step 4: Do Post-APPLY work for Wave 1 and wave 2” on page 131 for more information.

- BookManager/Build and BookManager READ data sets created by post-installation jobs EOYUNLD and EOXUNLD:
 - EIJBPOR.LEXIS
 - EIJCFRE.LEXIS
 - EIJDANI.LEXIS
 - EIJDUTC.LEXIS
 - EIJENGL.LEXIS
 - EIJFREN.LEXIS
 - EIJGERM.LEXIS
 - EIJITAL.LEXIS
 - EIJNORW.LEXIS
 - EIJPORT.LEXIS
 - EIJSPAN.LEXIS
 - EIJSWED.LEXIS
 - EIJUJEN.LEXIS
 - ENU.ADMGDF
 - ENU.BOOKMGR.BKINDEX
 - ENU.BOOKMGR.BKLIST
 - ENU.BOOKMGR.BKSHELF
 - ENU.BOOKMGRR.BKINDEX
 - ENU.BOOKMGRR.BKLIST
 - ENU.BOOKMGRR.BKSHELF
 - ENU.EOX01MST
 - ENU.EOX02MST
 - ENU.EOX03MST
 - ENU.EOX04MST
 - ENU.EOX05MST
 - ENU.EOY03MST.BOOK
 - ENU.EOY04MST.BOOK
 - ENU.EOY05MST.BOOK
 - ENU.EOY06MST.BOOK
- SMP/E library required for execution:
 - SMPTABL

Appendix D. Do global zone cleanup for deleted FMIDs

Because z/OS Version 2 Release 1 is a complete replacement for previous releases of z/OS, you might want to delete the old FMIDs from the global zone so future (unneeded) service will not be received for them, unless you plan to share the global zone and SMPPTS between z/OS Version 2 Release 1 and systems with older levels of z/OS.

The FMIDs listed as deleted in the output of the ACCEPT of all Wave 0, Wave 1 and 2 FMIDs may be deleted from the FMID list in the global zone. Refer to the following sample job in your SAMPLIB target library for global zone clean up:

- CLNGLOB

After z/OS V2R1 is installed, an obsolete LMOD entry for ICHIISP will reside in the target and distribution zones in the SMP/E CSI. The LMOD entry for ICHIISP is not required and can be removed by using the SMP/E UCLIN command to delete the LMOD entry for ICHIISP from the target and distribution zones in the SMP/E CSI.

Figure 93 shows a sample job that uses UCLIN statements to remove the obsolete LMOD entry from the SMP/E CSI.

```
//RACFUCLN JOB <job parameter>
//*
//STEP1 EXEC PGM=GIMSMP
//SMPCSI DD DSN=ZOSV2R1.GLOBAL.CSI,DISP=SHR
//SMPCTL DD DDNAME=SYSIN
//SMPLOG DD DUMMY
//SYSIN DD *
    SET BDY(#tzone) .
    UCLIN .
        DEL LMOD(ICHIISP) .
    ENDUCL.
    SET BDY(#dzone) .
    UCLIN .
        DEL LMOD(ICHIISP) .
    ENDUCL
```

Figure 93. Sample Job to remove obsolete LMOD entry

Update the job as required before running the job. Change the SMPCSI DD statement to the SMP/E CSI that was used for the installation of z/OS V2R1 and change #tzone and #dzone to the appropriate target and distribution zones before running the job.

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The Preventive Service Planning (PSP) information should be reviewed prior to installing the elements of z/OS. Refer to 3.2, "Preventive Service Planning (PSP)" on page 17 for more information about retrieving the current PSPs APARs and contacting the support center if you need help getting the information you need.

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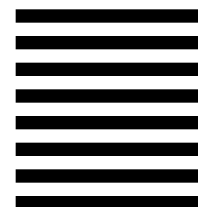
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