



**Program Directory for
IBM DB2 12 for z/OS
z/OS Application Connectivity to DB2 for z/OS**

V02.01.01

Program Number 5770-AF3

FMID HDDA211

for Use with
z/OS

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G113-4631-00

Note !

Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 21.

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1.0 Introduction

This program directory is intended for system programmers who are responsible for program installation and maintenance. It contains information about the material and procedures associated with the installation of z/OS Application Connectivity to DB2 for z/OS. This publication refers to z/OS Application Connectivity to DB2 for z/OS as z/OS Application Connectivity.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic and optional program materials and documentation for z/OS Application Connectivity.
- 3.0, “Program Support” on page 5 describes the IBM support available for z/OS Application Connectivity.
- 4.0, “Program and Service Level Information” on page 7 lists the APARs (program level) and PTFs (service level) that have been incorporated into z/OS Application Connectivity.
- 5.0, “Installation Requirements and Considerations” on page 8 identifies the resources and considerations that are required for installing and using z/OS Application Connectivity.
- 6.0, “Installation Instructions” on page 14 provides detailed installation instructions for z/OS Application Connectivity. It also describes the procedures for activating the functions of z/OS Application Connectivity, or refers to appropriate publications.

Before installing z/OS Application Connectivity, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that are supplied with this program in softcopy format and this Program Directory then keep them for future reference. Section 3.2, “Preventive Service Planning” on page 5 tells you how to find any updates to the information and procedures in this Program Directory.

z/OS Application Connectivity is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The Program Directory that is provided in softcopy format on the CBPDO tape is identical to the hardcopy format that is provided with your order. All service and HOLDDATA for z/OS Application Connectivity are included on the CBPDO tape.

Do not use this program directory if you install z/OS Application Connectivity with a SystemPac or ServerPac. When you use these offerings, use the jobs and documentation supplied with the offering. This program directory can point you to specific sections of it as required.

1.1 z/OS Application Connectivity Description

z/OS Application Connectivity to DB2 for z/OS, a nonchargeable feature, consists of Universal Database Driver for z/OS Java Edition, a pure Java type 4 JDBC driver. It is designed to deliver high performance and scalable remote connectivity for Java-based enterprise applications on z/OS to a remote DB2 for z/OS database server.

1.2 z/OS Application Connectivity FMID

z/OS Application Connectivity consists of the following FMID:

HDDA211

2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for DB2 12 for z/OS is 5650-DB2.

Basic Machine-Readable Materials are materials that are supplied under the base license and feature numbers, and are required for the use of the product. Optional Machine-Readable Materials are orderable under separate feature numbers, and are not required for the product to function.

The program announcement material describes the features supported by z/OS Application Connectivity. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

The distribution medium for this program is magnetic tape or downloadable files. This program is in SMP/E RELFILE format and is installed by using SMP/E. See 6.0, "Installation Instructions" on page 14 for more information about how to install the program.

Figure 1 describes the program file content for z/OS Application Connectivity. You can refer to the *CBPDO Memo To Users Extension* to see where the files reside on the tape.

Notes:

1. The data set attributes in this table must be used in the JCL of jobs that read the data sets. However, because the data sets are in IEBCOPY unloaded format, their actual attributes might be different.
2. If any RELFILEs are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Figure 1. Program File Content

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HDDA211.F1	PDS	FB	80	8800
IBM.HDDA211.F2	PDS	V	255	6106
IBM.HDDA211.F3	PDS	V	255	6106
IBM.HDDA211.F4	PDS	V	255	6106

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for z/OS Application Connectivity.

2.3 Program Publications

The following sections identify the basic and optional publications for z/OS Application Connectivity. All publications are available at the Information Management Software for z/OS Solutions Information Center at URL: <http://pic.dhe.ibm.com/infocenter/dzichelp/v2r2/index.jsp>

Figure 2. Basic Material: Other Unlicensed or Licensed Publications

Publication Title	Form Number	Location
Application Programming Guide & Reference for Java V9	SC19-4051	Information Center

2.3.1 Optional Program Publications

No optional publications are provided for z/OS Application Connectivity.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for z/OS Application Connectivity.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 3 during the installation of z/OS Application Connectivity. To order copies, contact your IBM representative or visit the IBM Publications Center at <http://www.ibm.com/shop/publications/order>.

Figure 3. Publications Useful During Installation

Publication Title	Form Number
<i>IBM SMP/E for z/OS User's Guide</i>	SA22-7773
<i>IBM SMP/E for z/OS Commands</i>	SA22-7771
<i>IBM SMP/E for z/OS Reference</i>	SA22-7772
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA22-7770

3.0 Program Support

This section describes the IBM support available for z/OS Application Connectivity.

3.1 Program Services

Contact your IBM representative for specific information about available program services.

3.2 Preventive Service Planning

Before you install z/OS Application Connectivity, make sure that you have reviewed the current Preventive Service Planning (PSP) information. The PSP Buckets maintain current lists (which have been identified since the package was created) of any recommended or required service for the installation of this package. This service includes software PSP information that contains HIPER and required PTFs against the base release.

If you obtained z/OS Application Connectivity as part of a CBPDO, HOLDDATA is included.

If the CBPDO for z/OS Application Connectivity is older than two weeks old by the time you install the product materials, you should contact the IBM Support Center or use S/390 SoftwareXcel to obtain the latest PSP Bucket information. You can also obtain the latest PSP Bucket information by going to the following website: www14.software.ibm.com/webapp/set2/psearch/search?domain=psp

For program support, access the Software Support website at www.ibm.com/software/support

PSP Buckets are identified by UPGRADEs, which specify product levels; and SUBSETs, which specify the FMIDs for a product level. The UPGRADE and SUBSET values for z/OS Application Connectivity are shown as follows:

Figure 4. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
DB2C10	HDDA211	z/OS Application Connectivity to DB2 for z/OS

3.3 Statement of Support Procedures

Report any problems which you feel might be an error in the product materials to your IBM Support Center. You may be asked to gather and submit additional diagnostics to assist the IBM Support Center in their analysis.

Figure 5 on page 6 identifies the component IDs (COMPID) for z/OS Application Connectivity.

Figure 5. Component IDs

F MID	COMP ID	Component Name	RETAIN Release
HDDA211	5740XYR08	z/OS Application Connectivity to DB2 for z/OS	211

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of z/OS Application Connectivity. The program level refers to the APAR fixes that have been incorporated into the program. The service level refers to the PTFs that have been incorporated into the program.

4.1 Program Level Information

No APARs have been incorporated into z/OS Application Connectivity.

4.2 Service Level Information

No PTFs against this release of z/OS Application Connectivity have been incorporated into the product tape.

It is highly recommended that you frequently check the z/OS Application Connectivity PSP Bucket for HIPER and SPECIAL Attention PTFs against all FMIDs that you must install.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating z/OS Application Connectivity. The following terminology is used:

- *Driving system*: the system used to install the program; where SMP/E executes.
The program might have specific operating system or product level requirements for using processes, such as binder or assembly utilities during the installation.
- *Target system*: the system on which the program is configured and run.
The program might have specific product level requirements, such as needing access to the library of another product for link-edits. These requirements, either mandatory or optional, might directly affect the element during the installation or in its basic or enhanced operation.

In many cases, you can use a system as both a driving system and a target system. However, you can make a separate IPL-able clone of the running system to use as a target system. The clone must include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

Use separate driving and target systems in the following situations:

- When you install a new level of a product that is already installed, the new level of the product will replace the old one. By installing the new level onto a separate target system, you can test the new level and keep the old one in production at the same time.
- When you install a product that shares libraries or load modules with other products, the installation can disrupt the other products. By installing the product onto a separate target system, you can access these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system that is required to install z/OS Application Connectivity.

5.1.1 Machine Requirements

The driving system can run in any hardware environment that supports the required software.

5.1.2 Programming Requirements

Figure 6. Driving System Software Requirements

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in this product's shipment?
Any one of the following:				
5650-ZOS	z/OS	V02.01.00	N/A	No

Note: SMP/E is a requirement for Installation and is an element of z/OS but can also be ordered as a separate product, 5655-G44, minimally V03.06.00.

Note: Installation may require migration to new z/OS releases to be service supported. For more information, see: www.ibm.com/software/support/systemsz/lifecycle/

5.2 Target System Requirements

This section describes the environment of the target system that is required to install and use z/OS Application Connectivity.

z/OS Application Connectivity installs in the DBS (P115) SREL.

5.2.1 Machine Requirements

The target system can run in any hardware environment that supports the required software.

5.2.2 Programming Requirements

5.2.2.1 Installation Requisites: Installation requisites identify products that are required by and *must* be present on the system or products that are not required by but *should* be present on the system for the successful installation of this product.

Mandatory installation requisites identify products that are required on the system for the successful installation of this product. These products are specified as PREs or REQs.

z/OS Application Connectivity has no mandatory installation requisites.

Note: Installation may require migration to new z/OS releases to be service supported. See http://www-03.ibm.com/systems/z/os/zos/support/zos_eos_dates.html.

Conditional installation requisites identify products that are *not* required for successful installation of this product but can resolve such things as certain warning messages at installation time. These products are specified as IF REQs.

z/OS Application Connectivity has no conditional installation requisites.

5.2.2.2 Operational Requisites: Operational requisites are products that are required by and *must* be present on the system or products that are not required by but *should* be present on the system for this product to operate all or part of its functions.

Mandatory operational requisites identify products that are required for this product to operate its basic functions. These products are specified as PREs or REQs.

Figure 7. Target System Mandatory Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level
5655-N98	IBM SDK for z/OS, Java 2 Technology Edition, Version 5, or higher
5650-ZOS	z/OS V02.01.00
Any one of the following:	
5615-DB2	DB2 V11.01.00 for z/OS
5697-P43	DB2 V11.01.00 for z/OS VUE
5650-DB2	DB2 V12.01.00 for z/OS
5770-AF3	DB2 V12.01.00 for z/OS VUE

Conditional operational requisites identify products that are *not* required for this product to operate its basic functions but are required at run time for this product to operate specific functions. These products are specified as IF REQs.

z/OS Application Connectivity has no conditional operational requisites.

5.2.2.3 Toleration/Coexistence Requisites: Toleration/coexistence requisites identify products that must be present on sharing systems. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD environment at different time intervals.

z/OS Application Connectivity has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites: Negative requisites identify products that must *not* be installed on the same system as this product.

z/OS Application Connectivity has no negative requisites.

5.2.3 DASD Storage Requirements

z/OS Application Connectivity libraries can reside on all supported DASD types.

Figure 8 lists the total space that is required for each type of library.

Figure 8. Total DASD Space Required by z/OS Application Connectivity

Library Type	Total Space Required in 3390 Trks
Target	28 tracks
Distribution	205 tracks
HFS	10900 512k-blocks

Notes:

1. For non-RECFM U data sets, IBM recommends using system-determined block sizes for efficient DASD utilization. For RECFM U data sets, IBM recommends using a block size of 32760. This is most efficient from the performance and DASD utilization perspective.

2. Abbreviations used for data set types are shown as follows.

- U** Unique data set, allocated by this product and used by only this product. This table provides all the required information to determine the correct storage for this data set. You do not need to refer to other tables or program directories for the data set size.
- S** Shared data set, allocated by this product and used by this product and other products. To determine the correct storage needed for this data set, add the storage size given in this table to those given in 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 other products. This data set is *not* allocated by this product. To determine the correct storage for this data set, add the storage size given in this table to those given in 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.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old release and reclaim the space that was used by the old release and any service that had been installed. You can determine whether 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 about the names and sizes of the required data sets, see 6.1.7, “Allocate SMP/E Target and Distribution Libraries” on page 17.

3. Abbreviations used for the file system path type are as follows.

- N** New path, created by this product.
- X** Path created by this product, but may already exist from a previous release.
- P** Previously existing path, created by another product.

4. All target and 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.

5. All target libraries listed have the following attributes:

- These data sets can be SMS-managed, but they are not required to be SMS-managed.
- These data sets are not required to reside on the IPL volume.
- The values in the "Member Type" column are not necessarily the actual SMP/E element types that are identified in the SMPMCS.

6. All target libraries that are listed and contain load modules have the following attributes:

- These data sets can be in the LPA, but they are not required to be in the LPA.
- These data sets can be in the LNKLIST.
- These data sets are not required to be APF-authorized.

The following figures describe the target and distribution libraries required to install z/OS Application Connectivity. The storage requirements of z/OS Application Connectivity must be added to the storage required by other programs having data in the same library.

Note: The data in these tables should be used when determining which libraries can be merged into common data sets. In addition, since some ALIAS names may not be unique, ensure that no naming conflicts will be introduced before merging libraries.

Figure 9. Storage Requirements for z/OS Application Connectivity Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SDDATABASE	sample	any	U	PDS	FB	80	28	30

Figure 10. z/OS Application Connectivity File System Paths

DDNAME	T Y P E	Path Name
SDDABIN	N	/usr/lpp/jcct4v3/bin/IBM
SDDACLAS	N	/usr/lpp/jcct4v3/classes/IBM
SDDASAMP	N	/usr/lpp/jcct4v3/samples/IBM

Figure 11. Storage Requirements for z/OS Application Connectivity Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
ADDABASE	U	PDS	FB	80	28	30
ADDABIN	U	PDS	VB	256	4	10
ADDACLAS	U	PDS	VB	256	166	31
ADDASAMP	U	PDS	VB	256	7	31

5.3 FMIDs Deleted

Installing z/OS Application Connectivity might result in the deletion of other FMIDs. To see which FMIDs will be deleted, examine the ++VER statement in the SMPMCS of the product.

If you do not want to delete these FMIDs at this time, install z/OS Application Connectivity into separate SMP/E target and distribution zones.

Note: These FMIDs are not automatically deleted from the Global Zone. If you want to delete these FMIDs from the Global Zone, see the SMP/E manuals for instructions.

5.4 Special Considerations

You can install z/OS Application connectivity on an LPAR that has DB2 for z/OS but you cannot use z/OS Application Connectivity and the JDBC/SQLJ feature of DB2 for z/OS simultaneously.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of z/OS Application Connectivity.

Please note the following:

- If you want to install z/OS Application Connectivity into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMPCSI and the SMP/E control data sets.
- You can use the sample jobs that are provided to perform part or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries that are required for SMP/E execution have been defined in appropriate zones.
- You can use the SMP/E dialogs instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing z/OS Application Connectivity

6.1.1 SMP/E Considerations for Installing z/OS Application Connectivity

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of z/OS Application Connectivity.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 12. Using values lower than the recommended values can result in failures in the installation. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. See the SMP/E manuals for instructions on updating the global zone.

Figure 12. SMP/E Options Subentry Values

Subentry	Value	Comment
DSSPACE	(200,200,500)	3390 DASD tracks
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install z/OS Application Connectivity:

Figure 13. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
DDAALA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.HDDA211.F1
DDAALB	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.HDDA211.F1
DDARECEV	RECEIVE	Sample RECEIVE job	IBM.HDDA211.F1
DDAALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HDDA211.F1
DDAISMKD	MKDIR	Sample job to invoke the supplied DDAMKDIR EXEC to allocate HFS or zFS paths	IBM.HDDA211.F1
DDADDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HDDA211.F1
DDAAPPLY	APPLY	Sample APPLY job	IBM.HDDA211.F1
DDAACCEP	ACCEPT	Sample ACCEPT job	IBM.HDDA211.F1

You can access the sample installation jobs by performing an SMP/E RECEIVE and then copying the jobs from the relfiles to a work data set for editing and submission. See Figure 13 on page 14 to find the appropriate relfile data set.

You can also copy the sample installation jobs from the tape or product files by submitting the following job. Depending on your distribution medium. Use either the //TAPEIN or the //FILEIN DD statement and comment out or delete the other statement. Before you submit the job, add a job card and change the lowercase parameters to uppercase values to meet the requirements of your site.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//*****
/* Make the //TAPEIN DD statement below active if you install*
/* from a CBPDO tape by uncommenting the DD statement below. *
//*****
/*TAPEIN DD DSN=IBM.HDDA211.F1,UNIT=tunit,
/* VOL=SER=volser,LABEL=(x,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //TAPEIN DD statement below active if you install*
/* from a product tape received outside the CBPDO process *
/* (using the optional SMP/E RECEIVE job) by uncommenting *
/* the DD statement below. *
//*****
/*TAPEIN DD DSN=IBM.HDDA211.F1,UNIT=tunit,
/* VOL=SER=DDA211,LABEL=(2,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //FILEIN DD statement below active for *
/* downloaded DASD files. *
```

```

//*****
//*FILEIN DD DSN=IBM.HDDA211.F1,UNIT=SYSALLDA,DISP=SHR,
//* VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(20,10,5))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
/*

```

In the sample above, update the statements as noted below:

If using TAPEIN:

- tunit** is the unit address where the product tape is mounted
- volser** is the volume serial matching the product tape
- x** is the tape file number where the data set name is on the tape
- Refer to the documentation provided by CBPDO to see where IBM.HDDA211.F1 is on the tape.

If using FILEIN

- filevol** is the volume serial of the DASD device where the downloaded files reside.

OUT

- jcl-library-name** is the name of the output data set where the sample jobs will be stored
- dasdvol** is the volume serial of the DASD device where the output data set will reside

SYSIN

- xxxxIN** is either TAPEIN or FILEIN depending on your input DD statement.

6.1.4 Allocate SMP/E CSI (Optional)

If you are using an existing CSI, do not execute this job.

If you are allocating a new SMP/E data set for this install, edit, and submit sample job DDAALA to allocate the SMP/E data set for z/OS Application Connectivity. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.5 Initialize CSI zones (Optional)

Edit and submit sample job DDAALB to initialize SMP/E zones for z/OS Application Connectivity. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.6 Perform SMP/E RECEIVE

If you have obtained z/OS Application Connectivity as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the z/OS Application Connectivity FMID, service, and HOLDDATA that are included on the CBPDO tape. For more information, see the documentation that is included in the CBPDO.

You can also choose to edit and submit sample job DDARECEV to perform the SMP/E RECEIVE for z/OS Application Connectivity. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.7 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job DDAALLOC to allocate the SMP/E target and distribution libraries for z/OS Application Connectivity. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.8 Allocate File System Paths

Edit and submit sample job DDAISMKD job to allocation the HFS paths for z/OS Application Connectivity. Consult the instructions in the sample job for more information. For z/OS Application Connectivity, the recommended mountpoint is `usr/lpp/jcct4v3`

If you create a new file system for this product, consider updating the BPXPRMxx PARMLIB member to mount the new file system at IPL time. This action can be helpful if an IPL occurs before the installation is completed.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.9 Create DDDEF Entries

Edit and submit sample job DDADDDEF to create DDDEF entries for the SMP/E target and distribution libraries for z/OS Application Connectivity. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.10 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job DDAAPPLY to perform an SMP/E APPLY CHECK for z/OS Application Connectivity. Consult the instructions in the sample job for more information.

HOLDDATA introduces ERROR HOLDS against FMIDs for HIPER APARs. Before the installation, ensure that you have the latest HOLDDATA, which is available through several different portals,

including <http://service.software.ibm.com/holdata/390holddata.html>. Install the FMIDs regardless of the status of unresolved HIPERs. However, don't deploy the software until the unresolved HIPERs are analyzed to determine applicability.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the PRE, ID, REQ, and IFREQ on the APPLY CHECK. This is because the SMP/E root cause analysis identifies the cause only of *errors* and not of *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings, instead of errors).

Here are two methods to install FMIDs when ++HOLDS for HIPERs exist for the FMIDs that you install:

- a. To ensure that all recommended and critical service is installed with the FMID, and you have received the latest HOLDDATA, add the FIXCAT operand to the APPLY command as shown below.

```
APPLY S(fmid,fmid,...)
FORFMID(fmid,fmid,...)
SOURCEID(RSU*)
FIXCAT(IBM.ProductInstall-RequiredService)
GROUPEXTEND .
```

Some HIPER APARs might not have PTFs available yet. You have to analyze the symptom flags to determine if you want to bypass the specific ERROR HOLDS and continue the installation of the FMIDs.

This method requires more initial research, but can provide resolution for all HIPERs that have fixes available and are not in a PE chain. Unresolved PEs or HIPERs might still exist and require the use of BYPASS.

- b. To install the FMID without regard for the HIPERs, you can add a BYPASS(HOLDCLASS(HIPER)) operand to the APPLY command. In this way, you can install FMIDs even though HIPER ERROR HOLDS against them still exist. Only the HIPER ERROR HOLDS are bypassed. After the FMIDs are installed, run the SMP/E REPORT ERRSYSMODS command to identify missing HIPER maintenance.

```
APPLY S(fmid,fmid,...)
FORFMID(fmid,fmid,...)
SOURCEID(RSU*)
GROUPEXTEND
BYPASS(HOLDCLASS(HIPER)) .
..any other parameters documented in the program directory
```

This method is the quicker of the two, but requires subsequent review of the REPORT ERRSYSMODS to investigate any HIPERs. If you are running SMP/E V3.5 or higher and have received the latest HOLDDATA, you can also choose to run REPORT MISSINGFIX for Fix Category IBM.ProductInstall-RequiredService to investigate missing recommended service.

If you bypass HOLDS during the installation of the FMIDs because PTFs are not yet available, you can make yourself notified when the PTFs are available by using the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink.

2. After you take actions that are indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

Note: The GROUPEXTEND operand indicates that SMP/E applies all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from APPLY CHECK: You will receive a return code of 0 if this job runs correctly.

Expected Return Codes and Messages from APPLY: You will receive a return code of 0 if this job runs correctly.

6.1.11 Perform SMP/E ACCEPT

Edit and submit sample job DDAACCEP to perform an SMP/E ACCEPT CHECK for z/OS Application Connectivity. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the PRE, ID, REQ, and IFREQ on the ACCEPT CHECK. This is because the SMP/E root cause analysis identifies the cause of only *errors* but not *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings rather than errors).

Before you use SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. In this way, you can save the entries that are produced from JCLIN in the distribution zone whenever a SYSMOD that contains inline JCLIN is accepted. For more information about the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E manuals.

After you take actions that are indicated by the ACCEPT CHECK, remove the CHECK operand and run the job again to perform the ACCEPT.

Note: The GROUPEXTEND operand indicates that SMP/E accepts all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from ACCEPT CHECK: You will receive a return code of 0 if this job runs correctly.

If PTFs that contain replacement modules are accepted, SMP/E ACCEPT processing will link-edit or bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder might issue messages that indicate unresolved external references, which will result in a return code of 4 during the ACCEPT phase. You can ignore these messages, because the distribution libraries are not executable and the unresolved external references do not affect the executable system libraries.

Expected Return Codes and Messages from ACCEPT: You will receive a return code of 0 if this job runs correctly.

6.1.12 Run REPORT CROSSZONE

The SMP/E REPORT CROSSZONE command identifies requisites for products that are installed in separate zones. This command also creates APPLY and ACCEPT commands in the SMPPUNCH data set. You can use the APPLY and ACCEPT commands to install those cross-zone requisites that the SMP/E REPORT CROSSZONE command identifies.

After you install z/OS Application Connectivity, it is recommended that you run REPORT CROSSZONE against the new or updated target and distribution zones. REPORT CROSSZONE requires a global zone with ZONEINDEX entries that describe all the target and distribution libraries to be reported on.

For more information about REPORT CROSSZONE, see the SMP/E manuals.

6.2 Activating z/OS Application Connectivity

The publication *Application Programming Guide and Reference for Java*, SC19-4051, contains the step-by-step procedures to activate the functions of z/OS Application Connectivity. This publication is currently located in softcopy PDF format only, available in the IBM Information Center.

6.2.1 File System Execution

If you mount the file system in which you have installed z/OS Application Connectivity in read-only mode during execution, then you do not have to take further actions to activate z/OS Application Connectivity.

7.0 Notices

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Program Directory for z/OS Application Connectivity to DB2 for z/OS, October, 2016

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Reader's Comments
Department W19/B370
555 Bailey Avenue
San Jose, California
USA
95141-1003

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