IBM

Program Directory for

IBM Sterling

Connect:Direct Standard Edition

for z/OS

6.02.00

Program Number 5655-X11

FMIDs HDGA620 JDGA620

for Use with
z/OS 2.03.00 and higher with zNALC

Document Date: October 2021

GI13-4384-04

Note

Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 25.

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 Standard Edition. This publication refers to IBM Sterling Connect:Direct for z/OS Standard Edition 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 6 describes the IBM support available for Connect:Direct.

- 4.0, "Program and Service Level Information" on page 8 lists the APARs (program level) and PTFs (service level) that have been incorporated into Connect:Direct.

- 5.0, "Installation Requirements and Considerations" on page 10 identifies the resources and considerations that are required for installing and using Connect:Direct.

- 6.0, "Installation Instructions" on page 18 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 6 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 SystemPac or 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 Standard Edition 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 FMIDs:

HDGA620 - Base
JDGA620 - License Feature (required)

2.0 Program Materials

An IBM program is identified by a program number. The program number for Connect:Direct is 5655-X11.

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 18 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 for FMID HDGA620. You can refer to the *CBPDO Memo To Users Extension* to see where the files reside on the image.

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 (Page 1 of 2). Program File Content				
Name	**ORG**	**RECFM**	**LRECL**	**BLK SIZE**
SMPMCS	SEQ	FB	80	8800
IBM.HDGA620.F1	PDS	FB	80	8800
IBM.HDGA620.F2	PDSE	U	0	6144
IBM.HDGA620.F3	PDSE	U	0	6144
IBM.HDGA620.F4	PDS	VB	2048	23476
IBM.HDGA620.F5	PDS	FB	80	8800
IBM.HDGA620.F6	PDS	FB	80	8800

Figure 1 (Page 2 of 2). Program File Content					
Name	**O R G**	**R E C F M**	**L R E C L**	**BLK SIZE**	
IBM.HDGA620.F7	PDS	FB	80	8800	
IBM.HDGA620.F8	PDS	FB	80	8800	

Figure 2 describes the program file content for Connect:Direct for FMID JDGA620. You can find information about the physical media for the basic machine-readable materials in the *CBPDO Memo To Users Extension.*

Figure 2. Program File Content for JDGA620				
Name	**O R G**	**R E C F M**	**L R E C L**	**BLK SIZE**
SMPMCS	SEQ	FB	80	8800
IBM.JDGA620.F1	PDS	FB	80	8800
IBM.JDGA620.F2	PDSE	U	0	6144
IBM.JDGA620.F3	PDS	FB	80	8800

Notes:

1. The data set attributes in these tables 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.

2.2 Program Publications

The following sections identify the basic publications for Connect:Direct.

The Connect:Direct documentation is available online and can be accessed by using a web browser with internet access at: **https://www.ibm.com/docs/en/connect-direct**

There are no licensed program publications for Connect:Direct.

Figure 3 on page 5 identifies the basic unlicensed publications for Connect:Direct. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at **https://www.ibm.com/resources/publications**

Figure 3. Basic Material: Unlicensed Publications		
Publication Title	**Form Number**	**Media Format**
IBM Sterling Connect:Direct for z/OS Standard Edition for z/OS Program Directory	GI13-4384-04	http://www.ibm.com/resources/ publications/
IBM Sterling Connect:Direct for z/OS Standard Edition Agreements and License Information	GI13-4386-02	http://www.ibm.com/resources/ publications/

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.

The listed publications can be obtained from the 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**

2.4 Publications Useful During Installation

You might want to use the publications listed in Figure 4 during the installation of Connect:Direct.

Figure 4. Publications Useful During Installation	
Publication Title	**Form Number**
IBM SMP/E for z/OS User's Guide	SA23-2277
IBM SMP/E for z/OS Commands	SA23-2275
IBM SMP/E for z/OS Reference	SA23-2276
IBM SMP/E for z/OS Messages, Codes, and Diagnosis	GA32-0883

Note: IBM Publications Center https://www.ibm.com/resources/publications

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 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 6.1.8, "Perform SMP/E APPLY" on page 21 for a sample APPLY command

If you obtained Connect:Direct as part of a CBPDO, HOLDDATA is included.

If the CBPDO for Connect:Direct is older than two weeks by the time you install the product materials, you can obtain the latest PSP Bucket information by going to the following website:

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

You can also use S/390 SoftwareXcel or contact the IBM Support Center to obtain the latest PSP Bucket information.

For program support, access the Software Support Website at http://www.ibm.com/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 Connect:Direct are included in Figure 5.

Figure 5. PSP Upgrade and Subset ID		
UPGRADE	**SUBSET**	**Description**
STRCD620	HDGA620	Connect:Direct for z/OS
STRCD620	JDGA620	Connect:Direct for z/OS Standard Edition

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 6 on page 7 identifies the component IDs (COMPID) for Connect:Direct.

Figure 6. Component IDs			
FMID	**COMPID**	**Component Name**	**RETAIN Release**
HDGA620	5655X1200	Connect:Direct	620
JDGA620	5655X1100	Connect:Direct Standard Edition	620

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 HDGA620

PH25332	PH30442	PH35087
PH25340	PH30444	PH35091
PH25413	PH30526	PH35760
PH25474	PH30536	PH35838
PH25663	PH30568	PH35935
PH25665	PH30645	PH36019
PH25825	PH30696	PH36058
PH25887	PH30818	PH36326
PH25977	PH31067	PH36555
PH26011	PH31069	PH36739
PH26116	PH31121	PH36820
PH26203	PH32333	PH36992
PH26444	PH32351	PH37160
PH26507	PH32438	PH37200
PH27126	PH32824	PH37275
PH27202	PH32990	PH37278
PH27280	PH33247	PH37426
PH27813	PH33308	PH37550
PH27815	PH33506	PH37901
PH28133	PH33528	PH38190
PH28184	PH33538	PH38267
PH28428	PH33771	PH38330
PH28433	PH33847	PH38396
PH28668	PH34652	PH38501
PH29304	PH34815	PH38545
PH29499	PH34834	PH38730
PH29946	PH34883	PH38794
PH30209	PH34936	PH39281
PH30224	PH34975	PH39288
PH30250	PH35056	PH39321
PH30303		

4.2 Service Level Information

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

Frequently check the Connect:Direct PSP Bucket for HIPER and SPECIAL attention PTFs against all FMIDs that you must install. You can also receive the latest HOLDDATA, then add the **FIXCAT(IBM.PRODUCTINSTALL-REQUIREDSERVICE)** operand on your **APPLY CHECK** command. This will allow you to review the recommended and critical service that should be installed with your FMIDs.

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 7. 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	02.03.00	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 obtain support. 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 8 (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 2.03.00 or higher	ICSF (FMID=HCR77A0 or higher) with or without coprocessors
For zFBA Support at z/OS level below:		
5850-ZOS	z/OS 2.03.00 or higher	zFBA Support
For TLS1.2 Support:		
5850-ZOS	z/OS 2.03.00 or higher	TLS1.2 Support
For TLS1.3 Support:		
5850-ZOS	z/OS 2.04.00 or higher	TLS1.3 Support
For NSA Suite B Support:		
5850-ZOS	z/OS 2.03.00 or higher	NSA Suite B Support
For z/OS Encryption Readiness Technology (zERT):		
5850-ZOS	z/OS 2.03.00 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 2.03.00 or higher	zEDC Express Accelerator Support
Microcode Level Support:		

Figure 8 (Page 2 of 2). Target System Conditional Operational Requisites		
Program Number	**Product Name and Minimum VRM/Service Level**	**Function**
---	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
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 5.03.00 or higher	CICS Interface
5722-DFJ	CICS TS for z/OS Value Unit Edition 5.03.00 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 9 on page 14 lists the total space that is required for each type of library.

Figure 9. 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 20.

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, se 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 10 (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	151	20
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

Figure 10 (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
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
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 11 (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	151	20
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

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
Figure 11 (Page 2 of 2). Storage Requirements for Connect:Direct Distribution Libraries						
ADGAPENU	U	PDS	FB	80	135	200
ADGAPROC	U	PDS	FB	80	15	50
ADGAPROF	U	PDS	FB	80	2	7
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.

FMID HDGA620 and JDGA620 are assumed to be installed into the same zones.   If this is not the case, you will need to modify the sample jobs accordingly.

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 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	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 13. Sample Installation Jobs			
Job Name	**Job Type**	**Description**	**SMPTLIB Data Set**
DGASMPE (Optional)	DEFINE SMP/E	Sample job to create SMP/E environment	IBM.HDGA620.F1
DGAALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HDGA620.F1
DGADDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HDGA620.F1
DGARECVE	RECEIVE	Sample RECEIVE job	IBM.HDGA620.F1
DGARECV2	RECEIVE	Sample RECEIVE job for JDGA620	IBM.JDGA620.F3
DGAAPPLY	APPLY	Sample APPLY job	IBM.HDGA620.F1
DGAAPPL2	APPLY	Sample APPLY job for JDGA620	IBM.JDGA620.F3
DGAACCPT	ACCEPT	Sample ACCEPT job	IBM.HDGA620.F1
DGAACCP2	ACCEPT	Sample ACCEPT job for JDGA620	IBM.JDGA620.F3

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.7, "Perform SMP/E RECEIVE" on page 20) then copy the jobs from the SMPTLIB data sets to a work data set for editing and submission. See Figure 13 on page 18 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.HDGA620.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
/*
//STEP2    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//IN       DD DSN=IBM.JDGA620.F3,UNIT=SYSALLDA,DISP=SHR,
//         VOL=SER=filevol
//OUT      DD DSNAME=jcl-library-name,
//         DISP=(NEW,CATLG,DELETE),
//         VOL=SER=dasdvol,UNIT=SYSALLDA,
//         SPACE=(TRK,(5,5,5))
//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 V2.03.0 (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 jobs DGARECVE and DGARECV2 to perform the SMP/E

RECEIVE for Connect:Direct and License Feature FMID JDGA620. Consult the instructions in the sample job for more information.

1. Edit and submit sample job DGARECVE to perform the SMP/E RECEIVE for Connect:Direct base FMID HDGA620. 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(HDGA620) RFPREFIX(hlq) .
   ```

2. Edit and submit sample job DGARECV2 to perform the SMP/E RECEIVE for the mandatory Connect:Direct License Feature for Standard Edition FMID JDGA620. 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(JDGA620) RFPREFIX(hlq) .
   ```

6.1.8 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job DDGAPPLY 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 http://service.software.ibm.com/holdata/390holddata.html. 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.

3. Upon a successful APPLY from job DGAAPPLY, edit and submit sample job DGAAPPL2 to perform an SMP/E APPLY CHECK for Connect:Direct License Feature, FMID JDGA620. Consult the instructions in the sample job for more information.

   Expected Return Codes and Messages from APPLY CHECK for DGAAPPL2: You will receive a return code of 0 if this job runs correctly.

4. After you have taken any actions indicated by the APPLY CHECK, remove the CHECK operand and run DGAAPPL2 again to perfom the APPLY.

   Expected Return Codes and Messages from APPLY for DGAAPPL2: You will receive a return code of 0 if this job runs correctly.

6.1.9 Perform SMP/E ACCEPT

1. 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.

2. Edit and submit sample job DGAACCP2 to perform an SMP/E ACCEPT CHECK for Connect:Direct License Feature, FMID JDGA620. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages from ACCEPT CHECK for DGAACCP2: You will receive a return code of 0 if the job runs correctly.

After you take actions that are indicated by the ACCEPT CHECK, remove the CHECK operand and run DGAACCP2 again to perform the ACCEPT.

Expected Return Codes and Messages from ACCEPT for DGAACCP2: 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 and Customizing Connect:Direct

The Connect:Direct documentation is available online and can be accessed by using a web browser with internet access at: **https://www.ibm.com/docs/en/connect-direct**

The publication *IBM Sterling Connect:Direct for z/OS Standard Edition Configuration Guide*, 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.

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