Program Directory for

IBM Enterprise PL/I for z/OS

V3.8.0

Program Number 5655-H31

H270380, J270381

for Use with
z/OS V1.8.0 or later

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Note!

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

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1.0 Introduction

This Program Directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of IBM Enterprise PL/I for z/OS. This publication refers to IBM Enterprise PL/I for z/OS as Enterprise PL/I.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic and optional program materials and documentation for Enterprise PL/I.
- 3.0, “Program Support” on page 6 describes the IBM support available for Enterprise PL/I.
- 4.0, “Program and Service Level Information” on page 8 lists the APARs (program level) and PTFs (service level) incorporated into Enterprise PL/I.
- 5.0, “Installation Requirements and Considerations” on page 9 identifies the resources and considerations required for installing and using Enterprise PL/I.
- 6.0, “Installation Instructions” on page 17 provides detailed installation instructions for Enterprise PL/I. It also describes the procedures for activating the functions of Enterprise PL/I, or refers to appropriate publications.

Before installing Enterprise PL/I, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that were supplied with this program in softcopy form as well as this Program Directory and then keep them for future 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.

Enterprise PL/I is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The Program Directory is provided in softcopy form on the CBPDO tape which is identical to the hardcopy form provided with your order. All service and HOLDDATA for Enterprise PL/I are included on the CBPDO tape.

Do not use this Program Directory if you are installing Enterprise PL/I with a SystemPac or ServerPac. When using these offerings, use the jobs and documentation supplied with the offering. This documentation may point you to specific sections of the Program Directory as required.

1.1 Enterprise PL/I Description

With IBM Enterprise PL/I for z/OS V3.8, you can leverage more than 30 years of IBM experience in application development to facilitate your new On Demand Business endeavors, helping you to integrate PL/I and Web-based business processes in Web services, XML, Java and PL/I applications. This compiler's interoperability lets you capitalize on existing IT investment while smoothly incorporating new, Web-based applications as part of your organizations infrastructure.

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Enterprise PL/I is a leading-edge, IBM z/OS-based compiler that helps you create and maintain mission-critical, line-of-business PL/I applications you want to execute on your z/OS systems. It gives you access to IBM DB2, IBM CICS, and IBM IMS systems, and other data and transaction systems.

NEW IN V3.8

- Hardware exploitation including support for z10 architecture
- Performance improvements
- Support for XML System Services
- Improved SQL support
- Numerous new built-in functions
- Numerous user requirements

1.2 Enterprise PL/I FMIDs

Enterprise PL/I consists of the following FMIDs:

H270380
J270381

2.0 Program Materials

An IBM program is identified by a program number and feature numbers. The program number for Enterprise PL/I is 5655-H31 and the feature numbers are 5832, and 5822.

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 Enterprise PL/I. 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. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.0, “Installation Instructions” on page 17 for more information about how to install the program.

NOTE!

If Enterprise PL/I was shipped to you in a CBPDO, you will need to reference the CBPDO Memo To Users Extension for the physical tape layout of the Basic Machine-Readable Materials.

Figure 1 describes the physical tape for Enterprise PL/I

Figure 1. Basic Material: Program Tape for Enterprise PL/I

Medium	Feature Number	Physical Volume	External Label	VOLSER
3480 tape	5832	1 of 1	Enterprise PL/I	270380

Figure 2 describes the physical tape for the Japanese Language Feature

Figure 2. Basic Material: Program Tape - Japanese Language

Medium	Feature Number	Physical Volume	External Label	VOLSER
3480 tape	5822	1 of 1	Enterprise PL/I	270380

Figure 3 on page 4 describes the program file content for Enterprise PL/I. You can refer to the *CBPDO Memo To Users Extension* to see where the files reside on the tape.

Notes:

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1. The data set attributes in this table should be used in the JCL of jobs reading the data sets, but since the data sets are in IEBCOPY unloaded format, their actual attributes may be different.
2. If any RELFILEs are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Figure 3. Program File Content

Name	ORG	RECFM	LRECL	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.H270380.F1	PDS	FB	80	8800
IBM.H270380.F2	PDSE	U	0	6144
IBM.J270381.F1	PDS	VB	255	27998

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for Enterprise PL/I.

2.3 Program Publications

The following sections identify the basic and optional publications for Enterprise PL/I.

2.3.1 Basic Program Publications

Figure 4 identifies the basic unlicensed program publications for Enterprise PL/I. One copy of each of these publications is included when you order the basic materials for Enterprise PL/I. For additional copies, contact your IBM representative.

Figure 4. Basic Material: Unlicensed Publications

Publication Title	Form Number
Enterprise PL/I for z/OS License Information	GC27-1455

2.3.2 Optional Program Publications

Figure 5 identifies the optional unlicensed program publications for Enterprise PL/I. These publications are available free of charge in displayable softcopy format (BookManager and PDF) from the Enterprise PL/I Web site at http://www.ibm.com/software/awdtools/pli/plizos/

Figure 5. Optional Material: Unlicensed Publications	
Publication Title	**Form Number**
Programming Guide	SC27-1457
Migration Guide	GC27-1458
Language Reference	SC27-1460
Messages and Codes	SC27-1461
Data Sheet	G224-7284

2.4 Program Source Materials

No program source materials or viewable program listings are provided for Enterprise PL/I.

2.5 Publications Useful During Installation

The publications listed in Figure 6 may be useful during the installation of Enterprise PL/I. To order copies, contact your IBM representative or visit the IBM Publications Center on the World Wide Web at: http://www.ibm.com/shop/publications/order

Figure 6. Publications Useful During Installation	
Publication Title	**Form Number**
IBM SMP/E for z/OS User's Guide	SA22-7773
IBM SMP/E for z/OS Commands	SA22-7771
IBM SMP/E for z/OS Reference	SA22-7772
IBM SMP/E for z/OS Messages, Codes, and Diagnosis	GA22-7770

3.0 Program Support

This section describes the IBM support available for Enterprise PL/I.

3.1 Program Services

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

3.2 Preventive Service Planning

Before installing Enterprise PL/I, it is VERY IMPORTANT that you review 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 this package's installation. This includes software PSP information that contains HIPER, and/or required PTFs against the base release.

While there can be overlap between software, hardware, and functional PSP buckets, reviewing all that apply to this package will ensure that you identify any known service required for your installation of this package.

If you obtained Enterprise PL/I as part of a CBPDO, there is HOLDDATA included on the PDO.

If the CBPDO for Enterprise PL/I is more than two weeks old when you install it, you should contact the IBM Support Center, use S/390 SoftwareXcel to obtain the current "PSP Bucket" or obtain the current PSP from the Web at https://techsupport.services.ibm.com/server/390.psp390

For program support, access the Software Support Web site at http://www-3.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 Enterprise PL/I are:

Figure 7. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
PLIENT380	H270380	Enterprise PL/I Base
	J270381	Enterprise PL/I HFS

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3.3 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. If an APAR is required, the Support Center will advise how you should submit any needed information or documentation.

Figure 8 on page 7 identifies the component IDs (COMPID) for Enterprise PL/I.

Figure 8. Component IDs

FMID	COMPID	Component Name	RETAIN Release
H270380	5655H3100	Enterprise PL/I Base	380
J270381	5655H3100	Enterprise PL/I HFS	381

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of Enterprise PL/I. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs incorporated into the program.

4.1 Program Level Information

The following APAR fixes against previous releases of Enterprise PL/I have been incorporated into this release. They are listed by FMID.

- FMID H270370

PK53866	PK58853	PK64745	PK67679
PK54572	PK59018	PK64865	PK67885
PK55785	PK59232	PK65157	PK68056
PK56031	PK59459	PK65260	PK69058
PK56071	PK59677	PK65462	PK69215
PK56451	PK60050	PK65578	PK69469
PK56785	PK61237	PK65650	PK69763
PK57161	PK61322	PK65779	PK69850
PK57390	PK61985	PK66508	PK70255
PK57473	PK62553	PK66579	PK70469
PK58130	PK62725	PK66664	PK70546
PK58213	PK62908	PK66992	PK70606
PK58341	PK63734	PK66996	PK70609
PK58437	PK63815	PK67157	PK70659
PK58748	PK63843	PK67348	PK71973
PK58750	PK64049	PK67456	PK72221
PK58796	PK64333		

4.2 Service Level Information

No PTFs against this release of Enterprise PL/I have been incorporated into the product tape.

Over time it is HIGHLY recommended that you frequently check the Enterprise PL/I PSP bucket for HIPER and SPECIAL Attention PTFs against all FMIDs which should be installed.

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5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating Enterprise PL/I. The following terminology is used:

- *Driving system*: the system used to install the program.

  The program may have specific operating system or product level requirements for utilizing processes such as binder or assembly utilities during the install.

- *Target system*: the system on which the program is intended to run.

  The program may have specific product level requirements such as needing access to another product's library for link-edits that may directly affect the elements during the install or for its basic or enhanced operation. These requirements may be mandatory or optional.

In many cases, the same system can be used as both a driving system and a target system. However, you may want to set up a clone of your system to use as a target system by making a separate IPL-able copy of the running system. The clone should 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.

Some cases where two systems should be used include the following:

- When installing a new level of a product that is already installed, the new product will delete the old one. By installing onto a separate target system, you can test the new product while still keeping the old one in production.
- When installing a product that shares libraries or load modules with other products, the installation can disrupt the other products. Installing onto a test system or clone will allow you to 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 Enterprise PL/I.

5.1.1 Machine Requirements

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

5.1.2 Programming Requirements

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Figure 9. Driving System Software Requirements	
Program Number	**Product Name and Minimum VRM/Service Level**
Any **one** of the following:	
5694-A01	z/OS V1.8.0 or later
5655-G44	SMP/E for z/OS V3.4.0 or later

Enterprise PL/I is installed into a file system, either HFS or zFS. Before installing Enterprise PL/I, you must ensure that the target system HFS or zFS data sets are available for processing on the driving system. OMVS must be active on the driving system and the target system HFS or zFS data sets must be mounted on the driving system.

If you plan to install Enterprise PL/I in a zFS file system, this requires that zFS be active on the driving system. Information on activating and using zFS can be found in z/OS Distributed File Service zSeries File System Administration, SC24-5989.

5.2 Target System Requirements

This section describes the environment of the target system required to install and use Enterprise PL/I.

Enterprise PL/I installs in the z/OS (Z038) SREL.

5.2.1 Machine Requirements

IBM Enterprise PL/I for z/OS V3.8 will run only on the following (and follow-on) hardware models:

- 9672-xx6 (G5)
- 9672-xx7 (G6)

5.2.2 Programming Requirements

5.2.2.1 Installation Requisites: An installation requisite is defined as a product that is required and **must** be present or one that is not required but **should** be present on the system for the successful installation of this product.

A mandatory installation requisite identifies products that are required, without exception, or this product **will not install** on your system. This includes products specified as PREs or REQs.

Enterprise PL/I has no mandatory installation requisites.

A conditional installation requisite identifies products that are **not** required for successful install but may resolve such things as certain warning messages at installation time. They include products that are specified as IF REQs.

Enterprise PL/I has no conditional installation requisites.

5.2.2.2 Operational Requisites: An operational requisite is defined as a product that is required and **must** be present or a product that is not required but **should** be present on the system in order for this product to operate all or some of its functions.

A mandatory operational requisite identifies products that are required, without exception, or this product **will not operate** its basic function unless the requisite is met. This includes products specified as PREs or REQs.

Enterprise PL/I has no mandatory operational requisites.

A conditional operational requisite identifies products that are **not required** for the basic function but are needed at run time for this product to utilize specific functions. They may include products specified as IF REQs.

Figure 10 (Page 1 of 2). Conditional Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level	Function
5655-G53	Enterprise COBOL for z/OS and OS/390 V3	Interlanguage communication with COBOL
5696-234	High Level Assembler for MVS & VM & VSE	Interlanguage communication with assembler
5688-235	PL/I for MVS & VM V1.1.1	Interlanguage communication with PL/I
5668-909, 5668-910, 5668-911	OS PL/I V2.3	PL/I source programs (for interlanguage communication)
5668-806, 5688-087	VS Fortran V2.1.0	Interlanguage communication with Fortran
Any **one** of the following:		
5655-147	CICS Transaction Server for OS/390, V1	CICS applications
5697-E93	CICS Transaction Server for z/OS, V2	CICS applications
5655-M15	CICS Transaction Server for z/OS, V3	CICS applications
Any **one** of the following:		
5688-197	COBOL for MVS & VM V1.2.0	Interlanguage communication with COBOL
5648-A25	COBOL for OS/390 & VM V2.1.0	Interlanguage communication with COBOL

Figure 10 (Page 2 of 2). Conditional Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level	Function
Any **one** of the following:		
5675-DB2	DB2 Universal Database for z/OS and OS/390, V7	DB2 integrated coprocessor
5625-DB2	DB2 Universal Database for z/OS, V8	DB2 integrated coprocessor
5635-DB2	DB2 Universal Database for z/OS, V9	DB2 integrated coprocessor
Any **one** of the following:		
5655-M18	Debug Tool for z/OS V5.1.0	Application debugging support
5655-P14	Debug Tool for z/OS V6.1.0	Application debugging support
5655-R44	Debug Tool for z/OS V7.1.0	Application debugging support
5655-S17	Debug Tool for z/OS V8.1.0	Application debugging support
Any **one** of the following:		
5655-M19	Debug Tool Utilities and Advanced Functions for z/OS V5.1.0	Advanced application debugging support
5655-P15	Debug Tool Utilities and Advanced Functions for z/OS V6.1.0	Advanced application debugging support
5655-R45	Debug Tool Utilities and Advanced Functions for z/OS V7.1.0	Advanced application debugging support
5655-S16	Debug Tool Utilities and Advanced Functions for z/OS V8.1.0	Advanced application debugging support
Any **one** of the following:		
5655-B01	IMS V7	IMS applications
5655-C56	IMS V8	IMS applications
5655-J38	IMS V9	IMS applications
5635-A01	IMS V10	IMS applications
Any **one** of the following:		
5694-A01	DFSORT element of z/OS	Sort support
5647-A01	DFSORT element of OS/390	Sort support

5.2.2.3 Toleration/Coexistence Requisites:

A toleration/coexistence requisite is defined as a product that must be present on a sharing system. 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 at different time intervals.

Enterprise PL/I has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites:

A negative requisite identifies products that must *not* be installed on the same system as this product.

Enterprise PL/I has no negative requisites.

5.2.3 DASD Storage Requirements

Enterprise PL/I libraries can reside on all supported DASD types. The values below are for 3390 DASD.

Figure 11 lists the total space required for each type of library.

Figure 11. Total DASD Space Required by Enterprise PL/I

Library Type	Total Space Required in 3390 Trks
Target	1268 Tracks
Distribution	1298 Tracks
HFS	15 Tracks

Notes:

1. IBM recommends use of system determined block sizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32760, which is the most efficient from a performance and DASD utilization perspective.
2. Abbreviations used for the data set type are:

   U Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or Program Directories) need to be referenced for the data set size.

   S Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other Program Directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.

   E Existing shared data set, used by this product and others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This existing data set must have enough free space to accommodate the storage size given in this table.

   If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old one and reclaim the space used by the old release and any service that had been installed. You can determine whether or not these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

For more information on the names and sizes of the required data sets, please refer to 6.1.7, “Allocate SMP/E Target and Distribution Libraries” on page 20.

3. Abbreviations used for the HFS or zFS Path type are:

   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, except SIBMZCMP and AIBMZMOD, which must be PDSEs.

5. All target libraries listed have the following attributes:

   - The data set may be SMS-managed.
   - It is not required for the data set to be SMS-managed.
   - It is not required for the data set to reside on the IPL volume.
   - The values in the "Member Type" column are not necessarily the actual SMP/E element types identified in the SMPMCS.

6. All target libraries listed which contain load modules have the following attributes:

   - The data set can be placed in the LPA.
   - It is not required for the data set to be in the LPA.
   - The data set can be placed in the LNKLST.
   - It is not required for the data set to be APF-authorized.

7. Enterprise PL/I requires that the SMPLTS data set must be a PDSE. If your existing SMPLTS is a PDS, you will need to allocate a new PDSE and copy you existing SMPLTS into it and then change the SMPLTS DDDEF entry to indicate the new PDSE data set.

The following figures describe the target and distribution libraries and HFS or zFS paths required to install Enterprise PL/I. The storage requirements of Enterprise PL/I must be added to the storage required by other programs having data in the same library or path.

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 12. Storage Requirements for Enterprise PL/I Target Libraries

Library DDNAME	Member Type	Target Volume	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
SIBMZCMP	LMOD	ANY	U	PDSE	U	0	1251	n/a
SIBMZPRC	PROC	ANY	U	PDS	FB	80	6	5
SIBMZSAM	SAMP	ANY	U	PDS	FB	80	11	5

Figure 13. Enterprise PL/I HFS or zFS Paths

DDNAME	TYPE	Path Name
SIBMZHFS	X	/usr/lpp/pli/IBM/

Figure 14. Storage Requirements for Enterprise PL/I Distribution Libraries

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
AIBMZHFS	U	PDS	VB	255	30	5
AIBMZMOD	U	PDSE	U	0	1251	n/a
AIBMZSRC	U	PDS	FB	80	17	5

5.3 FMIDs Deleted

Installing Enterprise PL/I may result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS.

If you do not wish to delete these FMIDs at this time, you must install Enterprise PL/I into separate SMP/E target and distribution zones.

Note: These FMIDs will not automatically be deleted from the Global Zone. Consult the SMP/E manuals for instructions on how to do this.

5.4 Special Considerations

Enterprise PL/I has no special considerations for the target system.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of Enterprise PL/I.

Please note the following:

- If you want to install Enterprise PL/I 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.
- Sample jobs have been provided to help perform some or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries required for SMP/E execution have been defined in the appropriate zones.
- The SMP/E dialogs may be used instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing Enterprise PL/I

6.1.1 SMP/E Considerations for Installing Enterprise PL/I

This release of Enterprise PL/I is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 15. Use of values lower than these may result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

Figure 15. SMP/E Options Subentry Values

SUB-ENTRY	Value	Comment
DSSPACE	(300,150,250)	Space allocation for SMPTLIB data sets (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 Enterprise PL/I:

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Figure 16. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
IBMZWEDT	MACRO	ISPF Editor macro to aid users in making changes to the sample jobs **(optional)**	IBM.H270380.F1
IBMZWSMP	SMP/E	Sample job to define and prime a new SMP/E CSI **(optional)**	IBM.H270380.F1
IBMZWRCV	RECEIVE	Sample RECEIVE job for Enterprise PL/I	IBM.H270380.F1
IBMZWALO	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.H270380.F1
IBMISMKD	MKDIR	Sample job to invoke the supplied IBMMKDIR EXEC to allocate HFS paths	IBM.H270380.F1
IBMZWDDF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.H270380.F1
IBMZWAPL	APPLY	Sample APPLY job	IBM.H270380.F1
IBMZWIVP	IVP	Sample job to verify installation has been successful	IBM.H270380.F1
IBMZWIOP	IOP	Sample job to change default compiler options **(optional)**	IBM.H270380.F1
IBMZWACP	ACCEPT	Sample ACCEPT job	IBM.H270380.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 16 on page 17 to find the appropriate relfile data set.

You may also choose to copy the jobs from the tape or product files by submitting the job below. Use either the //TAPEIN or the //FILEIN DD statement, depending on your distribution medium, and comment out or delete the other statement. Add a job card and change the lowercase parameters to uppercase values to meet your site's requirements before submitting.

```
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN   DD DSN=IBM.H270380.F1,UNIT=tunit,
//         VOL=SER=volser,LABEL=(x,SL),
//         DISP=(OLD,KEEP)
//FILEIN   DD DSN=IBM.H270380.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,(10,2,5))
//SYSUT3   DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN    DD *
    COPY INDD=xxxxIN,OUTDD=OUT
  SELECT MEMBER=(IBMZWSMP,IBMZWRCV,IBMZWEDT)
  SELECT MEMBER=(IBMZWALO,IBMZWDDF,IBMZWACP)
```

```
  SELECT MEMBER=(IBMISMKD,IBMZWAPL,IBMZWIVP)
  SELECT MEMBER=(IBMZWIOP)
/*
```

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

If using TAPEIN:

tunit is the unit value matching the product tape.
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.H270380.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 Set up ISPF Editor Macro (Optional)

To aid you in making changes to the SMP/E installation jobs (IBMISMKD, IBMZWACP, IBMZWALO, IBMZWAPL, IBMZWDDF, IBMZWIOP, IBMZWIVP, IBMZWRECV and IBMZWSMP), an ISPF editor macro called IBMZWEDT, is supplied, which is copied to your output data set **jcl-library-name** above. (See Figure 16 on page 17).

This macro lets you substitute proper values for all of the required variables in those jobs instead of having you make the changes repeatedly by hand.

Edit macro IBMZWEDT and provide the proper values. After making the changes, either copy IBMZWEDT to any data set in your TSO logon procedure SYSEXEC concatenation, or issue the commands below to make IBMZWEDT immediately accessible to your current ISPF session:

```
From ISPF option 6, issue:

ALLOCATE FI(SYSUEXEC) DA('jcl-library-name') SHR REU
ALTLIB ACTIVATE USER(EXEC)

Then edit your installation jobs from this ISPF session.
```

Consult the instructions in the macro for more information.

6.1.5 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 IBMZWSMP to allocate the SMP/E data set for Enterprise PL/I.

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

Having obtained Enterprise PL/I as part of a CBPDO, use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the Enterprise PL/I FMIDs as well as any service, HOLDDATA, included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

You can also choose to edit and submit sample job IBMZWRCV to perform the SMP/E RECEIVE for Enterprise PL/I. 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 IBMZWALO to allocate the SMP/E target and distribution libraries for Enterprise PL/I. 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 HFS or zFS Paths

The target system HFS or zFS data set must be mounted on the driving system when running the sample IBMISMKD job since the job will create paths in the HFS or zFS.

Before running the sample job to create the paths in the file system, you must ensure that OMVS is active on the driving system, and that the target system's HFS or zFS file system is mounted to the driving system. zFS must be active on the driving system if you are installing Enterprise PL/I into a file system that is zFS.

If you plan to install Enterprise PL/I into a new HFS or zFS file system, you must create the mountpoint and mount the new file system to the driving system. For Enterprise PL/I, the recommended mountpoint is: /usr/lpp/pli/

Edit and submit sample job IBMISMKD to allocate the HFS or zFS paths for Enterprise PL/I. Consult the instructions in the sample job for more information.

If you create a new HFS or zFS for this product, you should consider updating the BPXPRMxx PARMLIB member to mount the new file system at IPL time. This may be helpful if an IPL occurs before the installation is complete.

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 IBMZWDDF to create DDDEF entries for the SMP/E target and distribution libraries for Enterprise PL/I. 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 you have the latest Enhanced HOLDDATA, then edit and submit sample job IBMZWAPL to perform an SMP/E APPLY CHECK for Enterprise PL/I. Consult the instructions in the sample job for more information.

   Enhanced HOLDDATA introduces ERROR HOLDs against FMIDs for HIPER APARs. Prior to installing, you should ensure you have the latest Enhanced HOLDDATA (available at url http://service.software.ibm.com/holdata/390holddata.html). The FMID(s) should be installed regardless of the status of unresolved HIPERs, however, the software should not be deployed until the unresolved HIPERs have been analyzed to determine applicability.

   To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the following on the APPLY CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

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

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

      ```
      APPLY S(fmid,fmid,...)
      FORFMID(fmid,fmid,...)
      SOURCEID(PRP,HIPER,RSU*,...)
      GROUPEXTEND .
      ```

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

   b. To install the FMID(s) as it would have been installed prior to Enhanced HOLDDATA, you can add a BYPASS(HOLDCLASS(HIPER)) operand to the APPLY command. This will allow the FMID to be installed even though there are HIPER ERROR HOLDs against it. Note that not all ERROR

HOLDs were bypassed, only the HIPER ERROR HOLDs. After the FMID(s) are installed, the SMP/E REPORT ERRSYSMODS command should be run to identify any missing HIPER maintenance.

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

2. After you have taken any actions 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 apply 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 Run the Installation Verification Program

Edit and submit sample job IBMZWIVP to verify that you have installed Enterprise PL/I correctly. Consult the instructions in the sample job for more information.

Consult the instructions in the sample job for the expected output from the GO step.

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

6.1.12 Change the defaults for the compiler options (Optional)

If you want to change the supplied default compiler options, then edit and submit sample job IBMZWIOP. This job will let you specify options that will be applied before any other options, thus effectively changing the default options. This job will also let you specify options that will be applied after all other options, thus effectively changing the default options and preventing them from being overridden. Consult the instructions in the sample job for more information.

6.1.13 Perform SMP/E ACCEPT

Edit and submit sample job IBMZWACP to perform an SMP/E ACCEPT CHECK for Enterprise PL/I. 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 following on the ACCEPT CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

Before using SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. This will cause entries produced from JCLIN to be saved in the distribution zone whenever a SYSMOD containing inline JCLIN is ACCEPTed. For more information on the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E manuals.

Once you have taken any actions 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 accept 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 containing replacement modules are being ACCEPTed, SMP/E ACCEPT processing will link-edit/bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder may issue messages documenting unresolved external references, resulting in a return code of 4 from the ACCEPT step. These messages can be ignored, because the distribution libraries are not executable and the unresolved external references will 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.

6.1.14 Run REPORT CROSSZONE

The SMP/E REPORT CROSSZONE command will identify requisites defined for products that have been installed in separate zones. This command will also create APPLY and ACCEPT commands in the SMPPUNCH data set that you can use to install those cross-zone requisites it identifies.

After you have installed Enterprise PL/I, 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 describing all the target and distribution libraries to be reported on.

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

6.2 Activating Enterprise PL/I

6.2.1 HFS or zFS Execution

If you choose to have the HFS or zFS in which you have installed Enterprise PL/I mounted in read-only mode during execution, then no further tasks are required to accomplish this.

Enterprise PL/I is fully operational once the SMP/E installation is complete. No further customization is required to activate this function.

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Reader's Comments

Program Directory for IBM Enterprise PL/I for z/OS, October 2008

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RATING SCALE

```
  very                                very          not
satisfied  <====================>  dissatisfied  applicable
    1        2        3        4        5            N
```

	Satisfaction					
Ease of product installation	1	2	3	4	5	N
Contents of Program Directory	1	2	3	4	5	N
Installation Verification Programs	1	2	3	4	5	N
Time to install the product	1	2	3	4	5	N
Readability and organization of Program Directory tasks	1	2	3	4	5	N
Necessity of all installation tasks	1	2	3	4	5	N
Accuracy of the definition of the installation tasks	1	2	3	4	5	N
Technical level of the installation tasks	1	2	3	4	5	N
Ease of getting the system into production after installation	1	2	3	4	5	N

How did you order this product?

___ CBPDO
___ CustomPac
___ ServerPac
___ Independent
___ Other

Is this the first time your organization has installed this product?

___ Yes
___ No

Were the people who did the installation experienced with the installation of z/OS products?

___ Yes

__ No

If yes, how many years? __

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

_____
_____
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