Program Directory for IBM Sterling Connect:Direct for z/OS

V06.04.00

Program Number 5655-X12

FMID HDGA640

for Use with
z/OS V 2.04.00 and higher

Document Date: October 2024

GI13-4383-05

Note

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

Contents

Figures

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 IBM Sterling Connect:Direct for z/OS. This publication refers to IBM Sterling Connect:Direct for z/OS as Connect:Direct.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic program materials and documentation for Connect:Direct.
- 3.0, “Program Support” on page 5 describes the IBM support available for Connect:Direct.
- 4.0, “Program and Service Level Information” on page 6 lists the APARs (program level) and PTFs (service level) that have been incorporated into Connect:Direct.
- 5.0, “Installation Requirements and Considerations” on page 7 identifies the resources and considerations that are required for installing and using Connect:Direct.
- 6.0, “Installation Instructions” on page 15 provides detailed installation instructions for Connect:Direct. It also describes the procedures for activating the functions of Connect:Direct, or refers to appropriate publications.

Before installing Connect:Direct, 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; after which, keep the documents for your 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.

Connect:Direct is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The program directory that is provided in softcopy format on the CBPDO is identical to the hardcopy format if one was included with your order. All service and HOLDDATA for Connect:Direct are included on the CBPDO.

Do not use this program directory if you install Connect:Direct with a z/OSMF Portable Software Instance (z/OSMF Portable Software Instance (ServerPac)). When you use one of those offerings, use the jobs and documentation supplied with the offering. The offering will point you to specific sections of this program directory as needed.

1.1 Connect:Direct Description

IBM Sterling Connect:Direct for z/OS is peer-to-peer file-based integration middleware optimized for assured delivery, high-volume and secure data exchange within and between enterprises. It is optimized for high performance and moves files containing any type of data across multiple platforms, disparate file systems, and disparate media.

Connect:Direct enables business to:

- Move large amounts of data internally and externally
- Share information with business partners
- Schedule business information-related application activities
- Automate data distribution
- Control and audit network activities
- Maintain network security
- Use one common command structure for information management with platform-specific interfaces

1.2 Connect:Direct FMIDs

Connect:Direct consists of the following FMID:

HDGA640

2.0 Program Materials

An IBM program is identified by a program number. The program number for Connect:Direct is 5655-X12.

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

The program announcement material describes the features supported by Connect:Direct. 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 physical media 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 15 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for Connect:Direct in the *CBPDO Memo To Users Extension*.

Figure 1 describes the program file content for Connect:Direct.

Figure 1. Program File Content

Name	ORG	RECFM	LRECL	BLK SIZE
SMPMCS	SEQ	FB	80	8800
IBM.HDGA640.F1	PDS	FB	80	8800
IBM.HDGA640.F2	PDSE	U	0	6144
IBM.HDGA640.F3	PDSE	U	0	6144
IBM.HDGA640.F4	PDS	VB	2048	23476
IBM.HDGA640.F5	PDS	FB	80	8800
IBM.HDGA640.F6	PDS	FB	80	8800
IBM.HDGA640.F7	PDS	FB	80	8800
IBM.HDGA640.F8	PDS	FB	80	8800

2.2 Program Publications

The following sections identify the basic publications for Connect:Direct which can be found at **IBM Products documentation** https://www.ibm.com/docs/en/products and by direct links below.

There are no licensed program publications for Connect:Direct.

Figure 2 identifies the basic unlicensed publications for Connect:Direct. Those that are in softcopy format can be obtained from the IBM Documentation website at https://www.ibm.com/docs/

Figure 2. Basic Material: Unlicensed Publications

Publication Title	Direct Link
IBM Sterling Connect:Direct for z/OS Program Directory	http://www.ibm.com/docs/
IBM Sterling Connect:Direct for z/OS Agreements and License Information	http://www.ibm.com/docs/

No optional publications are provided for Connect:Direct.

2.3 Program Source Materials

No program source materials or viewable program listings are provided for Connect:Direct.

2.4 Publications Useful During Installation

You might want to use the publications listed in Figure 3 during the installation of Connect:Direct which can be found at **IBM Products documentation** https://www.ibm.com/docs/en/products .

Figure 3. Publications Useful During Installation

Publication
IBM SMP/E for z/OS User's Guide
IBM SMP/E for z/OS Commands *
IBM SMP/E for z/OS Reference
IBM SMP/E for z/OS Messages, Codes, and Diagnosis

Note: These publications can be found in IBM Documentation. Use a web browser with internet access to refer to: https://www.ibm.com/docs/en/zos/2.5.0?topic=zos-smpe

3.0 Program Support

This section describes the IBM support available for Connect:Direct.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install Connect:Direct, make sure that you review the PSP bucket information for IBM Z products document https://www.ibm.com/support/pages/node/7127792. It contains the latest information concerning the installation of IBM products, including the latest service recommendations and cross-product dependencies. This information was previously available in traditional PSP buckets, which are no longer published for IBM Z products.

For support, access the Software Support Website at https://www.ibm.com/mysupport/

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 4 identifies the component IDs (COMPID) for Connect:Direct.

Figure 4. Component IDs

FMID	COMPID	Component Name	RETAIN Release
HDGA640	5655X1200	Connect:Direct	640

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of Connect:Direct. 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

The following APAR fixes against previous releases of Connect:Direct have been incorporated into this release. They are listed by FMID.

- FMID HDGA640

PH54882
PH54983
PH55067
PH55068
PH55075
PH55309
PH55475
PH55500
PH55514
PH55569
PH55679
PH55729
PH56065
PH56113
PH56384
PH56414
PH56552
PH56593
PH57102
PH57202
PH57287
PH57302
PH57379
PH57381
PH57497
PH57661
PH57719
PH57745
PH57855
PH58124
PH58205
PH58234
PH58412
PH58466
PH58502
PH58567
PH58975
PH59048
PH59125
PH59227
PH59255
PH60046
PH60221
PH60359
PH60411
PH60458
PH60601
PH60679
PH60705
PH60796
PH61037
PH61058
PH61242
PH61262
PH61383
PH61437
PH61442
PH61516
PH61572
PH61777
PH62007
PH62008
PH62032
PH62048
PH62092
PH62200
PH62211
PH62412
PH62709
PH62719

4.2 Service Level Information

No PTFs against this release of Connect:Direct have been incorporated into the product package.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating Connect:Direct. The following terminology is used:

- *Driving system*: the system on which SMP/E is executed to install the program.

  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 assess these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install Connect:Direct.

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 5. Driving System Software Requirements

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
5650-ZOS	z/OS	02.04.00	N/A	No

Note: SMP/E is a requirement for Installation and is an element of z/OS.

Note: Installation might require migration to new z/OS releases to be service supported. See https://www.ibm.com/support/lifecycle/

5.2 Target System Requirements

This section describes the environment of the target system required to install and use Connect:Direct.

Connect:Direct installs in the z/OS (Z038) 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 and *must* be present on the system or products that are not required 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.

Connect:Direct has no mandatory installation requisites.

Note: Installation might require migration to new releases to obtain support. See https://www.ibm.com/support/lifecycle/

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.

Connect:Direct has no conditional installation requisites.

5.2.2.2 Operational Requisites

Operational requisites are products that are required and *must* be present on the system or products that are not required 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.

Connect:Direct has no mandatory operational requisites.

Note: Installation might require migration to new releases to obtain support. See https://www.ibm.com/support/lifecycle/

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.

Figure 6 (Page 1 of 2). Target System Conditional Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level	Function
For Secure Plus Support (all SSL and TLS protocols):		
5850-ZOS	z/OS V2.04.00 or higher	ICSF (FMID=HCR77A0 or higher) with or without coprocessors
For TLS1.2 Support:		
5850-ZOS	z/OS V2.04.00 or higher	TLS1.2 Support
For TLS1.3 Support:		
5850-ZOS	z/OS V2.04.00 or higher	TLS1.3 Support
For NSA Suite B Support:		
5850-ZOS	z/OS V2.04.00 or higher	NSA Suite B Support
For z/OS Encryption Readiness Technology (zERT):		
5850-ZOS	z/OS V2.04.00 or higher	zERT Support
For zEDC Express Accelerator Support:		
---	zEC12 GA2 or zBC12 Server with zEDC Express Accelerator	zEDC Express Accelerator Support
5850-ZOS	z/OS V2.04.00 or higher	zEDC Express Accelerator Support
Microcode Level Support:		
---	For DS/8700 and DS/8800 the fixes will be available in Release 6.3SP5 or higher	For DS8700, MCL 76.31.63.0 or higher For DS8S8800, MCL 86.31.78.0 or higher
---	For DS/8870 the fixes will be available in Release 7.1.5 or higher	For DS8870, MCL 87.10.97.0 or higher

Figure 6 (Page 2 of 2). Target System Conditional Operational Requisites		
Program Number	**Product Name and Minimum VRM/Service Level**	**Function**
For EAV, Extended Address Volume Support		
---	Requires IBM System Storage DS8000 Series with release 4.0 licensed internal code	Extended Address Volume Support
Any **one** of the following for CICS Interface:		
5655-Y04	CICS TS for z/OS V5.03.00 or higher	CICS Interface
5722-DFJ	CICS TS for z/OS Value Unit Edition V5.03.00 or higher	CICS Interface

Note: Installation might require migration to new releases to obtain support. See https://www.ibm.com/support/lifecycle/

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.

Connect:Direct has no toleration/coexistence requisites.

Note: Installation might require migration to new releases to obtain support. See https://www.ibm.com/support/lifecycle/

5.2.2.4 Incompatibility (Negative) Requisites

Negative requisites identify products that must *not* be installed on the same system as this product.

Connect:Direct has no negative requisites.

Note: Installation might require migration to new releases to obtain support. See https://www.ibm.com/support/lifecycle/

5.2.3 DASD Storage Requirements

Connect:Direct libraries can reside on all supported DASD types.

Figure 7 lists the total space that is required for each type of library.

Figure 7. Total DASD Space Required by Connect:Direct

Library Type	Total Space Required in 3390 Trks	Description
Target	4000	Total space required by Target data sets
Distribution	4000	Total space required by Distribution data sets

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, which 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 6.1.5, “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 might 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 can be changed.
   - The default block size of the data set can be changed.
   - The data set can be merged with another data set that has equivalent characteristics.

- The data set can be either a PDS or a PDSE, with some exceptions. If the value in the "ORG" column specifies "PDS", the data set must be a PDS. If the value in "DIR Blks" column specifies "N/A", the data set must be 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 not be in the LPA, with some exceptions. If the data set should be placed in the LPA, see the Special Considerations section below.
   - These data sets can be in the LNKLST. If so, see the Special Considerations section below.
   - These data sets are not required to be APF-authorized, with some exceptions. If the data set must be APF-authorized, see the Special Considerations section below.

The following figures describe the target and distribution libraries and file system paths required to install Connect:Direct. The storage requirements of Connect:Direct must be added to the storage required by other programs that have data in the same library or path.

Note: Use the data in these tables to determine 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 8 (Page 1 of 2). Storage Requirements for Connect:Direct Target Libraries

Library DDNAME	Member Type	Target Volume	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
SDGACICS	LMOD	ANY	U	PDSE	U	0	268	-
SDGACNTL	Sample	ANY	U	PDS	FB	80	7	10
SDGADATA	Data	ANY	U	PDS	VB	2048	2625	5
SDGAISPC	Clist	ANY	U	PDS	FB	80	81	20
SDGAJCL	Sample	ANY	U	PDS	FB	80	9	20
SDGALINK	LMOD	ANY	U	PDSE	U	0	2334	-
SDGAMAC	MACRO	ANY	U	PDS	FB	80	135	40
SDGAMAP	Data	ANY	U	PDS	FB	80	51	40
SDGAMENU	PNL	ANY	U	PDS	FB	80	12	50
SDGAMIB	Sample	ANY	U	PDS	VB	256	15	10
SDGAMSGS	MSGS	ANY	U	PDS	FB	80	30	50

Figure 8 (Page 2 of 2). Storage Requirements for Connect:Direct Target Libraries

Library DDNAME	Member Type	Target Volume	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
SDGAOPLS	Sample	ANY	U	PDS	FB	80	4	20
SDGAPARM	Sample	ANY	U	PDS	FB	80	6	20
SDGAPENU	PNL	ANY	U	PDS	FB	80	135	200
SDGAPROC	PROC	ANY	U	PDS	FB	80	15	50
SDGAPROF	Sample	ANY	U	PDS	FB	80	2	7
SDGASAMP	Sample	ANY	U	PDS	FB	80	302	50
SDGASENU	PNL	ANY	U	PDS	FB	80	5	15
SDGATRP	Sample	ANY	U	PDS	VB	256	15	10

Figure 9 (Page 1 of 2). Storage Requirements for Connect:Direct Distribution Libraries

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
ADGACICS	U	PDSE	U	0	268	-
ADGACNTL	U	PDS	FB	80	7	10
ADGADATA	U	PDS	VB	2048	2625	5
ADGAISPC	U	PDS	FB	80	81	20
ADGAJCL	U	PDS	FB	80	9	20
ADGALINK	U	PDSE	U	0	2334	-
ADGAMAC	U	PDS	FB	80	135	40
ADGAMAP	U	PDS	FB	80	51	40
ADGAMENU	U	PDS	FB	80	12	50
ADGAMIB	U	PDS	VB	256	15	10
ADGAMSGS	U	PDS	FB	80	30	50
ADGAOPLS	U	PDS	FB	80	4	20
ADGAPARM	U	PDS	FB	80	6	20
ADGAPENU	U	PDS	FB	80	135	200
ADGAPROC	U	PDS	FB	80	15	50
ADGAPROF	U	PDS	FB	80	2	7

Figure 9 (Page 2 of 2). Storage Requirements for Connect:Direct Distribution Libraries

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
ADGASAMP	U	PDS	FB	80	302	50
ADGASENU	U	PDS	FB	80	5	15
ADGATRP	U	PDS	VB	256	15	10

5.3 FMIDs Deleted

Installing Connect:Direct 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 Connect:Direct 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, use the SMP/E REJECT NOFMID DELETEFMID command. See the SMP/E Commands book for details.

5.4 Special Considerations

Connect:Direct has no special considerations for the target system.

Even though you can install Connect:Direct into any SMP/E environment, it is HIGHLY recommended to install into a separate environment. This is to avoid the possibility of any collisions with other products.

Before you start using Connect:Direct, check the Release Notes for the latest information on implementing this version, and refer to the *IBM Connect:Direct for z/OS Configuration Guide* for step-by-step instructions on how to customize the product for your environment.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of Connect:Direct.

Please note the following points:

- If you want to install Connect:Direct 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 Connect:Direct

6.1.1 SMP/E Considerations for Installing Connect:Direct

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of Connect:Direct.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 10. 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 10. SMP/E Options Subentry Values

Subentry	Value	Comment
DSSPACE	2500,100,300	This is the minimum allocation for SMPTLIB data, any larger value is acceptable.
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 Connect:Direct:

Figure 11. Sample Installation Jobs

Job Name	Job Type	Description	SMPTLIB Data Set
DGASMPE (Optional)	DEFINE SMP/E	Sample job to create SMP/E environment	IBM.HDGA640.F1
DGAALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HDGA640.F1
DGADDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HDGA640.F1
DGARECVE	RECEIVE	Sample RECEIVE job	IBM.HDGA640.F1
DGAAPPLY	APPLY	Sample APPLY job	IBM.HDGA640.F1
DGAACCPT	ACCEPT	Sample ACCEPT job	IBM.HDGA640.F1

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.7, “Perform SMP/E RECEIVE” on page 17) then copy the jobs from the SMPTLIB data sets to a work data set for editing and submission. See Figure 11 on page 15 to find the appropriate data set.

You can also copy the sample installation jobs from the product files by submitting the following job. 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=*
//IN       DD DSN=IBM.HDGA640.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,(10,5,10))
//SYSUT3   DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN    DD *
    COPY INDD=IN,OUTDD=OUT
/*
```

See the following information to update the statements in the previous sample:

IN:

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 are stored.

dasdvol is the volume serial of the DASD device where the output data set resides.

6.1.4 Allocate and Initialize the SMP/E Data Sets (Optional)

You can install Connect:Direct in the same SMP/E zone as z/OS V2.04.00 (or later), or in a different zone.

- If you install into existing SMP/E data sets, ensure that you have enough space.
- If you plan to install into an existing zone, the cluster should have already been allocated and primed. You can go on to the next step to perform an SMP/E RECEIVE.
- **IBM strongly recommends creating SMP/E data sets and libraries for an installation of Connect:Direct**.
- To install into a new zone, edit and submit sample job DGASMPE to define and prime a new SMP/E CSI cluster. Consult the instructions in the sample job for more information.

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

6.1.5 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job DGAALLOC to allocate the SMP/E target and distribution libraries for Connect:Direct. 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 Create DDDEF Entries

Edit and submit sample job DGADDDEF to create DDDEF entries for the SMP/E target and distribution libraries for Connect:Direct. 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 Perform SMP/E RECEIVE

If you have obtained Connect:Direct as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the Connect:Direct FMIDs, service, and HOLDDATA that are included on the CBPDO package. For more information, see the documentation that is included in the CBPDO.

You can also choose to edit and submit sample job DGARECVE to perform the SMP/E RECEIVE for Connect:Direct. 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.

Note: Please note that if the installation data sets have been loaded to a cataloged data set with an HLQ other than IBM.fmid, then the SMP/E RECEIVE SELECT command must change the HLQ by specifying the RFPREFIX(hlq) parameter as below:

```
RECEIVE SELECT(HDGA640) RFPREFIX(hlq) .
```

6.1.8 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job DGAAPPLY to perform an SMP/E APPLY CHECK for Connect:Direct. Consult the instructions in the sample job for more information.

   The latest HOLDDATA is available through several different portals, including https://public.dhe.ibm.com/s390/assigns/ or https://www.ibm.com/support/pages/enhanced-holddata-zos for usage instructions. The latest HOLDDATA may identify HIPER and FIXCAT APARs for the FMIDs you will be installing. An APPLY CHECK will help you determine if any HIPER or FIXCAT APARs are applicable to the FMIDs you are installing. If there are any applicable HIPER or FIXCAT APARs, the APPLY CHECK will also identify fixing PTFs that will resolve the APARs, if a fixing PTF is available.

   You should install the FMIDs regardless of the status of unresolved HIPER or FIXCAT APARs. However, do not deploy the software until the unresolved HIPER and FIXCAT APARs have been analyzed to determine their applicability. That is, before deploying the software either ensure fixing PTFs are applied to resolve all HIPER or FIXCAT APARs, or ensure the problems reported by all HIPER or FIXCAT APARs are not applicable to your environment.

   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. 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 sample APPLY commands:

   a. To ensure that all recommended and critical service is installed with the FMIDs, receive the latest HOLDDATA and use the APPLY CHECK command as follows

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

      Some HIPER APARs might not have fixing PTFs available yet. You should analyze the symptom flags for the unresolved HIPER APARs to determine if the reported problem is applicable to your environment and if you should bypass the specific ERROR HOLDs in order to continue the installation of the FMIDs.

      This method requires more initial research, but can provide resolution for all HIPERs that have fixing PTFs 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 FMIDs without regard for unresolved HIPER APARs, you can add the BYPASS(HOLDCLASS(HIPER)) operand to the APPLY CHECK command. This will allow you to install FMIDs even though one or more unresolved HIPER APARs exist. After the FMIDs are installed, use the SMP/E REPORT ERRSYSMODS command to identify unresolved HIPER APARs and any fixing PTFs.

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

This method is quicker, but requires subsequent review of the Exception SYSMOD report produced by the REPORT ERRSYSMODS command to investigate any unresolved HIPERs. If you have received the latest HOLDDATA, you can also choose to use the REPORT MISSINGFIX command and specify Fix Category IBM.PRODUCTINSTALL-REQUIREDSERVICE to investigate missing recommended service.

If you bypass HOLDs during the installation of the FMIDs because fixing PTFs are not yet available, you can be notified when the fixing 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.

6.1.9 Perform SMP/E ACCEPT

Edit and submit sample job DGAACCPT to perform an SMP/E ACCEPT CHECK for Connect:Direct. 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. The SMP/E root cause analysis identifies the cause of *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 Commands book for details.

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.

6.1.10 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 Connect:Direct, 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 Connect:Direct

The Connect:Direct program publications can be found at the Connect:Direct Documentation site at the URL below:

https://www.ibm.com/docs/en/connect-direct

The publication *IBM Sterling Connect:Direct for z/OS Configuration Guide* (&OPRNUM.) contains the necessary information to customize and use Connect:Direct.

Before you start using Connect:Direct, check the Release Notes for the latest information on implementing this version, and then refer to the *IBM Connect:Direct for z/OS Configuration Guide* for step-by-step instructions on how to customize the product for your environment.

7.0 Notices

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APAR numbers are provided in this document to assist in locating PTFs that may be required. Ongoing problem reporting may result in additional APARs being created. Therefore, the APAR lists in this document may not be complete. To obtain current service recommendations and to identify current product service requirements, always refer to the instructions in the **Service Recommendation Summary and Service Recommendations** and **Cross Product Dependencies** sections of the **PSP bucket information for IBM Z products** at https://www.ibm.com/support/pages/node/7127792, to ensure you have all required service.

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